SELECT

ORCHIDACEOUS PLANTS.

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BY

ROBERT WARNER, F.R.H.S.

THE BOOK IS CLOSED BY

BENJAMIN S. WILLIAMS.

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HER MOST GRACIOUS MAJESTY

QUEEN VICTORIA,

BY HER MAJESTY'S

LOYAL AND MOST OBEDIENT SERVANT

ROBERT WARNER

INTRODUCTION.

When Orchids were less numerous in our Hot-houses and less known than they are at the present day, the magnificent works of Bateman and Lindley were the means of diffusing information concerning them among those who could command such costly luxuries. Then, and long after them, the taste was rather in the direction of making extended collections of these plants, irrespective of their merits as ornamental objects; but now, that the store of materials is so much more richly furnished, it has become almost a necessity to limit the number to be accommodated, and thence it follows as a natural consequence that those only are selected which are the most highly prized for their beauty. Every year, too, is adding not only new and beautiful varieties of the more ornamental of the species already known, but also new ones which outvie the most lovely of those of the older time. Among the novel varieties thus obtained are comprised many which, though real gems for the Orchid-house, are rather ignored by those who look at the subject from a purely scientific point of view, and which, as they get passed over in books, are in some danger of remaining unknown to growers generally.

The present publication is designed to present the lovers of Orchids with portraits of such of the most beautiful and recent acquisitions among the cultivated forms of this remarkable race of plants as those just alluded to. In carrying out this design, we shall not regard it as important whether the plant we figure be what is called a species, or what is designated a variety. Though conforming [illegible] validity to the botanical standard of nomenclature, we shall look upon a fine variety of any popular genus of the Orchidaceous race as being at least equally interesting to cultivators as the varieties of [illegible] or Fuchsias, which find ready illustration in our garden literature, and as being also in every way worthy of representation, on a scale and in a style befitting its rank among exotic flowers.

The family of the Orchidaceæ, it must be remembered, has long enjoyed a large share of the favour of those who are devoted to the culture of tropical plants, which favour has, no doubt, been won and held by them in consequence of the gorgeous character of their remarkably formed and for the most part exquisitely coloured flowers. We say they have not only won the [illegible] few, but that they hold also a high place in the estimation of the many. If proof be [illegible] and floral exhibitions. There they still command, as ever, the highest admiration.

Notwithstanding all this, no recent publication has appeared in this country, the very foremost as regards the introduction and successful cultivation of the plants themselves, illustrating, on a scale [illegible] with their natural grandeur, the [illegible] novelties which are being [illegible] year after year. Though new species and new varieties have been imported to a large extent, though connoisseurs and cultivators have increased in numbers, and though [illegible] skill, together with [illegible] appliances, have been brought to bear on their cultivation, yet no attempt has been made to illustrate these acquisitions, except in the limited pages of the monthly magazines. Those only who have any acquaintance with the noble aspect of the plants in a growing state, can fully appreciate the sacrifice [illegible] which is made to bring many of the subjects within the compass even of a quarto.

It is to supply this deficiency in garden literature that the present series of Figures and Descriptions of Select Orchidaceous Plants has been commenced. The publication has been projected as a labour of [illegible] not of profit; but being costly in its production, the extent to which it may be carried beyond the

present volume will depend in great measure upon the patronage extended towards it. We look to those especially who feel interested in the growth of these choice and noble exotics to second our efforts to diffuse still wider a taste for their cultivation, which they may do, not only by supporting, but also by recommending the work. It is even now a source of gratulation to know that new cultivators spring up to take the place of those who pass from amongst us, or who relinquish the pursuit, and we look forward with hope that our present labours may have some influence in still further increasing the number.

Although we believe that Orchids have never yet been grown so well as they will be when houses more suitable than those in common use have been erected specially for their culture, and when the time has arrived that will bring us extensive importations of the rarer species at such prices as to enable amateurs to try experiments upon them, yet it may be some encouragement to persons of limited means to know that we have ourselves grown and flowered stronger and finer plants than we have elsewhere seen of *Lycaste Skinneri* and *Odontoglossum grande*, under the shade of thinly-trained grape-vines; notwithstanding that, the value of the grapes in every two years has been fully equal to the whole cost of the house. Many of the finest Orchids are also the cheapest, and least expensive to cultivate. Thus, for example, we have now blooms of about two hundred plants of *Cattleya Mossiæ*, each flower measuring from seven to nine inches across, and altogether producing a far finer effect than the same number of any other flowers. Many of the plants producing these flowers have been obtained when small at from 5s. to 10s. each; and, along with many other Orchids, they have been grown in a house 30 feet long by 21 feet wide, the whole cost of which has not exceeded £60.

It is intended that our illustrations shall present not only accurate but highly-finished portraits of the most interesting of the species and varieties of the Orchid family, especially those of recent introduction, and these portraits will be accompanied by ample information as to the details of cultivation, which being derived entirely from practical sources may be implicitly relied on.

Such was the announcement and such were the promises, accompanied by which the First Part of our Select Orchidaceous Plants was, in June, 1862, laid before our subscribers; and now, at the close of our First Series of Illustrations, we trust we may with confidence refer to the work itself as evidence of their fulfilment. Our Figures (thanks to our artists) have been both accurate and highly-finished portraits of interesting Orchids, and the information conveyed in the text has been both reliable and practical. Some objections have been urged against the practice of using a binominal nomenclature for varieties, but in cases where we have done so, it has been for the convenience of Orchid-lovers, and we have not hesitated to indicate at the same time to the best of our power the affinities of the plants, leaving the pure botanist to deal with them as he might think fit. We fail to see any reason why fine varieties of Orchids should not bear such distinctive names as will permit of their recognition as garden plants, equally with Roses, Tulips, or any other pot flowers.

The success of the present series, shown by the number of subscribers, has far exceeded our expectations, and many have intimated their desire that the Work should be continued. We have therefore to announce that we are prepared to issue a Second Series of Forty Plates in the same style as those of this First Series. All the sketches are made, and fully maintain the credit of the artist. A prospectus will be issued.

ROBERT WARNER.

[illegible], LONDON.
[illegible]

N.B.—The bound [illegible] of this [illegible] Parts of the Second Series will be published [illegible]

CONTENTS.

PLATE 1.

PHALÆNOPSIS SCHILLERIANA.

An epiphyte, with radical [illegible] tufts of elongate-oblong [illegible] leaves, purplish beneath, and blotched on the upper surface with silvery grey. The flowers are numerous, on long arching and branching spikes which issue from the leaf axils; they measure about three inches across, and are of a delicate lilac-rose or pale pinkish mauve; the basal lobes of the lip being marked with yellow, and spotted over with deep red. [illegible] dorsal sepal is oblong, obtuse; the lateral ones ovate. The petals are roundish obovate and much larger. The lip has two lateral oblong incurved lobes, and an intermediate one which is oval, dilated, and toothed at the apex; the lobes being recurved and falcate; it has also a twin wart-formed crest towards the base.

PHALÆNOPSIS SCHILLERIANA, *Reichenbach fil. Hamburg. Gartenzeit.* 1860, [illegible]; *Id. Xenia Orch.* ii. [illegible] *[illegible]* [illegible] 1[illegible].

This magnificent addition to our collections of Orchidaceous Plants has been introduced to this country by ourselves during the past year from Manilla, and has proved to be one of the finest of the whole race. Several plants have blossomed during the spring of the present year, and divers of them have shown considerable difference in the colour as well as in the size and shape of their flowers, though all have been fine and ornamental in character. The plant has indeed already sufficiently shown its free-growing and free-blooming habit, three vigorous specimens having been flowered by J. Day, Esq., of Tottenham, and others by R. [illegible], Esq., of [illegible], by J. A. Turner, Esq., of Manchester, by ourselves, and by other growers; all these having been imported since April, 1861. It has, in fact, every good quality which can be looked for in such a plant, and we have no hesitation in asserting that it will prove to be one of the most attractive Orchids in cultivation. Not only are the leaves handsomely variegated, but the flowers are [illegible] and fragrant, as well as distinct from all others, and they continue in beauty for a long period. It is, moreover, a capital exhibition plant, as is proved by its having travelled without injury to Belgium, as well as to one of the spring meetings of the Royal Horticultural Society at South Kensington, at which latter place we exhibited in bloom the first example which flowered in England. This [illegible] [illegible] perfect [illegible] on the scape at one time, and they all continued in good condition more than eight weeks, a quality which will make it a more useful plant for exhibiting than even the older species.

This *Phalænopsis* is of compact growth, and attaches itself by means of the roots, which have a white frosted appearance. It bears remarkably handsome variegated foliage, which, as shown by the imported specimens, sometimes reaches from twelve to fifteen inches in length, and three to four inches in breadth. These leaves are similar in form and size to those of *Phalænopsis grandiflora*, of a dark-green colour, and marked with irregular transverse bands [illegible] of [illegible]. The flower-spikes are produced from the axils of the leaves, and [illegible] the other kinds. Mr. Williams has a dried specimen which has borne more than a hundred blossoms. In the plant now before us, the flowers are three inches across, and arranged in two rows along the spike; the sepals and petals of a beautiful light pinkish mauve, passing almost to white at the edge, and the lip of the same colour with darker purple spots, yellow towards the base, and there spotted with reddish brown.

The accompanying illustration was taken from a plant which bloomed with Mr. Williams, at the Paradise Nursery, Holloway.

The plants require the heat of the East-India House, with a good supply of water during the growing season. In Manilla they are found growing [illegible]

[illegible] naturally ought to be suspended as nearly as possible. [illegible] seldom get out of health. [illegible] pots to support [illegible] to grow to perfection. This must be afforded by supplying them freely with moisture at the root during the growing season; in fact, they should never be allowed to get dry for [illegible] and then often become disfigured by losing their lower leaves. The beauty of the plant consists as much in having perfect healthy foliage, as in producing good flowers.

The growing season extends from March to the end of October, [illegible] be kept so as to range from 65° to 75°, or it may be allowed to rise to 80° or more by sun-heat, provided the house is damped down at the same time. The night temperature should range from 60° to 70° during March and April, afterwards it may be allowed to rise a few degrees higher. During the resting season, from the end of October to February, the temperature should range from 60° to 65° by night, and about 65° or a little more by day. When these data are exceeded, it is desirable to admit a little fresh air, and this should be admitted close to the hot-water pipes, so that it may be warmed as it enters the house. Very little water should be thrown about on fine days, but this should always be done in the morning, so that the house may be dry again by evening.

These plants are grown in different ways, some persons placing them on blocks, some in pots, and some in baskets. We find them to succeed well under each of these modes of treatment, but they require more moisture to be applied to the roots when grown on blocks, and if they are grown in pots, they must have more drainage than when put in baskets. The best plan of drowning is to turn a smaller pot upside down in the bottom of that intended for the plant, and then fill in around this to within about two inches of the rim, with potsherds, broken and pieces of about two inches square. Above this the pot may be filled up with sphagnum moss, mixed with a few small potsherds, the plant being so placed as to have its surface three inches above the rim, it must also be kept well above the moss. The success or failure of these plants, as well as of all other Orchids, depends upon good drainage. When grown on blocks, they should be placed on a good-sized one, so that there may be surface enough for the roots to cling to. In fixing them first put a little live sphagnum moss against the block, and then tie the plant to it with copper wire. The blocks should be hung up to the roof of the house, and should not be placed too near the glass, lest they may not be affected by the cold, this should be guarded against, especially during the winter at which season Orchids frequently sustain injury in this way.

If the plants should get into an unhealthy condition, the best course is to turn them out of the pots or baskets in which they are growing, to shake the material off the roots, to wash them with clean water, cutting away all the decayed parts, and then to place them on blocks of wood, with a little sphagnum moss. They must have a good supply of moisture at the roots, and should be placed at the warmest end of the house, and where they will not receive too much light. With this treatment they will soon begin to root and improve in appearance. They must be kept perfectly clean from insects, especially thrips, which soon disfigures the foliage if it is allowed to increase. This troublesome pest is best kept under by frequently washing the leaves with a sponge and clean tepid water, or by fumigating the house with tobacco-smoke, which should be applied with great care.

The species of *Phalænopsis* are difficult to propagate. Sometimes they will produce young plants on the old flower-stems, such plants should be left on till they are well rooted, and should then be placed each on a small block. All the kinds occasionally produce plants in this way. Sometimes they throw out side-growths, which can be taken off when well rooted, and when the plants are large enough they may be divided in two, so that roots are attached to each portion. They are best increased when just beginning to grow, and the divided plant should not be allowed to flower until it is well established.

N.H Fitch del et lith

W.West imp

PLATE II

CATTLEYA AMETHYSTOGLOSSA

A [illegible] with [illegible] slender [illegible] stems, bearing each a pair of oblong lanceolate bright leaves, and from [illegible] flowered peduncle [illegible] equal [illegible] The [illegible] through [illegible] the whole of [illegible] the base [illegible]

C[illegible]

EPIDENDRUM AMETHYSTOGLOSSUM, Reichenbach [illegible] [illegible] Bot. [illegible]

Th[illegible] magnificent Orc[illegible] one of the finest [illegible] of the fine [illegible] of the late [illegible] Coventry, Esq. [illegible] est collection of Cattleyas [illegible] only one of the kind in the country [illegible] shown [illegible] and received a [illegible] of flowers [illegible] was take[n] [illegible] gives the more natural character of [illegible] this particular plant, but it is probably of Brazilian origin [illegible] now so rare. Further importations may soon be [illegible] of Cattleya which [illegible] finest [illegible]

Cattleya amethystoglossa reaches to the height of two and a half feet. In habit of growth it resembles *Cattleya guttata*, var. *Leopoldi*, producing numerous upright and comparatively slender stems each bearing at the top a pair of dark-green leaves, which measure eight or nine inches in length, and about two and a half inches in breadth. The flowers, which in some specimens we have seen have been more than [illegible] inches across, are produced after the plant has made its growth, as many as six being borne on [illegible]. The sepals and petals are of a light rosy tint, beautifully spotted over with [illegible] rose-purple, and the [illegible] of a deep rose-purple. It is a free-blooming kind, and from the fleshy nature of [the flowers] [illegible] longer in beauty than many others. The plant now in question continued in bloom for [illegible] The usual blooming season is May and June, but from some accidental cause our specimen blossomed [illegible] this year.

This *Cattleya* is of free growth, and requires to be cultivated in a pot [illegible] peat earth, and good drainage. The species are generally found growing on trees [or] rocks in rather moist shady places, though [illegible]

This should be given after flowering, the temperature being lowered [illegible] the [illegible] and withholding water from the roots [illegible] only as [illegible] to keep them [illegible]. Such is the kind of treatment [illegible] During [illegible] the temperature should range from [illegible] to 60° at night, while in the daytime it may be allowed to rise a few degrees higher [illegible] of sun-heat which will not harm the plants. During the growing season, which extends from March to the beginning of October, the temperature may be allowed to range from 60° to 65° by night and from 65° to 70° by day, and after which it may be allowed to rise still higher, from 65° to 75° by night and from 70° to 80° by day, with sun-heat. Even a few degrees beyond these limits will not be injurious, provided the plants are shaded. The house will require to be kept moist during the growing season by watering the pathways and walls morning and evening; but during the season of rest it should be kept comparatively dry, only a little water being [illegible] used about the tables and pathways of the house on [illegible] days, and even this should be applied in the morning so that it may become partially dry again before the evening. If too large or too constant a supply of moisture is kept up during the dull winter months the pseudobulbs or stems will be [illegible] to [illegible]. [illegible] any time require much water at the roots; even during their vigorous growth they should only have just sufficient to keep the soil moist. It must be remembered that for the most part these plants grow naturally with little or no covering to their roots except the moss or leaves that may accumulate about them. Of course when grown in pots they require less moisture than when grown on blocks of wood.

The *Cattleya amethystoglossa* will succeed with the same treatment, but it [illegible] is better suited for pots as it is a large-growing kind. The pot should, in potting, be filled half-full of potsherds, and over these a layer of moss to keep the drainage open; afterwards it should be filled up with rough fibrous peat, broken to about the size of a hen's egg, and on this the plant is to be placed so that it may be some inches above the pot rim. The plants must be firmly pegged down to the peat and the stems carefully fastened to a stick, in order to keep them steady, which will facilitate their rooting. The peat used for potting must be dry, and the finer parts should be taken away. When the peat is thus carefully selected and prepared, the plants do not so often require potting.

PLATE III

VANDA INSIGNIS

An epiphyte, with an erect stem throwing out stout fleshy roots, and bearing two ranks of light channelled strap-shaped leaves, which are unequally cut away at the tips. The flowers, which [illegible] [illegible] in length, they are two and a half inches in diameter. The sepals and petals are oblong, [illegible] blotched with brown. The lip is white, and marked with pink crimson streaks at the base, [illegible] [illegible] parts of [illegible] the base [illegible]

VANDA INSIGNIS, *Blume. Lindley in Paxton's Flower Garden, t. 42, with woodcut.*

This beautiful plant, which is a native of Java, and was imported to this country, some years ago, by Messrs. Rollisson, of Tooting, and Messrs. Veitch and Son, of Exeter, was first flowered, about ten years since, by J. Knowles, Esq., of Manchester, from whom the plant was purchased by W. Turner, Esq., of the same place. It is from this plant, the name of which has been certified by Dr Lindley, the highest authority on the subject, that our figure has been derived. There are several varieties of the species which have been flowered by different cultivators since that which we now figure first produced its flowers with Mr Knowles, but none are so fine as this, the original form. Moreover many plants grown for *Vanda insignis* have turned out to be *Vanda tricolor*, and hence, as the true kind is not very familiar to cultivators, the figure has been prepared, in order that so fine and beautiful a plant may not remain longer unknown amongst us for want of an accessible illustration.

Vanda insignis is a free-flowering plant, frequently producing two or three spikes of flowers at a time, opening several blossoms together, and often blooming three times in a year. In fact, when the plants are strong, they are seldom out of bloom. The flowers will continue in perfection for six weeks or more, if they are put in a cool house, and kept dry. The plant is of handsome growth, and possesses every good quality that such a plant can have, namely, a graceful habit, rich evergreen regularly-curved foliage, and showy sweet-scented flowers; besides which, it is of remarkably free growth, and not expensive. It attains from two to five feet in height, and is clothed with leaves which grow out on opposite sides all up the stem, and measure about eighteen inches in length. The fine drooping spikes are produced from the axils of the leaves, and each bear from eight to a dozen flowers. The sepals and petals are pale yellow, spotted with reddish brown, and the lip is pale rosy purple. As already stated, it blossoms at different periods of the year.

On account of its free-flowering handsome style of growth, and its long duration, it makes a fine exhibition plant, and is, moreover, a capital plant to travel when the flowers are properly packed. This should be done by placing a stick to each spike, the stick being covered with wadding interposed between it and the flowers, but so placed as not to interfere with the form of the blossoms. The smooth side of the wadding, moreover, is to be placed next the flowers, and the blossoms should always be made to hang downwards instead of standing upwards, as they travel much better in this position; indeed, if they are packed in an upright position, the labellum or lip of the flower is very apt to become broken.

In respect to treatment, *Vanda insignis* requires the heat of the "East India House," the plant being a native of Java, where the temperature is very high. It is found growing on the branches of trees in [illegible] places, and, in order to grow it to anything like perfection, the natural climate ought to be

imitated as nearly as possible. The plant is of easy culture if it gets proper treatment. It is to be remembered that it has no large pseudobulbs to support it, and therefore requires more moisture to keep in health by condition than do those plants which have such organs. It further requires but little rest, as it will continue to grow nearly all the year round. The only way to give it rest is to keep the moss in which it is planted *comparatively* dry, without letting the plants shrivel. They must never, indeed, be permitted to shrivel if it can be avoided, but sometimes they will do so when flowering, and if this should happen the best remedy is to pour a little water into the axils of the leaves every day, which will be the means of keeping them firm. If the shrivelling is allowed to take place, the plants often lose their lower leaves, which greatly disfigures them.

The growing season is from March to the end of October. During this time the temperature by day may should range from 65° to 75°, or may even rise higher by sun-heat as the days lengthen provided the house is shaded. A strong fire-heat, which is bad for any plant, is also to be carefully avoided. During the growing season, water must be poured over the paths and tables every morning and evening, and the house must be closed early in the afternoon. The season of rest is from October to March. At that time the night temperature may range from 60° to 65°, and the day temperature may average 65° or may rise a little higher with sun-heat. During this resting time very little moisture is required, but on fine days water may be poured over the paths, and the moss may be just kept moist, to allow the plants to go on growing gently—for they will continue growing a little all through the winter. A little fresh air should be given on fine days, admitting it over the hot-water pipes, so that it may get warmed as soon as it enters the house; cold draughts should however be carefully avoided, for they are injurious.

This plant will grow either in a pot or basket, in sphagnum moss and broken potsherds mixed together. If potted, the pot must be filled half full of drainage, and be filled up with moss, and the plant must be placed about two inches above the level of the rim. It should have a stick put to it to keep it firm. If grown in a basket, some moss should first be placed round the inside, and then some potsherds, and the remainder should be filled up with moss, and the plant placed firmly on the top, and tied to a stick to give it support. The basket is then to be suspended from the roof, but should not be placed too near the glass, or the plant may become affected by the cold.

These Vandas will also do on blocks of wood, but when planted in this way they require more attention as regards watering or moistening the roots. They will ultimately become too large for block-culture, but small plants are the better for being grown on blocks for a time.

PLATE IV

CATTLEYA WARSCEWICZII DELICATA

An epiphyte with clubshaped stems, bearing each a single oblong leathery leaf, and terminating in a flat [illegible] or sheath, from which emerges the scape, which supports two or three large handsome flowers, remarkable for their finely coloured lip. The sepals are lance-shaped, nearly white. The petals are [illegible] very broad, and [illegible] undulated and somewhat frilled at the edge. The lip is large, of a [illegible] rose-colour, and marked [illegible] with a large conspicuous orange-coloured blotch.

CATTLEYA WARSCEWICZII var. DELICATA, [illegible] 1[illegible]

This plant is without doubt one of the finest Orchids which have been introduced for the winter decoration of our stoves. It will be found all the more valuable on account of the distinctness of its charming [illegible] flowers from any others of the Cattleyas which flower at that dull season of the year. It was exhibited in very fine condition in February last at one of the meetings of the Floral Committee of the Royal Horticultural Society, at South Kensington, by Mr. Milford, gardener to R. J. Morand, Esq., of Haverstock Hill, Hampstead Road, by whom it has been received and grown as *Cattleya Trianae*, under which name it is grown in many other gardens. *Cattleya Trianae*, however, though [illegible] is a variety of *Cattleya Warscewiczii*, [illegible] purple lip—the lip of the latter being a rich deep rose-colour. Both, though [illegible] to the subject of our illustration, are very distinct from it in several respects. [illegible] a horticultural point of view, the chief [illegible] being that the species itself [illegible] are considerably smaller than in the variety now referred to; the sepals and petals are flesh-colour, instead of being nearly white, and the entire apex of the lip is of a rich deep rose, instead of being throughout of a soft rose [illegible] without any deeper colour at the tip. The species is evidently a variable one, several forms differing in the size of the flowers, and in the intensity of the violet-rose colour [illegible] apical lobe of the lip, being known amongst cultivators; all of them, however, fine plants, worthy of a place in our Orchid-houses.

Cattleya Warscewiczii delicata was imported from Brazil, under the name of *Cattleya Trianae*, by Messrs. Backhouse and Son, of York, and was distributed by them for that plant, of which it now proves to be a near but yet distinct and charming delicate-coloured ally. Some very fine masses of the plant have been distributed amongst cultivators from the York Nursery, and that shown by Mr. Milford was a beautifully grown specimen with a fine head of flowers.

The genus *Cattleya* takes a very high rank amongst ornamental Orchids, most of the species having large, magnificent flowers [illegible] often deliciously scented, accompanied, moreover, by handsome healthy-looking evergreen foliage. Our present subject grows in the way of *Cattleya labiata* and *Cattleya Mossiae*, but in habit most resembles the former. The stems are about [illegible] The flowers are produced after the plant has made its growth, from a sheath at the top of the stems, and grow three or four together; they measure six inches across, and have the sepals and petals almost white, and the large lip of a delicate lilac-rose, marked with an [illegible] The [illegible] during the months of January [illegible] February, and the flowers continue in perfection from three to four weeks. If they are kept dry, [illegible] being lightly-coloured, they are liable, if they get wet, to become spotted, [illegible] will not be [illegible].

The plants we have seen of this *Cattleya delicata* have been all grown in pots with peat-earth. The treatment recommended for *Cattleya amethystoglossa* (PLATE II) will be found equally suited for this plant, [illegible] that it will do well on a block of wood. All the short-growing kinds do well on wood

with sphagnum moss, and suspended from the roof of the house; but when grown in this way they require more care with regard to moisture, for the roots become very much sooner. Indeed, in summer such plants require watering twice a day with a syringe, or, what is better, they may be taken down and dipped in water which is the most effectual plan of soaking the material about the roots. In the winter they must have just enough water to keep them a little damp, because, if they are allowed to become shrivelled, it takes a long time to bring them back again to a healthy condition.

These plants are propagated by dividing the rhizome at the base of the stem, so as to separate the older parts, either after they have done flowering, or just as they begin to grow, or even when they are at rest. The best way is to cut them at first partly through with a sharp knife, and to leave them for a time, then afterwards to cut them quite through. The divisions should be allowed to "break," or produce young shoots before they are separated, as they will make their growth stronger if left after this is perfected, and may then be more safely separated the following year. In cutting through the rhizome or horizontal portion, it is very important not to break or injure the roots, and, if possible, two or three of the old bulbs should be left at the back of the young ones, the new growth then being stronger, from having the old bulbs, as it were, to feed on. There is one point to be attended to in particular, and that is, never to allow the plants to shrivel after being separated, for if this happens it is more than likely they will not flourish, or if they do succeed it will be a long time before they make healthy plants. We have often seen plants cut through with little success, because neglected afterwards. They must have proper treatment and like all other plants require care at such a critical juncture, when the source of their nourishment has been in great measure cut off. If they have this care, they will seldom be lost. The most essential point is to keep them moist, and in a shady part of the house, so that they do not shrivel, and they must be watered at the roots, and over their leaves, to keep them in a healthy growing state. Of course each of the divided parts must have roots attached. The best time for performing the operation is just as the plants begin to grow, which is also the time they begin to root. When they are separated, they are not to be put in too large pots, for that is very dangerous, they require but little room for their roots, but they must have a sort of sweet fibry peat and good drainage, in order that the water applied may pass off quickly. In well-drained open material such as this the plants will root more freely, and not be so likely to rot, which they often do when the soil is too close. If the divided pieces are small, they will do better placed on blocks, with sphagnum moss, and hung up in a warm shady part of the house, being always kept moist till they get well established.

The Cattleyas should be kept free from insects, to whose attacks they are very subject unless constantly watched. The white scale is one of the most troublesome of these pests. It should be kept under by washing the plants with a sponge and clean water, which latter should be of the same temperature as that of the house. The plants must never be suffered to get foul before they are cleaned, for if so they will not remain in a healthy condition, but the leaves will become yellow and the beauty of the plant will be spoiled. A healthy condition of the foliage is one of the great elements of their beauty, whilst a sickly aspect once brought on by neglect, is not to be got rid of for a long time. Another mischievous pest is the cockroach, which eats the young roots of this and other Orchids. It must be got rid of at any rate, and one of the best agents to effect this object is Chase's Beetle Poison, which is to be laid about for the insects to feed on.

Trichopilia crispa marginata

PLATE V

TRICHOPILIA CRISPA MARGINATA

[illegible] *T.* [illegible] in growth, but the pseudo-bulbs are shorter and more [illegible]. The [illegible] The [illegible] about six inches long, they are five inches [illegible] and [illegible] bordered with white. The sepals are linear-lanceolate, two and a half inches long, [illegible] the colour which is purplish-rose, [illegible] with portions irregular and breaking [illegible] towards the margin, which is white and slightly crisped. The petals are rather broader [illegible] with the [illegible] twisted, and with a more distinct white border. The lip, which measures three inches and three-quarters in length from base to apex, is white externally, funnel-shaped at the base from [illegible] lapping of the edges, oblique [illegible] the top of the funnel formed by the rounded lateral lobes, while the central lobe is broad, dilated, deeply cleft at the apex, and moderately frilled on the margin [illegible] portion is very rose [illegible] crimson, the throat and the front portion of a deep, full [illegible] rose-red, with a narrow border of white. The hood of the column is [illegible]-lobed, with the divisions [illegible]

[illegible] PILIA CRISPA var. MARGINATA [illegible]

Cultivators are indebted to C. B. Warner, Esq., of Stratford Green, for the introduction of this charming Orchid, and we owe our obligations to Mrs. Warner for the beautiful drawing from which our figure has been prepared. The plant has now bloomed for several seasons in Mr. C. Warner's collection, and as we have had the pleasure of seeing it every year, we can bear testimony to its constancy. It was imported along with two other plants of *Trichopilia crispa*, all three of which have proved to be different varieties, the present, however, being much the finest. This year the plant, which now forms a very fine specimen, bore [illegible] flowers. It [illegible] a very pretty genus of which a few forms are known in cultivation, all however dwarf and compact in habit and very abundant bloomers. [illegible] this *Trichopilia* are known, one of which bears its flowers singly, whilst the others [illegible] two or three flowers from the side of each bulb.

Our present subject will prove a very useful exhibition plant, as it flowers in J[illegible] distinct in character, though its growth is like that of *Trichopilia coccinea*, excepting [illegible] are shorter [illegible] same way, being like it [illegible] very dark green [illegible] The foliage is of a drooping character, and grows in the form of a fine round tuft, which is rather a desirable quality, as many of the Orchids are somewhat deficient of foliage. The plant grows fifteen inches high, the flowers produced from the side of the bulbs, and drooping over the sides of the pot about six inches; they have therefore a remarkably pretty effect. The individual blooms are large, the sepals and petals are of a bright crimson-red, with a pale margin, and the lip is two inches across, of a [illegible] deep crimson, and narrow [illegible]

Trichopilia crispa is a free-growing Orchid when the treatment that it requires is given [illegible] native country it is found growing on the branches of trees, overhanging streams of water. [illegible] and the plant requires a good supply of moisture in the growing season. We have found it to succeed [illegible] in the Cattleya-house, in which situation this variety is also kept by Mr. C. Warner[illegible] Mr. Warner [illegible] grows it in a pot, with peat and good drainage, and keeps the plant elevated [illegible] the pot rim, which is a capital plan, for the flowers droop over the rim, and by elevating the plant they are shown off to better advantage. This position is moreover much better for the plant, for it is a small rooting kind. We have found that all this class of Orchids are [illegible]

The plant generally begins to grow after the flowers have fallen, and it will sometimes make two growths in one season, and often two from each bulb if the plant is vigorous, but one growth is better than two if it be strong and healthy, as it will flower finer. After the growth is completed, a good season of rest must be afforded by giving less water at the roots. The roots must however never be kept so too dry a state as that will then shrivel, which is dangerous and after some years of annual repetition of growth. They should have just water enough to keep the leaves and bulbs plump. The plant forms its bulbs in summer and autumn, and during this time it must have a liberal supply of moisture. It should be watered about two or three times a week so as to keep the soil moist, but, on the other hand, it is never to be kept wet, for, as already mentioned, it is in its native habitat found growing on the branches of trees, and so plants so naturally grow on trees like too much water at the roots they get heavy rains in their habitats, but being so thoroughly elevated, the water passes off quickly, and besides they are exposed to a free current of air. When, therefore, they come to be confined in our hot houses, they require moisture to be carefully supplied by pouring water on the tables and pathways, but if the weather be dull outside less of it is required. The condition of the weather should serve as a guide to all Orchid cultivators, for the changes in the weather outside the house should make a material difference in their treatment inside.

During the season of active growth the temperature should range from 70° to 80° by day, and from 65° to 75° by night. During winter from 55° to 60° is sufficient, and in the spring this temperature should be increased, so as to range from 60° to 65° by night. In potting pots of moderate size ought to be used, and these should be filled up with potsherds to within two inches of the top, and the remaining space filled with good fibrous peat, mixed with a little charcoal to keep it open. The roots dought [illegible] be evenly spread. Above the rim fill in peat to the height of three inches, and on the top of this place the plant, and secure it firmly by placing peat over the roots. The best time to pot is just after blooming, and this is also the best time for propagating the plant, if required. The latter is very easily done, as the plant is of free growth, and will divide well. The best way is to cut between the bulbs, leaving one or two bulbs to each leading shoot. The divisions should be potted into small pots, and must not be allowed to flower until they have become well established, for it is such a free-blooming plant, that it will often flower and exhaust itself before it has had time to become sufficiently rooted.

These *Trichopilias* are not, like many other Orchids, subject to insect attacks, but sometimes they become infested with white scale or thrip, both of which are easily cleaned off with a sponge and pure water if however the plants are watched, they may be generally kept free from such pests. Tobacco-smoke affords the best means of keeping down the thrip, the house being fumigated two or three times in a week till it is destroyed. It is desirable not to have too much heat in the house when this operation is performed, and not to apply the fumes too strong.

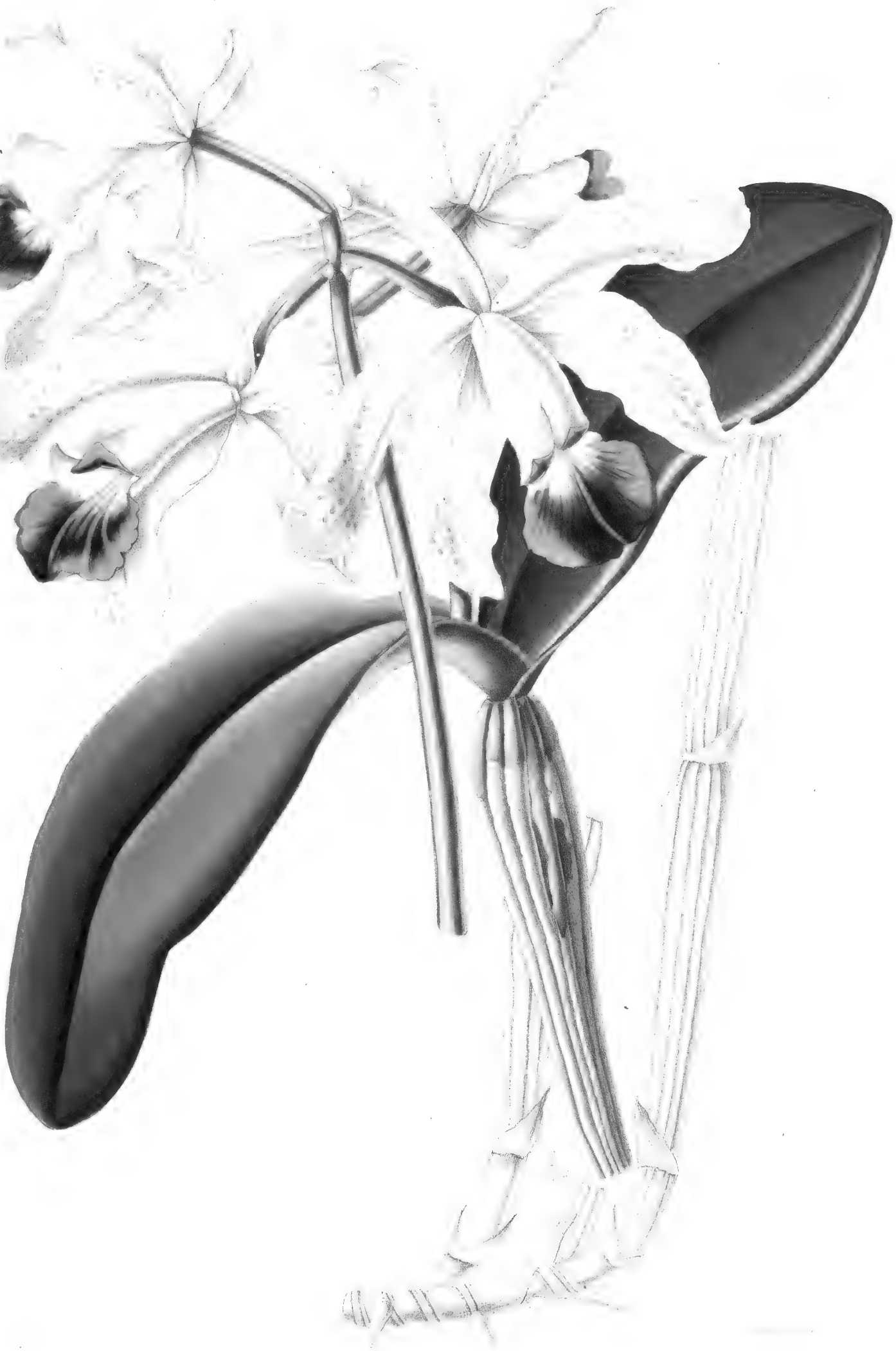


PLATE VI

LÆLIA GIGANTEA

[illegible] leaves. The flowers [illegible] which issues from a sheath proceeding from between the [illegible] ones somewhat recurved, and of [illegible] as well as the greater part [illegible] margin. The lip [illegible] three-lobed; the [illegible] lobes small and [illegible] and almost entirely of a [illegible] the base of the lateral lobes [illegible]

LÆLIA GIGANTEA, *Warner MS.* [illegible] *Hort. Soc.* [illegible]

This is one of the finest *Lælias* we have had the pleasure of introducing, and its flowers are quite distinct [illegible] from Brazil [illegible] grown [illegible] the *L.* [illegible]

[illegible] *Lælia* [illegible] pair, their foliage [illegible] flowers [illegible] twelve inches. The flowers proceed from a sheath [illegible] after the leaves have finished their growth [illegible] of a delicate lilac, beautifully spotted with rose-purple, the lip being of a rich rose-purple. The plant blooms during March and April, and [illegible] end of the house, and free from damp.

The *Lælias*, like the *Cattleyas*, are [illegible] growing on the [illegible] of trees, and on rocks. Those that are found on trees require shading, while those which are found in more exposed situations, where they are subjected to sun heat, do not require so much protection of this kind. It must be remembered, however, that when confined in our hothouses they require more shelter of this kind than when exposed in a state of nature on the branches of trees, for there they get the free current of air, as well as shade from the branches. To grow them to perfection [illegible] burning sun, but they should not have too much shade; the blinds, for example, should never be down when the sun is not shining strongly. A little sun morning and evening will not do any harm, provided there is moisture in the house.

Lælia gigantea is a free-growing as well as free-flowering plant, and requires to be grown with *Cattleyas* and other Orchids that come from Brazil. It is best grown in a pot with peat and good drainage, as it [illegible] more readily managed when grown in this way, though it will succeed well on a block with sphagnum moss. The plant requires a season of rest as well as of growth. It commences [illegible]

supply of water when in a vigorous state of growth, but it is necessary to be careful not to wet the young shoots or there is a danger of [illegible] them while in a young state; as soon as they get about three inches high more water can be given. After the growth is completed, the plants should be rested by withholding water from the roots, just enough being given to keep the bulbs from [illegible]; they should at the same time be moved to the coolest end of the house. When they begin to grow again more heat must be given by removing them to the warmest end. This will be the means of producing strong bulbs for flowering, and to ripen these thoroughly they should be kept as close to the glass as possible, but in winter they must not be kept too near as they might be affected by the cold.

In potting perfect drainage must be secured. The pot should be filled three parts full of crocks or potsherds or charcoal, with a layer of moss between these materials and the soil, which must be of good fibrous peat, from which the finer particles have been carefully got away, leaving only the fibrous portion. The plant is to be set on this peat two inches above the rim of the pot, the stem being above the peat, and it is then to be tied firmly on the pot. The best time for potting is just when the plants begin to grow, that being the time when they begin to make fresh roots. The roots are thick and fleshy, and require great care to keep them in a growing state. If the roots make good growth, strong bulbs may be expected. While the roots are young there is danger of their being eaten by insects, such as the cockroach, which is a terrible scourge among Orchids, and will soon damage all the roots, being very fond of the young points. These insects are kept under by searching for them at night by candle-light, and by placing such remedies as [illegible] Poison within their reach, in the parts of the house which they most frequent. The small shell-snail is another pest, but is easily caught by laying about some scooped-out half potatoes or turnips, to serve as traps, and examining them night and morning. *Lælias*, like *Cattleyas*, are also subject to the white scale, which should be well looked after, and prevent[illegible] applied.

The plant is propagated by dividing the bulbs, leaving a few old bulbs to each leading one. This is best done about the time they begin to grow. The rhizome should be cut half through, which will cause them to break much stronger, and the divided parts should be left in the pot till the growth is completed, when they may be separated and either potted or placed on blocks of wood. Those treated in the latter way should have some sphagnum moss placed about their roots, and should be suspended from the roof in a shady place till they get well established, the blocks being kept moist, so that the bulbs may not shrivel, for, if they do, there is risk of the plant perishing.

Vincent Brooks imp.

Odontoglossum lævium majus

PLATE VII.

ODONTOGLOSSUM NÆVIUM MAJUS.

An epiphyte with ovate two-edged pseudobulbs, and having [illegible] linear-oblong acute leaves narrowed to the base, of a [illegible] green, [illegible] growing [illegible] the scapes from the base of the [illegible], which are surmounted by a pair of [illegible] leaves, and partly sheathed by the remainder. The flowers are borne in arching spike-like, often branched [illegible], along with the young bulbs, from the base of the old bulbs; they are star-shaped [illegible] general [illegible] of large size, and very handsomely spotted. The sepals are narrow, lanceolate, cuspidate, and, as well [illegible] the petals, white, speckled and barred with deep rose-crimson. The [illegible] is rounded at [illegible] not hastate as in *O. nævium*, very slightly serrated, and having a large yellow [illegible] near the base.

ODONTOGLOSSUM NÆVIUM, var. MAJUS, *Lindley, Folia Orchidacea*, art. Odontoglossum.

ODONTOGLOSSUM [illegible]. *Linden et Reichenbach fil.* *Pescatorea*, t. 13, in observations.

This fine plant is a native of New Grenada, where it is met with in the province of Pamplona, at an elevation of 8000 feet, and whence it was introduced by Mr Linden. Though very nearly indeed allied to *Odontoglossum nævium*, from which it differs in the size of its flowers, and in some slight peculiarities of the lip, it is sufficiently distinct for all garden purposes; nevertheless, though worthy of a place in every collection, however small, it is yet by no means plentiful. It is specially valuable on account of its compact habit of growth and the freedom with which it produces its flowers, as well as the length of time they continue in bloom.

The accompanying figure was taken from a very beautiful plant, which flowered in the well-known rich collection of J. Day, Esq., of Tottenham. *O. nævium* is itself very handsome, and well worth growing, but this variety *majus* has the flowers much larger than in the original form of the species, the colour being about the same in both. At the time our drawing was made, Mr Day had both of them in bloom together, and that now before us proved to be much the finer of the two; it is indeed a very superb form of the larger-flowered variety. It makes a good plant for exhibition, and comes rather early into flower, though it may be kept back by placing it in a cool house, under which treatment moreover it is sure to thrive, for the plant is impatient of heat. The plant is so scarce that we trust a further supply may be imported, in order that every Orchid grower may be able to cultivate it in large masses. It would however be useless to obtain [illegible] most vigorous plants if they did not receive the treatment they require. Many plants have been destroyed through improper treatment, to which cause we may assign the present scarcity.

Odontoglossum nævium majus is, then, a most desirable Orchid, of compact growth, having evergreen leaves and flattened pseudobulbs. The leaves grow to the height of about eight inches, and are [illegible] of a light green colour. The flowers are produced on spreading spikes, which grow up from the side of the pseudobulbs, and attain the height of ten inches, often becoming branched and bearing numerous flowers of a beautiful clear white, speckled and barred with rich crimson. The blooming season is April [illegible] May, and the flowers continue in perfection for six weeks or more, if they are kept free from damp and the plants are located in a cool shady part of the house.

This fine Orchid is grown in different ways by different Orchid growers in this country. Under certain conditions the plants do well for a time, and afterwards dwindle and ultimately die. Many specimens have [illegible] having received wrong treatment. The plant [illegible] when kept cool. It is a great mistake to give *Odontoglossums* too much heat, for they do not require it; in fact, they will not continue to thrive under such stimulating conditions.

The plant before us will flourish on a block of wood with sphagnum moss, but pot-culture suits it better. This is the way in which it is grown by Mr Stone, the able gardener to Mr. Day, who has several large pans of both varieties, which are in the most vigorous health and white flower freely every year. Indeed we have never seen them grown better than they are by Mr Stone, who cultivates them in a house mostly with such Ferns as *Gleichenias*, of which Mr Day has some of the finest in the country. The house in which these *Gleichenias* are kept, is partly devoted to those kinds of *Odontoglossum* that do not require much heat. This cool treatment is the secret of Mr Day's success. The plants are grown in the front part of the house, as near the glass as possible, so that they get plenty of light, which again is one of the secrets in Orchid culture. The only way to keep the plants in health, as well as to prolong their life, is to get strong growth and well ripened bulbs, and this is the kind of treatment which secures both. If this mode of treatment were generally followed, there is no doubt that these pans might be grown as well as the other kinds of Orchids that are seen in every collection.

Mr Stone's plants are kept in pots with peat and good drainage, and they are allowed a liberal supply of water in the growing season. The peat is always kept moist while they are in a vigorous state of growth; neither are the plants allowed to become too dry in the resting season, but the bulbs are maintained in a plump state, for it is found that if they are allowed to shrivel the result is bad health, from which it is a difficulty to recover them. They are kept in an intermediate house, where the heat ranges from 50° to 55° during the winter months, that is, from November to the middle of February. During this period, a slight rise of the temperature by sun-heat will do no harm. After February and May, the temperature is allowed to rise to 60 by day and 55° by night, and during the summer months no fire is used, except on cold wet nights, which sometimes occur even at that season. By October, it is necessary to have recourse to fire-heat, which is kept on through the winter, but the utmost care is exercised in its application, an excess being at all times dangerous.

This Odontogiot begins to grow after flowering, and then is the best time for potting it, but it is necessary to be careful not to break the roots. The plant is to be lightly removed from the pot, and some of the old soil taken away. If the roots are in a bad state, all the old soil is to be worked away from them, and they are to be repotted with fresh peat, the pot being three-parts filled with potsherds, and then some sphagnum moss on the top, to keep the drainage open. The proper soil is good, fibrous peat, from which all the finer particles have been taken. The plant should be placed on the peat, about two inches above the pot-rim, and the roots pegged firmly down, with a little peat on the top of them. They must not have too much water till they begin to make new growth. Air is to be admitted during the summer months, so that the heat may not get too high, and the plants are to be shaded from the scorching sun.

Propagation is effected by dividing the bulbs just at the time they begin to grow, or while they are at rest. When divided, they are to be potted into small pots, with water at the roots, they must never be allowed to shrivel, and must be treated as recommended above. The plant is subject to attacks of red spider, from which the young tender leaves suffer in summer. The pest should be kept under by washing with clean water and a sponge. This insect generally appears if the house is kept too dry. Fumigating with tobacco will also do good.

Plate VIII

CATTLEYA WARNERI

An epiphyte with the habit of *C. labiata*. The leaves grow singly [illegible] with a peculiar twist at the point. The scapes grow from the top of the bulbs, and often bear as many as five flowers, which [illegible] the lip orange-yellow at the base, creamy white on each side, and centrally of a rich rosy crimson in front. The sepals are lanceolate, entire, with the margins recurved. The petals are very large and about 3½ inches by 2¼ inches broad, ovate [illegible] crispate towards the front. The lip is three inches long, the open expanded part in front nearly [illegible] the plane depressed side lobes rosy lilac [illegible] the base of the tubulose part orange-yellow, a little suffused with rose at the [illegible] base, and marked with white veiny streaks; the emarginate apex, for about as much of its length, is of a deep rich rosy crimson [illegible] very [illegible] the upper angles of the face of the lip, which has a quadrate general figure, are creamy white [illegible] which latter is white, with [illegible] at the [illegible]

Cattleya Warneri, *Moore MS.*

This is one of the most beautiful of the many Cattleyas of the *labiata* section with which our gardens abound. It was first noticed by ourselves, and was shown in 1860 at the Royal Botanic Society's exhibition in the Regent's Park, on which occasion a Silver Medal was awarded to it. We have no information as to its introduction, but believe it to have been obtained from Brazil. Our plant, which has now flowered with us three years in succession, has sometimes [illegible] flowers expanded at one time.

Cattleya Warneri is in the way of *C. labiata* as to its growth and the size of its flowers, but it blooms at a different time of the year, namely, in June and July, which makes it very valuable as an exhibition plant, for nothing has a more noble appearance than a fine specimen of this genus, either on an exhibition table or in an Orchid-house. It is with this as with many other Orchids, that new varieties occur, and it is very seldom that two imported plants are quite alike in their flowers. Some years since, we imported a number of these plants, and several forms have been already bloomed in different collections, but we have not seen any so fine as that from which our figure was derived.

This *Cattleya*, like *C. labiata* and *C. Mossiæ*, is compact in its growth. It attains the height of sixteen inches. The leaves are three inches across, of a lively green, and flat for the greater part of their length, with a sort of twist at the end, which twist is, as far as we have observed, peculiar to this species. The flowers are large, more than six inches in diameter, and produced from a sheath at the top of the bulb, as many as five being sometimes borne together. The sepals and petals are of a beautiful rose, the lip large, of a rich crimson, and finely fringed. The plant blooms during June and July, and the flowers continue in good condition for a month or more, if the plants are placed at the coolest end of the house and are kept free from damp, and shaded from the sun.

This species has proved to be free in growth as well as free in flowering, and being compact in habit and having fine evergreen foliage, it possesses all the recommendations of a beautiful plant. It will grow either in a pot, or on a block of wood suspended from the roof of the house, and requires a moderate amount of heat and moisture in the growing season, namely, during the winter and spring months up to the time of flowering. The growth is completed soon after the blooms have faded. When the bulbs are fully grown, the plants should have a season of rest. This is secured by withholding water from the roots, and placing them at the

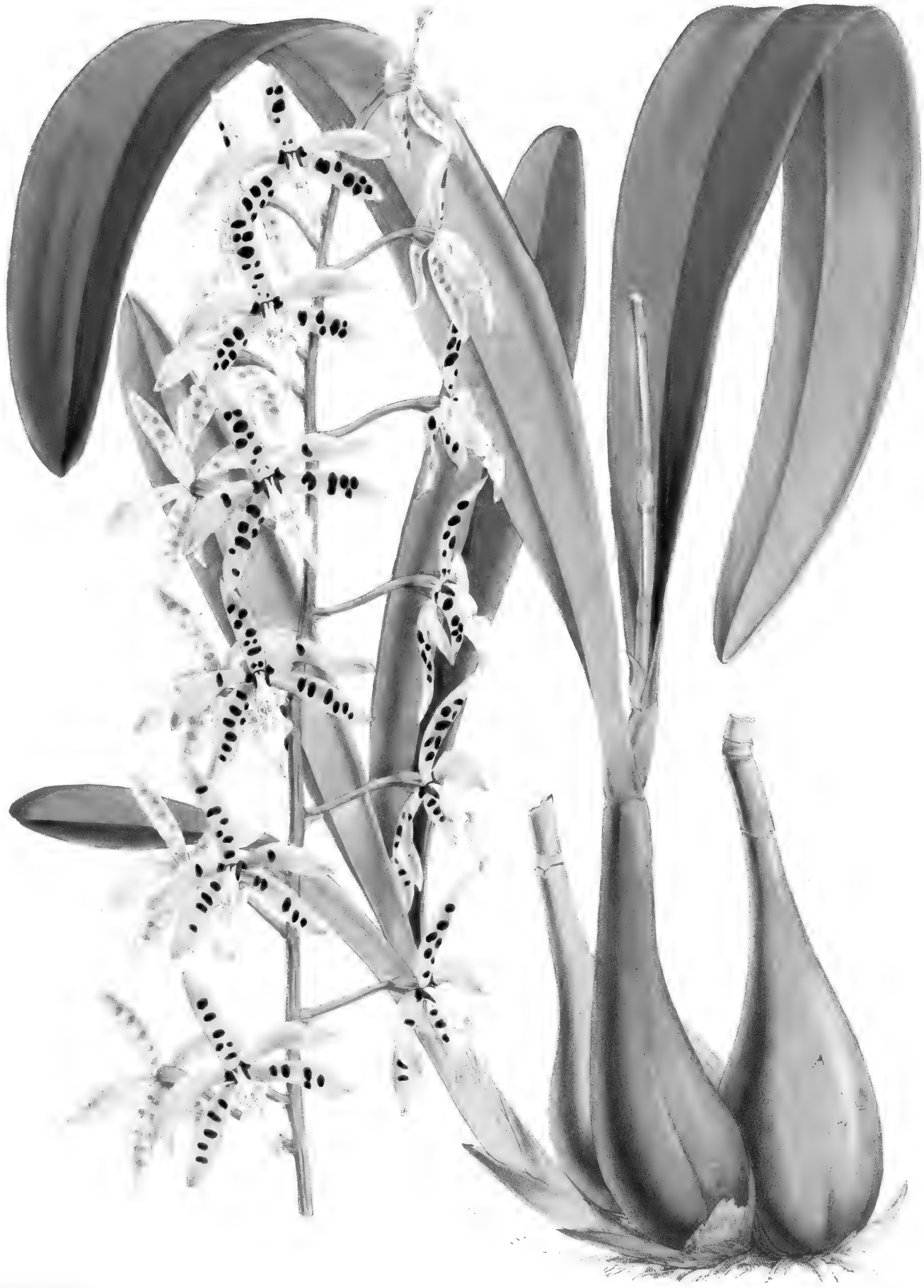
coolest end of the house, but it is to be borne in mind that the bulbs must never be allowed to shrivel, for if they do so, there is danger of the plant getting into an unhealthy condition. We have often seen *Cattleyas* get into a bad state through such treatment. It must be remembered, that although these plants are found growing on trees and rocks, and have to endure through a dry as well as a wet season, yet there are heavy dews night and morning, which greatly assist in nourishing the plants and in keeping the bulbs plump. So that, to have the plants in a healthy state, a little water should be given at the roots, just enough to keep the bulbs and leaves in vigorous condition.

When the buds at the bottom of the old stems begin to swell, a little more water may be allowed, to fructify their growth, and they should be placed at the warmest end of the "Mexican house." When the growth has reached two or three inches in height, an increased supply may be given, but the water must not be suffered to lodge on the young growths, as this causes much harm. We have often seen the young shoots rotted by thus giving too much moisture. *Cattleyas* do not require so much water as is sometimes given by cultivators. Our practice is only to give enough to keep the peat moist when they are in vigorous growth. If grown on blocks, they will require water every day in spring and summer, but in winter less will suffice.

During the season of growth the temperature should be the same as that recommended for *Cattleya amethystoglossa* see PLATE II). If the plant be cultivated in a pot with peat, it must have good drainage, and this is secured by filling up the pot nearly to the rim with potsherds, and over these sphagnum moss, the top being filled up with good fibrous peat intermixed with broken crocks, to keep the mass porous. The plant is to be set two inches above the rim of the pot, and pegged firmly on to the peat, by which means it will root more freely. After potting, give a little water with a fine-rose pot, but always be careful to let the water be of the same temperature as that of the house.

These plants are propagated by dividing the rhizome at the base of the stem. This is best done just as they are starting into growth, or when they are at rest. The piece that is cut off is better left otherwise undisturbed till the following year, and may then be removed and potted in the material recommended above, the rhizome being kept above the peat.

Cleanliness is an essential condition of good cultivation. The plants are subject to the white scale, which may however be easily kept under, by washing the leaves and stems with a sponge and clean water. It must be borne in mind, that the leaves should not be rubbed when they are in a shrivelled condition for they would become bruised and would not recover, but always look unhealthy.



Epidendrum prismatocarpum

PLATE IX.

EPIDENDRUM PRISMATOCARPUM.

A stout dwarfish epiphyte, with ovate subcompressed [illegible] pseudobulbs [illegible] leaves [illegible] strap-shaped [illegible], a foot long, and upwards of an inch broad, with a short recurved point. The flowers are [illegible] terminal erect terete scapes, which are about a foot long, floriferous for the greater part of their length [illegible] or a dozen [illegible] a half flowers [illegible] stalks which are about [illegible] long; the flowers themselves measure nearly two inches across. The [illegible] a pale greenish-yellow marked with a few bold, roundish-oblong, transverse [illegible] purple [illegible] the base of the column being also marked with purple. The petals, which are similar in colour to the sepals, are lance-shaped in figure, having a more acuminated apex, and a more tapered base; they are [illegible] than the sepals, and somewhat laterally curved. The lip is clawed at the base, three-lobed [illegible] [illegible] rounded [illegible] [illegible] [illegible]

EPIDENDRUM PRISMATOCARPUM, *Reichenbach fil. Botanische Zeitung*, x. 729; *Lindley, Folia Orchidacea*, art. Epidendrum, [illegible]; *Hooker, [illegible]*

EPIDENDRUM [illegible] *Reichenbach* [illegible]

EPIDENDRUM [illegible] [illegible]

But few species of this genus are worth growing except for their fragrance. The subject of our present figure must, however, be taken as one of the exceptions, being a very pretty plant of distinct character; it is also very rare. During the past summer we were successful in blooming the fine specimen from which our drawing was taken. We also exhibited a small plant in the month of July at the *fête* of the Royal Horticultural Society [illegible] a medal was awarded [illegible] of new plants. We have only seen three other plants in bloom; these were the property of the late [illegible] of Burnham, Somersetshire, and when his collection was dispersed, were sold at high prices, from the scarcity of the species in the collections of this country.

This *Epidendrum* is a very useful exhibition plant, as it blooms in July, when there are but few Orchids in flower; it moreover continues in perfection for several weeks. It forms a handsome evergreen plant, with somewhat club-shaped pseudobulbs, nearly six inches high, supporting two or three light-green leaves, which attain about ten or twelve inches in length. The upright spikes of flowers proceed from the apex of the bulb between the leaves, and bear as many as from twelve to sixteen flowers, the sepals and petals of which are of a creamy yellow, spotted with dark purple, and the lip of a purplish rose-colour. It is a native of Central America, whence it was sent by Mr. Warscewicz.

The plant may be grown on a suspended block of wood covered with sphagnum moss. When treated in this way, it will require a good supply of moisture at the roots during the growing season. It will also thrive in a suspended basket, but requires a layer of moss at the sides and bottom, and the plant to be firmly secured to the peat-earth in which it is planted; a layer of moss should also be put on the top of the peat, to prevent its being washed out of the basket by the constant waterings and syringings which are necessary.

We find it, however, to succeed best when grown in a pot. The pot must be well-drained; this is an

essential point. Orchid-growers should always know the state of the root-drainage of the plants under their care. If the pots are badly drained, and too large a supply of water is given, the roots will in most cases decay, and the plant will then assuredly get into an unhealthy condition. We have often heard it asked, in cases like this: Why should not one plant look as well as another in the same house, when the same treatment, the same rest, and, in fact, everything the same? All the while, the overlooked exception has been the principal thing—bad drainage. Many growers, no doubt, have seen and learned by experience, the evil results of bad drainage, but we would urge it upon beginners in the culture of this interesting class of plants to make it one of the first points to see that the pots are well drained, they will assuredly be more successful than if this is neglected. If a plant is seen to go wrong, let the cause be at once ascertained, and let it not be suffered to get into an irreclaimable state before any effort is made to restore it.

There are other causes besides bad drainage which affect the health of Orchids. Sometimes a plant gets more heat than is required, although it may have come from the same country as others which thrive under the warmer treatment, for the one may have come from a higher elevation than the other where the heat is less, and will consequently grow better with less warmth and less water. These are matters which require practical experience and individual attention. Orchids, like other plants, require a certain course of treatment, and unless they get it they will not long thrive. There are few plants of more ready growth than Orchids if every necessary is provided for them, nor are there any so accommodating provided these necessaries are secured. They may be hung up or laid down, they may be grown in pots or on blocks, and in a variety of ways; only give them the proper quota of heat, moisture, and rest at the proper time, with good drainage, and they will not fail.

Epidendrum prismatocarpum requires this drainage. In potting this, and other Orchids, care should always be taken to have the pots and the crocks clean. It is also desirable to have the outer pot large enough to admit of an inverted pot being placed in the bottom, this inverted pot being surrounded by and covered with crocks, so as to fill the outer pot three parts full. A layer of sphagnum moss follows, and then the whole is filled up with good fibrous peat, which is the best material for the plant to grow in. The plants should be placed on the peat, so that the pseudobulbs may be two inches above the pot-rim; if they are buried too low they are liable to rot. The present is a free-growing species, and when vigorous often makes two shoots from one bulb. The Cattleya-house is the most suitable place for it, and it should have a liberal supply of water during its growing season, which is from September to May. Then it comes into flower. The resting season is in summer. From its growing in the winter months, it requires to be kept at that season at the warmest end of the house. The roots should not be allowed to get dry while at rest.

Propagation is to be effected by dividing the bulbs just as they commence growing. One old bulb is to be retained at the back of the year-old one. When divided, they are to be potted in pots according to their size, and they are to be kept growing by giving them moisture at the roots, and by placing them at the warmest end of the house in the shade. It is best to start them into growth as soon as they are cut, and not to let them be about, as they will get dry, and will take a long time to recover. The plant is generally free from insects, but if not in a healthy state the white scale will attack it, this pest may, however, be cleared and kept away by washing the plant with clean water, which should be of the same temperature as the house.

Lycaste Skinneri

1 Delicatissima 2 picturata

PLATE X.

LYCASTE SKINNERI

A well-known epiphyte with oblong-ovate pseudo-bulbs, surmounted by a pair of oblong-lanceolate plaited leaves. The [illegible] flowers are [illegible] scapes [illegible]

LYCASTE SKINNERI, *Lindley, Botanical Register* [illegible] *Hooker, Botanical Magazine*, t. 444[illegible]. *P*[illegible]

MAXILLARIA SKINNERI, *Bateman, Botanical Register*, [illegible]. *Orchidaceae of Mexico and Guatemala*, t. [illegible]

There are numerous varieties, of which we figure the three named below.

var. [illegible], flowers large, upwards of six inches across, sepals and petals white, flushed with [illegible] [illegible] faintly and distinctly spotted with rose (*Figure* [illegible]).

var. [illegible] seven inches across, sepals and petals strongly tinged with [illegible] white [illegible] and [illegible] crimson (*Figure* [illegible]).

var. [illegible], flowers large, six inches across, sepals and petals blush-white [illegible] crimson-purple (*Figure* 3).

Mr. Bateman well speaks of this plant as the *facile princeps* of all the Maxillarias [illegible] had referred to. It holds also the chiefest place amongst Lycastes, and it has the interest of yielding a very large number of beautiful varieties, differing in the size and colour of their flowers. It is [illegible] the most useful winter Orchid we possess. We now [illegible] three out of a selection of eight beautiful and distinct varieties which bloomed with us last year in great perfection. These have flowered for the last three years, during which time they have kept true to the characters represented in our drawing. We have seen other good varieties in the collection of J. Day, Esq., of Tottenham, and some fine ones have been shown by Mr. Veitch. We have ourselves bloomed many others, all exquisitely beautiful, and of almost every shade of colour from deep rose to white, with markings of the richest crimson. The [illegible] of blooming during the dull winter months renders these charming plants particularly desirable for cultivation, and where flowers are required in the winter season, a dozen plants of this species would not be too many for even a moderate collector.

We are indebted to Mr. Skinner (who has also obtained for us many other of our most valuable Orchids) for the introduction of this noble species from Guatemala, and we trust that he will cause more of it to be imported, in order that we may be able to grow it more abundantly as its cultivation becomes better understood. Many fine specimens of it have been destroyed by improper treatment. It has now been proved to be one of the hardiest Orchids we have. Any one who has a [illegible]-house, with the command of a little heat in winter, will be able to grow it. We have [illegible] it for several years in a house under vines with very little heat, the grand secret being to give the plants a good growth during summer without any fire-heat except in cold and wet weather. We have had it [illegible] a warm room in winter when in bloom, the roots being kept rather dry, and the flowers [illegible] valuable for room decoration. Even when cut the flowers of this Lycaste [illegible] four to five weeks in perfection if a fresh supply of water is frequently given to them. There are few flowers that will continue fresh so long after being cut as those of Orchids, but they must not be placed near the fire, or they will [illegible]

Lycaste Skinneri is an evergreen plant, having broad, dark-green, strongly plaited [illegible] proceeding from the top of the [illegible] upright pseudobulbs. These leaves, under ordinary [illegible] grow to the length of two feet, and are as much as four inches broad, but we have grown them under vines

to the length of three feet, and a breadth of six inches. From the base of the bulbs the flowering-sheaths or scapes arise, which reach from six to twelve inches in height. The plants often produce four or even more flowers from each bulb, and they will continue producing flowers in this manner for several months, the individual flowers lasting in perfection for six and eight weeks, and sometimes more if they are kept from getting damp. The flowers of one variety we distinguish as *delicatissima* are large, pure white, and handsome, measuring more than six inches across, the sepals and petals are of a pinkish white, the lip white, intermixed with rose. The variety *picturata* is a magnificent one. In it we have seen the flowers are seven inches across, the sepals and petals of a rich rose-colour, the lip white, spotted with crimson. The variety *purpurata* is another splendid and distinct variety, the flowers of which measure six inches across, the sepals and petals are blush-white, the lip of the richest crimson. It is a beautiful plant to intermix with the other varieties.

There are many ways in which this plant has been cultivated by different growers, some of whom have succeeded and some have failed, for they have had the plants die notwithstanding all the care bestowed upon them. A very frequent cause of this want of success has consisted in giving them too much heat, and keeping them too dry at the roots, during the growing period. Such treatment is sure to prove fatal to them, and, though they may linger under it for a time, they will ultimately perish. The plant is, moreover, impatient of being separated. We have often seen the bulbs divided one from the other to increase the number of plants, and the whole have been lost by the practice. When the plant is growing, it is far better to have one good specimen than the miserable pieces that sometimes come under notice. We have seen hundreds of this plant imported and sold, and then spoiled by improper treatment. All have to pay for learning. If, however, the proper treatment be given, here is no plant more easy to cultivate and none that will better repay the cultivator for the trouble taken. It is like *Odontoglossum* in requiring cool treatment, and the same temperature as we have recommended for *O. cæcum majus* (PLATE VII.) will suit this also. The growing period here succeeds to that of flowering, and extends from May to October. During this time they should have very little heat, except in cold and wet weather. They require to be grown in well-drained pots, not too large, and in good fibrous peat and fine sphagnum. In potting, first put a layer of moss upon those to keep the drainage open, and filling up with peat, intermixed with small pieces of crock. The pseudobulbs should be kept up level with the margin of the pot. A liberal supply of water is to be given at the roots during the growing season, and after the growth is completed the quantity must be lessened, but they should never be kept dry, even during the resting period, as that is the cause of their blooming season. By giving a moderate supply of water at the roots at that time, the flowers come much finer. The bulbs must never be allowed to shrivel.

They are propagated by parting the tufts of bulbs, and placing each piece in a separate pot. This is best done after the plants are starting into growth, so that they may make fresh roots, and continue growing. If one or two bulbs are planted, they will probably dwindle away; they are consequently to be put in a shady part of the house, and kept moist at the roots. The plants must be kept free from the scale insect which sometimes gets on the leaves, but by ordinary care may be kept away.

PLATE XI

AERIDES NOBILE

[illegible] flowering [illegible] and [illegible] some [illegible] [illegible] branch seventeen flowers, both flowers [illegible] [illegible] two sterns [illegible] [illegible] narrowed towards the base. [illegible] being [illegible]. The two sides [illegible] [illegible] the tip, which [illegible] the middle [illegible] smaller [illegible] [illegible]

Aerides nobile [illegible]

This elegant evergreen plant, which is a native of India, and one of the most beautiful of its family, is evidently related to *Aerides suavissimum*, especially to that form of it which has been called *flavidum*, but it appears to differ from the latter in the toothed, not entire, lateral lobes of the lip, and in the former in the nearly or quite equal length of the three lobes [illegible] the middle one of which is [illegible] and very slightly bifid.

There is probably no genus amongst the Orchids, the species of which are more generally ornamental than those of *Aerides*, all of them being favourites among cultivators, and all of them being most [illegible] worthy of cultivation, on account of their graceful habit and their very beautiful as well as fragrant flowers. Even when not in bloom [illegible] different species [illegible] [illegible] objects, from the pleasing disposition of the substantial-looking foliage. The illustration before us represents that species or variety which is called in gardens *Aerides nobile* [illegible] [illegible] [illegible] kind has been seen in a remarkably fine condition in the collection of W. H. Crawford, Esq., of Lakelands, near Cork, under the care of Mr. [illegible], the gardener, but the true variety is very rarely met with. The plant produces long branching spikes, supporting a large number of flowers. In many respects it is related to *Aerides suavissimum*, and probably may be a native variety of that species, though in gardens it has acquired the distinct name of *Aerides nobile*, which may conveniently be retained. The plant is of stronger growth than the species just referred to, and blooms much earlier often indeed in June and [illegible] this makes it valuable for exhibition purposes. It is, moreover, of free habit, and produces its blossoms [illegible] [illegible] every year [illegible] [illegible] [illegible] The stems grow up to the height of about five feet or more, and are clothed with graceful dependent foliage, of a light green colour. It is peculiar in having a few small spots on the stem and leaves. The long drooping flower-spikes proceed from the axils of the leaves and are two or three feet long, often producing several branches, all laden with the very pretty blossoms, which are so fragrant as to perfume the house in which they are kept.

The species of *Aerides* are naturally found growing on trees overhanging swamps and rivers [illegible]

native parts of India, and are consequently true epiphytes. The temperature they are subjected to is high during their growing time, which is in the wet season, and afterwards becomes more modified for the succeeding period which they are subjected to at night. To grow them to perfection these alternations of wet and dry seasons should be imitated. These plants having no thick fleshy bulbs to support them require a constant supply of nourishment in the shape of moisture to keep them in vigorous health, the more so as they continue to grow nearly all through the year. What rest they need is given during the period they are in bloom, and for a short time afterwards. Though they continue growing through the winter, they must not be kept too much during that dull season, and only enough water must be given them to keep them fresh and plump, but during the rest of the growing season more water is requisite. The moss in which they are potted or [illegible], however, requires to be kept moderately moistened, never made wet. It should be remembered that naturally these succulents are elevated on the branches of trees, and often remain for some time without rain, so that when confined in our stoves and planted in moss, they do not need to be kept sopped with water as they sometimes are. The chief item in the management of this class of Orchids is to apply water liberally about the floors and tables every day, morning and afternoon, during the summer months. In winter, on the other hand, this should be done once in four days, and in the morning, when the heat is at its proper degree and the house appears dry. Some growers apply steam in their Orchid houses, but this we avoid, as an abundance of moisture may be produced otherwise, and the simpler plan of moistening the pathways, etc., of the house is more congenial to the plants than steaming them from rusty tanks and pipes. We have not had recourse to steaming for several years, and find our plants thrive better without it. If the Orchid house is furnished with tanks, they ought to be so constructed that they may be closed up at the water, in order that the moisture of the atmosphere may be kept under control, for too much moisture, whether on the stage, floor or on the roofs, in the [illegible] weather months, not unfrequently produces spotting of the leaves, as well as, in many species, rotting of the bulbs.

These plants will grow either in baskets, or pots, or on blocks. If they are required for exhibition, pot culture will be the more suitable, as the specimens may in that case be more conveniently moved from place to place. The ordinary wooden baskets commonly used are not desirable, as they [illegible] soon decay, but baskets made of the same material as the pots are durable, and some of them have a good effect in a house. This mode of cultivation gives a tropical appearance to the scene, and the plants succeed well in this way. If they are grown on blocks, more attention is required, for they must be kept moist at the root, and when this circumstance occurs they have a strong tendency to dry up; it is a good plan to dip the block into water every day during the summer season. Sphagnum moss is the material best suited for the roots of those grown in pots and baskets, and must be used along with good drainage. The pots are to be more than half filled with potsherds, and then filled up with moss. The species of *Aerides* require the same temperature as has been already recommended for *Vanda suavis* (see Plate III).

They are propagated by taking the young pieces off when rooted, or by cutting the stem asunder below the uppermost root. This can be accomplished more easily when the plants are large, as they then push out more freely. The young shoots thus obtained should be planted in pots in moss, keeping them at the warmest part of the house, where it is shady and moist, until they begin to make fresh roots. The best time to cut the plants is just as they are beginning to grow, for then they make new roots more freely. If it is done when they are at rest they are apt to shrivel. The plants should be kept perfectly clean. They are subject to the attacks of the thrips, which if allowed to get on them will soon disfigure as well as injure them. It may however be kept under by tobacco-smoke and by sponging with clean water.

PLATE XII

LÆLIA TURNERI

A charming epiphyte, resembling *L. elegans* in habit. The stems are elongated, terete, rather slender at the base, thicker towards the top, where they bear a pair of oblong, leathery leaves, [illegible] long, and three inches broad. The flowering scape rises nearly a foot above the leaves, and supports from five to eight flowers, its base is sheathed by an oblong-lanceolate spathe. The flowers are fully six inches across, and [illegible] coloured. The sepals are [illegible] with recurved and [illegible] edges, the dorsal one [illegible] by about three-fourths of an inch wide, the lateral ones subfalcate, three inches long, and nearly an inch broad, [illegible] as well as the broader and more undulated petals, entirely and rather deeply suffused with a purplish-rose colour; the petals are moderately [illegible] and [illegible] inches long, and upwards of an inch wide. The lip [illegible] long [illegible] lateral lobes are large, elongated and subacute [illegible] tipped with rose [illegible] over [illegible] the middle lobe is narrowed and [illegible] at the base, is about an inch and a [illegible] purple at the apex to a roundish [illegible] almost entirely [illegible] column [illegible]

LÆLIA TURNERI, *B. H.*

There is no doubt this superb plant is closely allied to *Lælia elegans*, but it seems sufficiently distinct in its larger flowers, its richer colours, and especially in the different form of the lobes of the lip, the laterals of which are more lengthened out and acute, and the terminal one more rounded, with a plane surface. It is, without exception, one of the finest plants known amongst Orchids. Our drawing was made from a beautiful specimen which flowered last August in the rich collection of J. A. Turner, Esq., of Pendlebury, near Manchester, where it has bloomed for the past three years, maintaining its same distinctive peculiarities. We have ourselves imported [illegible] flowered [illegible] for the two last seasons, and have also bloomed several other fine varieties from the same source.

Lælia Turneri is [illegible] distinct in colour from all others of the family known in cultivation, and we [illegible] it [illegible] beautiful of its race, not only on account of the rich colours, but also of the number of its flowers, which are often produced seven and eight together on a spike. The plant is of free habit, and bold, healthy-looking, evergreen foliage, and grows to the same manner as *Lælia elegans*, with this exception, that the stems are stronger, and the leaves are longer. The stems, which are thickest upwards, grow to the height of three feet, and bear at the top two leaves, each [illegible] three inches [illegible] the flowers [illegible] the length of [illegible]. The individual flowers [illegible] more than six inches across; the sepals and petals are of [illegible] distinctly veined with a richer colour, the lip bright deep magenta in front, its other parts white, slightly tinged with rose. Owing to the substance of the flowers, they last for a long time in perfection. The usual blooming period is July and August, thus the plant will be found a great acquisition for the late summer months, during which period but few Orchids come into flower. We have little doubt it may be brought into bloom earlier, and if so it will make a fine plant for exhibition on account of its rich and attractive colours. We have only [illegible] be [illegible] those in which we have observed it. Its growth resembles so closely that of *Lælia elegans* and *Lælia gigantea* that it is difficult to distinguish them from each other except they are in flower.

This plant being found in its native country, Brazil, on the branches of trees, will of course thrive on

blocks of wood, this being a tall grower, it is better suited for pot culture. The manner in which Mr. Tat, the skilful gardener to J. A. Turner, Esq., and a most successful grower of this tribe of plants, cultivates it, he explains as follows:—It is grown in a pot with fibrous peat and good drainage. It is kept in the "Mexican" house with other *Lælias* and *Cattleyas*. A good season of rest is given during the winter months, and generally about April or May the plant begins to renew its growth. This new growth produces the flowers, when nearly matured. The plant requires a liberal supply of water during its active growth, so that the peat may be kept moist throughout; but when at rest only a sufficient quantity to keep the pseudobulbs in a plump state is to be applied. The bulbs must, however, never be allowed to shrivel, for this will endanger the health of the plant, and once broken down in constitution it is a considerable time before it will recover.

When plants like this get into an unhealthy state, it is an excellent plan to place them on blocks of wood, along with some living sphagnum moss, tying them on firmly with copper wire, and suspending them from the roof. The leaves should, however, not be roughly handled, as they show every bruise they receive, and besides, rough usage of this kind is very injurious to any Orchid. What is called disease or spot in Orchids is often to be attributed to bruises of the leaves caused by careless handling, for being of a thick fleshy texture, they quickly decay when at all damaged. There are, indeed, other causes of the spot in Orchids, as we hope to be able to explain at some future time.

This beautiful *Lælia* requires the same general treatment as that recommended under PLATE VI. for *Lælia gigantea*. It is propagated in the same manner and is subject to the same kinds of insects, if not kept clean by frequent preventive attention. This preventive attention is always beneficially bestowed, and cannot be too strongly insisted on, for if insects are allowed to feed upon the plants without restraint, they are certain to produce serious injury.

Epidendrum verrucosum majus

EPIDENDRUM NEMORALE MAJUS

A [illegible] furnished with broad ovate pseudobulbs, supporting a pair of [illegible] sword-shaped [illegible] leaves and terminating in a magnificent drooping panicle of large showy flowers. The scape, peduncle [illegible] [illegible] clothed with little warty asperities. The sepals and petals are of a delicate rosy mauve [illegible], [illegible] lanceolate, acuminate, and about a couple of inches in length, and the lip is three-lobed, the side-lobes [illegible] rose, small, [illegible] somewhat falcate, and the middle lobe broad, obovate, with a short point [illegible] [illegible] to the centre where it is marked by three short deep red lines. The column [illegible] [illegible]

EPIDENDRUM VERRUCOSUM [illegible]

The original form of this very handsome plant, which is, without exception, the finest of all the *Epidendrums* in our gardens, is very commonly but erroneously named *E. verrucosum*, an error which [illegible] [illegible] [illegible] figured in the *Botanical Register* 1844, t. 51; subsequently, however, in *Hooker's Journal of Botany*, and in *Folia Orchidacea*, the name was changed by Dr Lindley to that which stands at the head of this article. The true *E. verrucosum* is a West Indian plant of altogether different habit. In the variety now figured the flowers are more numerous, as well as panicled, and the lip is of a paler colour than in the forms which have been previously published.

The magnificent panicle of flowers represented in the accompanying drawing was taken from a [illegible] grown specimen in the collection of J. A. Turner, Esq., Pendlebury, near Manchester, [illegible] whose kindness we thus owe the beautiful plate which our artist has prepared. In its entirety this panicle formed one of the noblest bouquets we ever saw; it was three feet [illegible], had seven branches, on which were distributed not fewer than fifty expanded flowers. The plant at the same time bore two other panicles equally fine.

There are several varieties of this *Epidendrum nemorale*, all worthy a place in any collection, but in their [illegible] [illegible] bear about [illegible] flowers on a spike, and we [illegible] never seen such [illegible] as those produced by Mr Turner's plant, which has flowered for two or three seasons, and goes on improving. The plant itself is remarkably vigorous, which indicates good cultivation. This species is thought difficult to cultivate by some growers, but the difficulty arises, in some cases at least, from giving it too high a temperature. It comes from Mexico and therefore requires but a moderate degree of heat.

This plant is not readily distinguishable by its pseudobulbs, which are so much alike in many of the species that it is with difficulty the most practised eye is able to recognize them. Indeed the family of *Epidendrums* is one of the most deceptive amongst Orchids on account of this very similarity in the bulbs. We have known large quantities of plants sold for this garden *verrucosum*, which have produced green flowers, [illegible] some [illegible] flowers [illegible] [illegible] [illegible] whole house. The presence of the small wart-like [illegible] [illegible] affords a better mark of recognition than is to be found in the [illegible].

Epidendrum nemorale is a compact evergreen plant, with pseudobulbs four inches high, bearing on the [illegible] leaves a foot long, and of a light-green colour. The panicles proceed from the top of the bulb after it has completed its growth, and attain the height of three feet, sometimes bearing fifty flowers, and when these are well expanded they have a remarkably handsome appearance. The flowers measure four and a half inches across; the sepals and petals are of a delicate mauve, and the lip is of the same colour, striped with violet. They are produced in June and July, and continue for several weeks in perfection, so that the plant [illegible] [illegible] exhibition subject on account of its unusual colour, and of its being well adapted for travelling

It does well in a house without fire heat in the summer months, especially when in bloom, and the flowers will last the longer if kept free from damp.

This plant is found growing in Mexico on rocks and trees, and, like most *Epidendrums*, is impatient of heat. The great source of failure in the management of the species of this genus is the giving of too high a temperature. Some years ago we used to see fine specimens of *E. nemorale* and *E. macrochilum roseum* exhibited at the Regent's Park and at Chiswick, and now they are nearly extinct. Like many of our fine Orchids, they have been destroyed by the excess of heat, and by not having secured to them proper seasons of rest and of growth, without which plants cannot be expected to thrive. Indeed, it is quite impossible for a plant to be kept in perfect health without these requirements are fulfilled. We remember some years since entering an Orchid-house wherein there were from fifty to a hundred fine plants of *E. macrochilum* and *macrochilum roseum* growing on blocks of wood, and we never saw them looking better, nor blooming more profusely. This was a low house where there was plenty of light, but not much shade, except when the sun was powerful. The temperature was kept at from 50° to 60° in the winter, and no fire-heat was given in summer except on damp and dull days, and then only sufficient to dry up the damp.

The manner in which Mr. T[illegible], gardener to J. A. Turner, Esq., has treated the plant from which our figure was made, is as follows:—It is kept at the coolest end of the Mexican house, which appears to suit it well, as it continues to improve; and he has grown it on a block of wood plunged into a pot, with some sphagnum moss round the lower part of the plant, and with good drainage. Unlike most Orchids, it requires but a short season of rest, as it commences to grow after flowering, and one should [illegible] continues to do so through the winter, by which time it shows flower. A little increase of heat at this stage will cause it to throw up its flowering stems much stronger. The resting season is the period after flowering. When the plant begins to grow, it is necessary not to give too much water, for it is apt to cause the rotting of the young shoots. The best time for potting is when growth is commencing; and in potting, the roots must not be bruised, for that would injure the bulbs; and if they are allowed to shrivel, they may be a long time recovering. The best remedy in such a case would be to place the plant on a block of wood, where it can receive a good supply of water to get the bulbs plump, and under this treatment it would soon make fresh roots. The plant will thrive well on a block of wood suspended from the roof, but then requires more moisture than when it is grown in a pot.

Propagation is effected by dividing the bulbs just before growth commences, but two or three bulbs should always be left behind the leading bulb. The divided portions should be placed on blocks of wood, and kept moist. The plants are not subject to become infested with insects. Sometimes the white scale will attack them; if so, they must be cleaned immediately or their health will be injured.

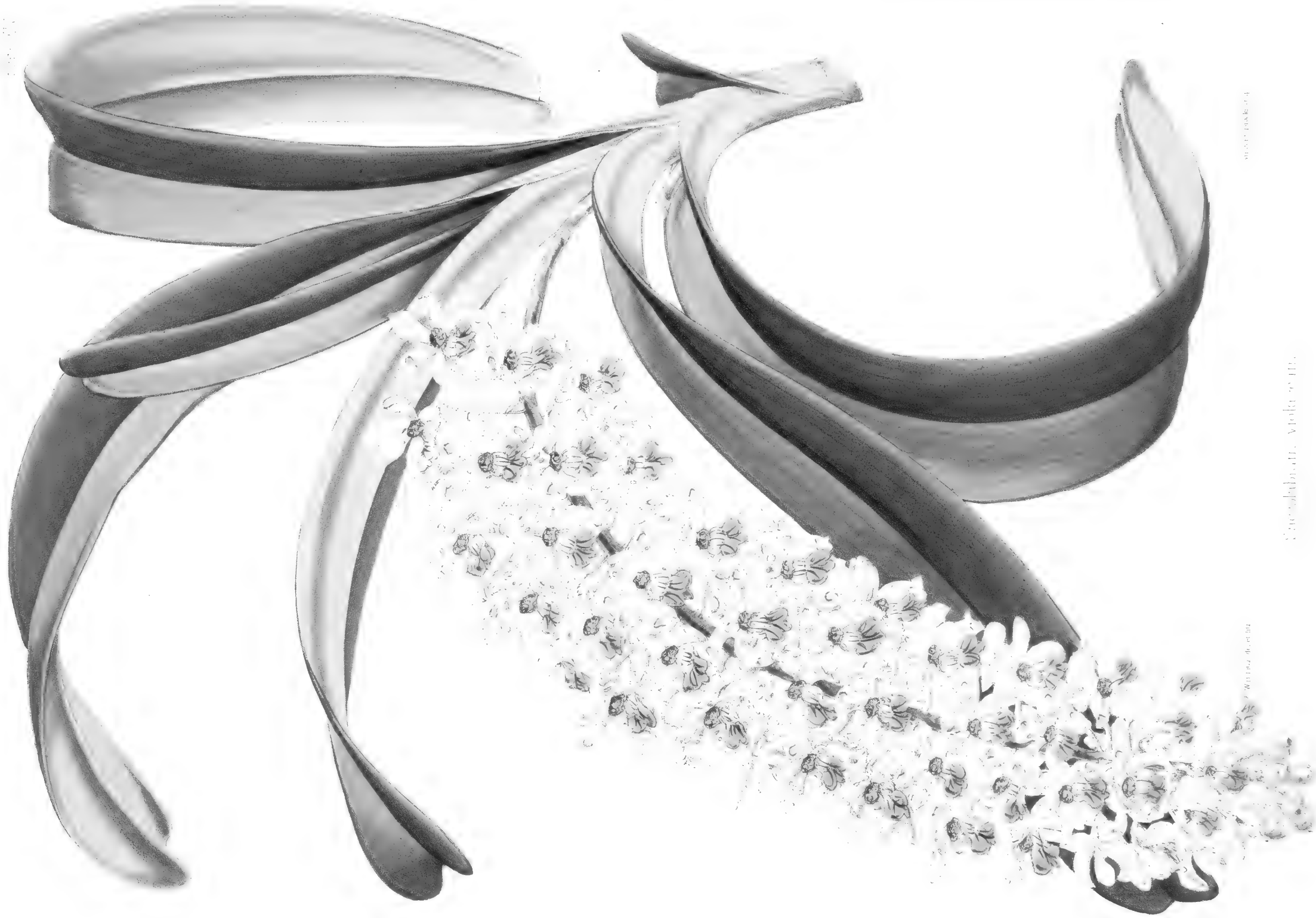


Plate XIV

SACCOLABIUM VIOLACEUM

A noble epiphyte with erect leafy stems furnished with numerous distichous strap-shaped drooping leaves, which are [illegible] and obtusely [illegible] at the end so as [illegible] to form two irregular rounded lobes. The [illegible]

[illegible]

[illegible]

This magnificent plant is a native of the Philippine Islands, and was introduced from Manilla by Mr. Cuming to the nursery of Messrs. Loddiges upwards of twenty years since. In 1846 the editor of the *Botanical Register* published a drawing taken from a plant "which flowered in great perfection with Messrs. Loddiges." That drawing represents a spike with fifteen flowers. How much it has improved under good cultivation, [illegible] show. It stands among the first rank among [illegible] Orchids.

The genus *Saccolabium* includes some of the finest [illegible] species [illegible] not only takes a high rank on the ground of its beauty, but will be found [illegible] valuable on account of [illegible] charming flower-spikes in the dull winter months, the more so as there are no other good *Saccolabiums* [illegible] the [illegible].

Our drawing was executed from a well-grown plant in the fine collection of E. Wright, Esq., Gravelly Hill, Birmingham, which plant has this year produced two noble flowering-spikes, under the [illegible] management of Mr. H[illegible], the gardener, who is a capital Orchid-grower. We are extremely glad of the opportunity of [illegible] so perfect a specimen, for many growers of Orchids have imagined it to be a species not worth cultivating, on account of the supposed short [illegible] flower-spikes. Our present illustration will, we trust, dispel this illusion. We have indeed little doubt that as the plant becomes stronger it will blossom even finer still. Since the accompanying figure has been prepared we have received other specimens, equally well grown, from the collection of J. A. Turner, Esq., of Pendlebury, near Manchester; and we have ourselves this season flowered several fine plants which were imported by us only eighteen months ago, and some of them have produced as many as fifty flowers on the spike.

This species had continued very rare in gardens until the importation [illegible] adverted to was secured. The plants then received were obtained under the name of *Vanda violacea*, by which it had been generally known, but Dr. Lindley—the greatest living authority on Orchids—has determined that it belongs to *Saccolabium* [illegible] growers. The [illegible] distinct from all the other species which we have seen. Its leaves are [illegible] more erect, and marked with several prominent veins, features which afford well-marked distinctive characters. Another difference is, that the flowers are larger than in the other kinds.

Saccolabium violaceum [illegible] breadth. The [illegible] a foot [illegible]

The spikes are produced from the axils of the leaves, and are about fifteen inches in length. The sepals and petals are white, spotted with mauve, each of them having generally one larger spot near the end, and several smaller markings. The lip is mauve-coloured, beautifully marked with deeper lines. The blossoms are produced in January and February, and continue for four or five weeks in perfection, provided they are kept dry and at the coolest end of the East Indian house.

This species grows naturally on the trunks and branches of trees. Here, in our Orchid houses, it has proved itself a free-growing plant; but coming, as it does, from a hot damp climate, it requires strong heat and abundant moisture. To have it in perfection, these two stimulants must be applied in the proper degree and at the proper time, and there must also be a season of thorough rest. These alternations of growth and rest, each in its due proportion, are essential to the well-being of all plants. Our present subject requires its rest in winter after it has flowered. This resting state should be brought about by withholding water from the roots for a time, but in doing this, the leaves must never be allowed to shrivel, for this will endanger the health of the plant. We have previously observed, and we here repeat, that plants of this habit, without fleshy pseudobulbs, require more nourishment—even in the resting-period—than those which have such reservoirs to fall back upon.

The plant will thrive either on blocks, in baskets, or in pots, according to the taste of the cultivator or the accommodation at his command. If on a block or in a basket, the plant can be suspended from the roof of the house, which will allow more room for those that are on shelves or in pots. This is a great object with those who have but limited accommodation. We have found it to grow well in sphagnum moss and broken crocks or charcoal, and we also think it a good plan to give the plant fresh moss every year, if that which has been used appears in the least decayed. It does not require much water at the roots, only sufficient to keep the material a little moist, and the water must never be suffered to collect in the leaf-axils, especially in winter, as this would probably cause the rotting of the heart. The plant requires the same temperature as that recommended for *Vanda tricolor* (Plate III.).

It is difficult to propagate, as it is shy in pushing out roots up the stem, but sometimes it will produce young stems from the lower parts of the older ones. These should be left on until they are well rooted, and may then be taken off and put on a block or in a basket, and suspended in a moist shady part of the house until they are well established, after which they may be removed to a position where they will receive more light, a change that will induce stronger and more robust growth. They must be kept free from insects, which is an essential point in Orchid culture, but indeed the plant is very seldom attacked by insects.

Plate XV

CYPRIPEDIUM HIRSUTISSIMUM

[illegible]

[illegible]

[illegible] flowers [illegible] of Orchids [illegible] the subject of our date. The last few years have witnessed several fine additions to the Lady's Slippers, and [illegible] from [illegible] along with *Cypripedium Fairrieanum* and first flowered at the Paradise Nursery, Holloway, whence Sir W. J. Hooker's figure in the *Botanical Magazine* was derived. Since that time another importation of plants has been effected.

We have [illegible] Every Orchid grower, indeed, should possess it, for it is a most useful plant for decorating the Orchid house [illegible] perfect for a long [illegible] flowers [illegible] different times, placing those required first in bloom in the warmest house, and the others in the cooler house. [illegible] exhibition plant. We have seen the same plant at four shows and with the flowers as perfect after the amount of travelling as before. If the stalks of the flowers are tied to a small stake they will not suffer any injury by removal from place to place. This plant closely resembles *Cypripedium insigne* and *C. [illegible]* [illegible] their foliage. When the flower-stalks appear, however, they are known by the hairiness of their surface.

Cypripedium hirsutissimum grows about ten inches high, and having light shining evergreen foliage and being of compact habit, is a good-looking plant when not in bloom. The flowers are produced from the early [illegible] stems which rise from the centre of the young growth; they measure six inches across, and are [illegible] of a bright green, purple, and brown. Each flower will last for six weeks or more if kept from damp and in the cooler end of the Mexican house away from draughts [illegible]

These *Cypripediums*, not having thick fleshy bulbs to support them, require a regular and constant [illegible] of nourishment in order to keep them in a thriving condition. The present species [illegible] The requisites are proper soil and a good supply of

moisture at the roots the plant must never be allowed to get dry as its roots are thick and fleshy and require abundant support. We have found it to thrive in either a warmer or a cooler house, and it appears to be very accommodating in its habits, as it will do either in a basket or in a pot. We have observed it well grown in a variety of soils by different cultivators, and in nearly all cases it has succeeded. The plant continues growing nearly the whole year, and hence the necessity for a free supply of moisture.

All these tropical *Cypripediums* require the same kind of treatment. The soil we grow them in is good fibrous peat, with a little loam and silver-sand, all mixed well together; it should be rather rough for as the roots seem to enjoy and as the plants require more water than some Orchids, the material is all the better for having a few small pieces of charcoal or broken crocks mixed with it, to keep it open. The pots must have good drainage, and should not be too large. The drainage material is to be placed at the bottom, and on this a layer of sphagnum moss or rough peat the pot being then filled with the soil recommended to within half an inch of the rim, so that the crown of the plant may be set on the top of the soil, with the roots penetrating it. The shoots must indeed always be kept above the soil, for when deep planted they are apt to rot.

This plant will do well in the Cattleya-house or in the Mexican-house, or in any warm house where the temperature ranges from 50° to 60° in the winter season. In summer it will succeed well in a house which is warmed mainly by the heat of the sun, fires being used only on cold and wet days and nights, but in autumn fires must be kept up, and the temperature maintained at the point already recommended.

It is propagated by dividing the mass, two or three shoots or growths being retained to form each plant, always moreover retaining one old growth beside the young one. This division should be effected when the young shoots have attained two or three inches in height, a portion of sound roots must also be kept to each plant, and the division should not be attempted except the plant is in a healthy condition, if unhealthy, the severed parts would probably die. After division, pot the separate pieces in the material already recommended, and keep them in a warm shady part of the house, not allowing too much water until the plants begin to make fresh roots. It is generally free from insects.

Cattleya Dawsoni

PLATE XVI.

CATTLEYA DAWSONII.

[illegible] flowers [illegible] *C. Mossiæ* [illegible] sepals [illegible] the former lance-shaped [illegible] very broad and much undulated [illegible] front [illegible] margin [illegible] the front portion of the [illegible] lobes [illegible] centre [illegible]

CATTLEYA DAWSONII [illegible]

The [illegible] *Mossiæ* [illegible]

[illegible] more a race as being [illegible] produced only to [illegible]

[illegible] with the different [illegible]

[illegible] collection of T. Dawson, Esq., of Meadow [illegible], Glasgow, where it has been known for several years. It is [illegible] any that have come under our notice, and although related to *Cattleya Mossiæ*, is perfectly distinct from that plant. Indeed, we are [illegible] that it may be a [illegible] *Cattleya labiata* and *Mossiæ*, as it resembles both [illegible] the size of its flowers [illegible] foliage is [illegible] stiffer and more [illegible] so that it is easily distinguished from them by [illegible] not in flower. The leaves are thicker than any other of its class known to us.

[illegible] is a very rare plant. The specimen [illegible] the flowers represented by our artist [illegible] [illegible] though we have no certain information as to its introduction. We hope [illegible] collectors [illegible] in order that so fine a plant may [illegible]. We have some small plants at [illegible]

[illegible] *Mossiæ* [illegible] plant grown [illegible]

[illegible] its flowers three and four together on a spike [illegible] The sepals and petals are of [illegible]

[illegible] flowers [illegible] for several weeks.

[illegible] exceedingly well cultivated by Mr. [illegible]

[illegible] to grow [illegible] perfection. Like other *C*[illegible]

[illegible] plant

[illegible]

are not liable to rust like iron, and rust is very injurious to Orchids. There are no plants so adapted to all treatment or materials that do not like as Orchids, and hence it is the better plan to avoid everything which is known to injure them. On the other hand, let them but have what they require, and no class of plants will yield more ample or more pleasure to the cultivator.

When grown in a pot for *Calceolaria* should have a compost of fibrous peat and good drainage, and the same general course of treatment as is recommended under that head. It is also liable to the attacks of the same insects and is subject to the same casualties.

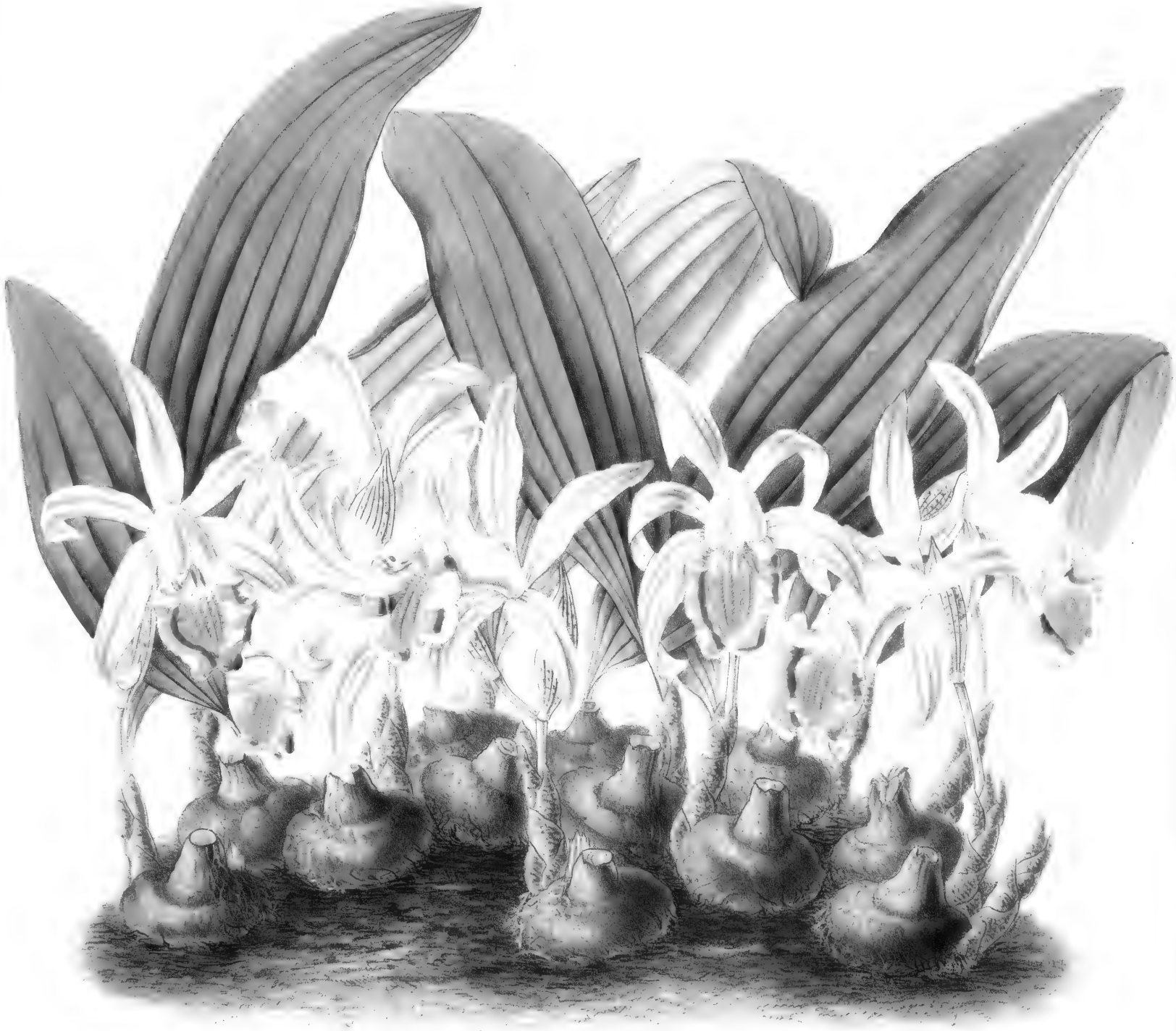


PLATE XVII

PLEIONE LAGENARIA

[illegible] pseudobulbs flask-shaped, green, [illegible] on the surface [illegible]. The [illegible] light green, about two and a half inches in breadth [illegible] six [illegible] after the maturation of the pseudobulbs. The flowers spring [illegible] from the [illegible] [illegible] they are each three inches or more across [illegible] [illegible] and acuminate, of a light rosy-lilac colour; the lip roundish [illegible] emarginate, its sides reflexed over the column, the disk yellow with five crested ridges, and the margin white, beautifully flaked [illegible].

PLEIONE LAGENARIA, *Lindley, Paxton's Flower Garden*, [illegible] 36 fig. [illegible]

[illegible], *Lindley, Folia Orchidacea*, art. Cœlogyne [illegible].

This beautiful plant is found in the Alps of India, its [illegible] moss-covered rocks and tree-trunks. It was introduced some ten or twelve years ago by Messrs. Veitch and Sons through their collector Mr. Thomas Lobb, but is even now extremely rare, very few plants having been imported. The little group of which it forms part ranks amongst the gems of the Orchidaceous race.

[illegible] difference of opinion has existed respecting the proper position of these plants in systematic botany, whether, that is to say, they should be merged in the more comprehensive family of *Cœlogyne*, or whether [illegible] form a genus apart. There is something so peculiar in their habit, as Dr. Lindley has well observed, that it seems desirable to separate them, and he himself had at one time taken this course. "Occasionally," he writes, "I have imagined that they might be defined by such characters as a saccate lip, an imbedded lip [illegible] by [illegible] immediate veins, or by the [illegible] of the flower tapering [illegible] base instead of being [illegible] the last peculiarity, on which I had most relied, is so evidently [illegible] by *C. Hookeriana*, which has the form of *C. cristata*, that after all I find it necessary to leave them as a [illegible] form of *Cœlogyne*, [illegible] the hope that future observers will discover some sound generic character." The group comprises the following species:—*Hookeriana*, *diphylla*, *lagenaria*, *maculata*, *humilis*, and *præcox* with its variety *Wallichiana*. Whether viewed as a distinct genus, or as a section of *Cœlogyne*, the group [illegible] well marked out by external features.

Of the foregoing plants, we only know the five last as cultivated plants. That which we now figure from a fine specimen that we have bloomed for several years, is certainly one of the most beautiful of them. The pseudobulbs of *Pleione lagenaria* form on the surface of the soil small roundish masses, rather excrescent [illegible] [illegible] their size and form, though they are not present with the flowers [illegible] colour [illegible] green about eight inches in length, and two and a half in breadth. The flowers are produced from the base of the [illegible] bulbs [illegible] along with the young bulbs [illegible] flower [illegible] three inches [illegible]. The flowering season is October and November, and the flowers continue in perfection for three weeks, kept free from damp.

An [illegible] has prevailed that these plants are difficult to flower, but we do not find it so, and we have moreover seen them blooming in great perfection in other collections besides our own. When properly

attention to, there are no plants that will better repay the cultivator's care, especially as they require so little space, and bloom during the dull autumn months, when flowers are in so much request. We have, indeed, seen importations of large masses of *P. maculata* and *P. Wallichiana*, and yet we seldom find them now in collections, so that many hundreds of bulbs must have been destroyed. This is not, however, because they are difficult to cultivate, but because they have been wrongly managed. And the cause of failure is that they are deciduous, losing their leaves after completing their growth; for though while in this leafless state they produce their flowers, yet, after the bloom is over having no leaves, they are forgotten and neglected. They require a regular course of treatment, and unless they get it they must not be expected to thrive. The plants, in fact, are easy enough to manage, if the task is set about in the right way. We have followed the mode of culture herein explained for several years with uniform success, so as to secure a profusion of bloom, and our treatment has been based on the natural conditions of the plants themselves. We are told they grow on rocks and trunks of trees, among moss and decaying vegetable-matter, which, falling annually from the trees, affords them nourishment. They are somewhat similar to Indian crocuses, and have some resemblance to crocuses in their habit, being deciduous, losing their leaves, and even their roots, every year, the new bulbs also, when two years old, drying away. They come from high elevations, and therefore do not require too much heat. The house in which the *Cattleyas* are grown will suit them well. They require a decided season of growth, which should follow their flowering, and during this time they must be potted. The same treatment as that we recommend was followed by Mr Woolley when gardener to H. B. Ker, Esq., with very great success. Our own plants come from the stock grown by him ten years ago, which shows that if the plants have proper treatment they can be kept year after year.

As already observed, these *Pleiones* lose their roots annually, and then make fresh ones with the young growth. It is when the young bulbs and roots are forming that they should be repotted, and this occurs after they have done blooming. Our practice is to turn them out of the pots, shaking away the earth, unloosing the bulbs from each other, and then repotting them. The soil that suits them best is composed of one-third peat and the rest loam, with a free admixture of silver-sand, or clean river-sand which will equally answer the purpose. The ingredients should be well mixed together, but not sifted, as they will root more freely in the rougher earth. A small quantity of sphagnum-moss may be used with advantage as they prefer something to adhere to. The pots ought to be perfectly clean, and not too large; good drainage is essential, and this should be supplemented by a layer of moss or rough peat, to keep it open, for the plants require a good supply of water at the roots in the growing season, and it is necessary that this should pass off quickly. Above the moss, fill up the pot with soil, and press it down a little firmly, so that the surface is just below the pot-margin, then put the bulbs on the top of the soil, about one inch apart, and finish by giving a gentle watering with a fine rose-pot.

These little Orchids will thrive in a cool house, where the heat in winter ranges from 45° to 50°. We have, indeed, grown them to great perfection in the same house with *Lycaste Skinneri*, kept in summer under the shade of grape-vines, in which situation they bloomed very much finer in the autumn of 1862 than we have ever seen them before, many of the stems bearing two flowers each. They must have a good supply of water in the growing-season, and when their growth is completed they must have rest, with sufficient water to keep the bulbs plump. In the former period they must be set near the glass, so that they may be well matured, and this will cause them to bloom more freely. When growing in too hot a house, the foliage is sometimes subject to red spider, which should be kept away by washing, for if the leaves are injured strong bulbs cannot be expected. They are propagated by separating the pseudobulbs, which should be done when they begin to grow.

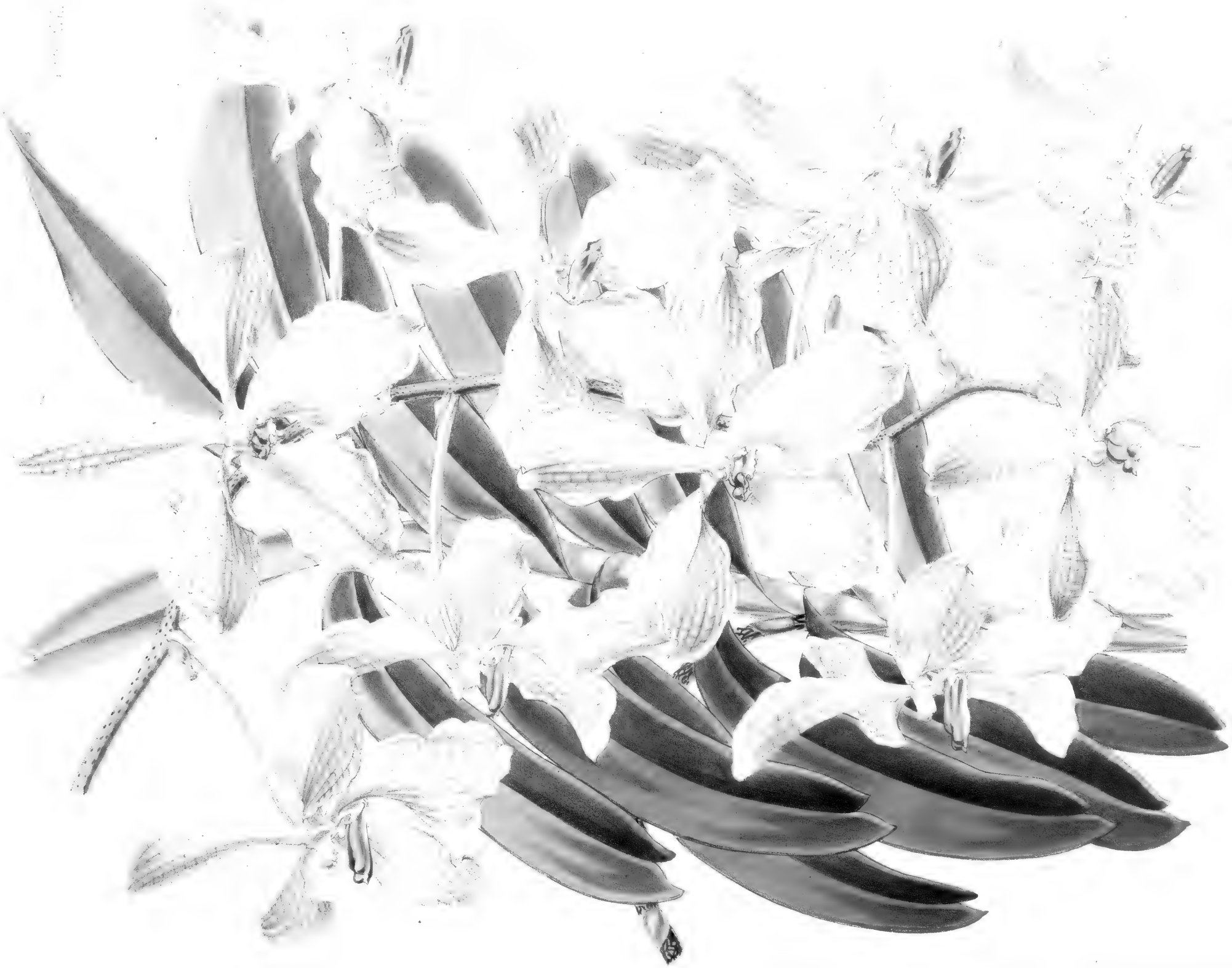


PLATE XVIII

VANDA CŒRULEA

[illegible]

[illegible] *Griffith MS.*; *Lindley, Botanical Register* 184[illegible], under [illegible]; *Paxton's Flower Garden*, [illegible]; *[illegible] Botanical [illegible]*, [illegible]

This plant is without exception the finest of the *Vandas*. It is an Indian species, and was first discovered by Mr Griffith [illegible] in the forests of [illegible]. It was introduced by Mr Thomas Lobb [illegible] [illegible]

The very beautiful drawing now published, and which by no means exaggerates the grandeur of the plant, was taken from a specimen in the collection of Walter Boes, Esq., of [illegible] [illegible] [illegible] Mr Wiggins, the gardener. In the Worton collection there are two fine plants of *Vanda cœrulea*, [illegible] of different varieties as regards the size and colour of the flowers. The [illegible] we now represent from a plant in the most perfect health [illegible] [illegible] [illegible] our [illegible] much needed amongst [illegible] having the good property of producing fine spikes of flowers on small [illegible] of the *Vandas* do not flower until they have grown to a large size.

Vanda cœrulea [illegible] Another reason for its scarceness is that it is slow growing, and not so easily propagated [illegible] [illegible]

[illegible]

heat and moisture are required for its successful growth. But these requisites must be supplied at a proper season, for though the plant comes from the hot climate of India, it cannot therefore bear to be strongly stimulated when it ought to be at rest. We believe the giving of more heat than is required, and at an improper time, is one great cause of failure in cultivation. The plant must have a season of rest as well as of growth, and this, notwithstanding that it belongs to a group of Orchids which continue to grow nearly all the year round. *Vandas*, as we have before remarked, have no thick fleshy bulbs to support them, and in consequence require abundance of moisture at the roots, especially when grown on blocks. The plants must never be allowed to shrivel, as may often happen when they are flowering, the reason being that they bloom so freely as to exhaust themselves, especially when they are not quite healthy at the root. When a plant is perceived to be shrivelling, the remedy is to apply water to the axils of the leaves, but this requires to be done with sound judgment as to the quantity given.

The plants may be grown in many ways—on blocks, in baskets, and in pots; they succeed well either way, but the most natural manner appears to be on blocks of wood, which should be suspended from the roof where they may get plenty of light, but not in the scorching sun. Too much shade is injurious, it causes the growth to become sappy, and this results in the ends of the leaves turning black, which is frequently termed the "Orchid disease." If, however, the rules we have laid down regarding the treatment of the plant are followed, this evil will be avoided.

The most beautiful plants of this Orchid we have ever seen were in the collection of A. Fleming, Esq., of Liverpool. This was about seven years since, but they have been since sold. They were large masses growing on immense logs of wood, suspended from the roof, near the glass, in the Cattleya-house, where the temperature ranged from 55° to 60° in the winter and from 65° to 75° in summer. On fine days ventilation should always be resorted to, in order that the temperature may not rise too high. It is better to allow all Orchids a little fresh air, but not to subject them to cold draughts, which are injurious. If grown on blocks, the plants require more water than when in pots or in baskets, if grown in either of the latter methods, they must have good drainage, but not too much material at the roots—a little sphagnum-moss is the most suitable, the baskets or pots being three parts filled with crocks, and the remainder with moss. It is also a good plan to apply fresh moss every year, but it is necessary to be careful, in taking away the old moss and replacing it, that the roots may not be injured, for they are after all the principal support of the plant.

Vanda coerulea is, as we have said, not easily propagated, being slow-growing, but when strong and well-established, the plants throw up young shoots from the base of the old stems, and these may be taken off when well rooted, and placed, each with a little sphagnum-moss, on a block of wood, and suspended from the roof. The plants are not specially subject to the attacks of insects, but they should always be kept clean. Thrips, perhaps the most troublesome in summer, may be destroyed or kept away by fumigating with tobacco.

Plate XIX

DENDROBIUM WARDIANUM

long. It is of deciduous habit, losing its leaves annually, previous to flowering. The flowers are produced in threes, on opposite sides of the stem, and each flower measures upwards of four inches across. The sepals and petals are white, tipped with rich magenta. The lip also is white, tipped with magenta, its lower part of a deep orange-yellow, marked on each side with patches of crimson. The flowers are produced in April and May, and last for several weeks.

According to our own experience and that of the other growers who possess it, this is a free-growing species. Mr Day's plant is making its fresh growth even finer than before, and his gardener, Mr. Stone, is of opinion, as the growth is earlier that he will be able to ripen the bulbs much better, and thus cause the plants to produce a still greater abundance of flowers. In this we have no doubt he is correct; indeed, this is the only way to secure a vigorous and abundant bloom.

There is no genus of Orchids that will repay the attentions of the cultivator better than *Dendrobium*, and we very much regret to see the many splendid plants composing it so much neglected. There are, in fact, when they are well grown and well flowered, none to equal them for warm conservatory decoration, in the winter and spring months; and there are no Orchids more accommodating, nor any that produce such quantities of flowers. Many of them again, are not at all expensive. They are, besides, of easy propagation, producing freely from the old stems young shoots, which only require to be taken off and potted. The greater part of them divide well just as they commence growing. We strongly recommend those who aim at having their Orchid-houses gay to grow *Dendrobium nobile* and its varieties freely, it may be had in bloom from Christmas to June merely by keeping a succession of plants, and starting them at different periods. The course of treatment should be this. After they have made their growth in autumn, place those required latest in a greenhouse, and keep them rather dry; then, when they are required for blooming, remove them into heat. The plants will thrive in any warm house in summer, but the bulbs must be well ripened to cause them to produce and perfect a profusion of bloom.

This *Dendrobium Wardianum*, being a species of pendent growth, will be better grown in baskets or on blocks than in pots. We cannot do better than explain the course of treatment adopted by Mr. Stone. The plant is on a block of wood, on which it seems to root freely, the roots hanging from the block some two feet in length. It is grown suspended from the roof, in the Cattleya-house, where the heat is not over 60° or 65° in winter, though in summer the temperature is higher. In the growing-season it has a liberal supply of water at the roots. Growing thus on a block of wood, the plant requires more water than under other treatment, indeed, a little moss over the root would be of great advantage, as they would then be kept more regularly moist, and in summer, or hot, some such precaution, the block dry very quickly. If the plants are allowed to get too dry it causes the stems to shrivel, and this injures the young growth; in fact, under such circumstances, it is arrested for a season. The plants will also do well in a basket, with sphagnum-moss and broken potsherds, the basket being suspended from the roof. In this way they do not require so much water as when on blocks.

The Dendrobes are subject to the attacks of several kinds of insects, such as red spider, thrips, etc. Such pests should be kept away by frequently washing the leaves. The plant now immediately under notice is not so readily propagated as many of the other species, as it does not produce young shoots so freely on the old stems. When they are produced, they should be taken off and put upon blocks, with a little sphagnum-moss.

PLATE XX

LÆLIA SUPERBIENS

A remarkably handsome epiphyte, having oblong-fusiform pseudobulbs, a foot or eighteen inches long, bearing a pair of oblong, acute, rigid, coriaceous leaves at the top. The flower-stems also grow from the top of the bulbs between the leaves, and attain a four or five, or sometimes even eight or nine feet in length. The flowers are from fifteen [illegible] in number, forming a raceme at the top of the stem, and [illegible] measuring seven inches a[illegible] are [illegible] shape, and [illegible] the petals somewhat broader and [illegible], both of a rich [illegible] [illegible] tipped with deep [illegible]; the lip is oblong, the [illegible] three-lobed, the lateral lobes [illegible] the [illegible] one, the middle lobe oblong emarginate, deep crimson, the disk yellow, bearing five [illegible] crests.

LÆLIA SUPERBIENS, *Lindley, Botanical Register*, [illegible]; *Bateman, Orchidaceæ of Mexico and Guatemala*, t. [illegible]; *Hooker, Botanical Magazine*, t. 4090; *Paxton, Magazine of Botany*, [illegible]

[illegible] SUPERBIENS, *Reichenbach f.*, [illegible] *Orchidacea*, [illegible]; *Walpers, Annales Botanices Systematicæ*, vi. 418.

"[illegible] most magnificent of all plants I have seen several times. It flowers in November, and in some instances bears from eighteen to twenty flowers, on stems from nine to twelve feet long." So wrote Mr. Skinner, of this noble Orchid, which was introduced by him many years ago from Guatemala, of which country it is a native. Many of our readers have no doubt heard of or seen the magnificent specimen which was grown in the Horticultural Society's garden, at Chiswick, some ten or fifteen years since, and which has been known to bear nine spikes of flowers at one time; this plant was five feet in diameter, and a grand sight when in bloom—certainly worth travelling miles to see. We believe it was sent over, in one mass, by Mr. Hartweg, the Society's collector, and we may therefore imagine how grandly it must grow in its native country. The plant is not scarce, being in [illegible] [illegible] able [illegible]. There are two varieties in cultivation differing in growth, one having considerably shorter bulbs than the other, the flowers being the same in colour, except as to size, those of the short-bulbed flower not being quite so large as those of the other.

This plant is one of the finest and most showy of this splendid genus. Our figure was taken from a plant in our own collection, which bore thirteen flowers on one spike, each flower measuring seven inches across, and of a beautiful colour distinct from all other *Lælias*. We are much gratified to be able to offer so good an illustration of this fine species, which has of late been very much neglected. It does not deserve this, but, unfortunately, a few years ago it was thought more of than now. We trust, however, that our figure will be the means of again drawing public attention towards it, and that we may hereafter see it more frequently and also more cultivated, for it is undoubtedly one of the finest plants that can be grown for the winter decoration of Orchid-houses, its spikes of fifteen or twenty flowers making a grand show.

There are no other *Lælias* like this in growth, but the *Schomburgkias*, another family of Orchids, are [illegible] for [illegible] *Schomburgkias* are worth growing, their flowers being small, [illegible] they pro[illegible] [illegible] *Lælias*, that is, from the top of the bulb, four to five feet in length, with the flowers at the end, and none but those who are well acquainted with the plants can distinguish [illegible] from the other until they come into flower.

[illegible] *Lælia* is not so compact in growth [illegible]. The bulbs attain the height of a four or eighteen inches, and bear on the top two leaves, which a[illegible] [illegible] breadth, and of a dark green colour. The flower-stems are also produced [illegible]

the leaves, after growth is finished, which is in the autumn months. These stems attain generally a length of four or five feet, the flowers, sometimes twenty in number forming a raceme at the end. The individual blossoms measure seven inches across, with the sepals and petals of a rich rose-colour, veined with dark red, and the lip of a deep rose, veined with magenta, the throat being yellow. These flowers are produced in the winter months, and continue in perfection for several weeks.

This plant is found difficult to flower in some collections, but we have in such cases generally found that it is grown in too high a temperature, which causes it to renew its growth, instead of producing flowers. It requires, indeed, to be grown vigorously, but should be stimulated at the proper time, which is during the spring and summer months. It begins to root at the same time as it commences growing, and this is when it requires the greatest care, so cause it to make strong and well-ripened bulbs; for without strong bulbs, and without these being well matured, it is hopeless to expect good flowers.

Naturally *Lælia superbiens* grows on trees and rocks, where it has but little soil, and it is when in the latter situation, namely, when growing in exposed situations, that it flowers the most freely. This teaches us that it does not require much shade. Most of the plants that come from the same country require comparatively little heat; in fact, we find them thrive much better with a very moderate share. The plant from which our drawing was made, was grown in a cool house along with *Cattleyas*. The temperature of this house ranges from 50° to 60° in the winter months, and in the summer time no fire-heat is used, excepting on cold and wet days or nights, and then only just enough to dry up the damp.

This *Lælia* will thrive in a pot or basket, or on a block. The latter will suit it best, provided it is kept well watered during the growing season. The block should be of a large size, so that there may be plenty of space for the roots, which are thrown out freely when grown in this way. It is a very good plan to plunge the block in a pot, as it does not then require such frequent applications of water; a little rough peat or sphagnum-moss form suitable materials in which to plunge it, and there must be thorough drainage beneath. We find the plant to grow well near the glass, with little shade, except when the sun is very fierce, and when it has completed its growth we give it rest by withholding water from the roots, only enough being given to keep the bulbs plump. When it shows flower, a little more water is allowed, and this induces the flowers to come finer. It naturally rests for some time after it has flowered, but as soon as it commences growing, we give it a good supply of moisture. When the plant is coming into flower it is necessary to be careful that the spike does not touch the glass, which would probably injure it; indeed, it is advisable then to remove the plant to be rid of [illegible] spikes grow high.

Propagation is effected by dividing the bulbs, leaving two or three old ones at the back of the leading or growing bulb, but if the plant is required for flowering it is better not to cut, as it weakens the after-growth. White scale will sometimes attack the leaves and stems, and must never be allowed to [illegible]

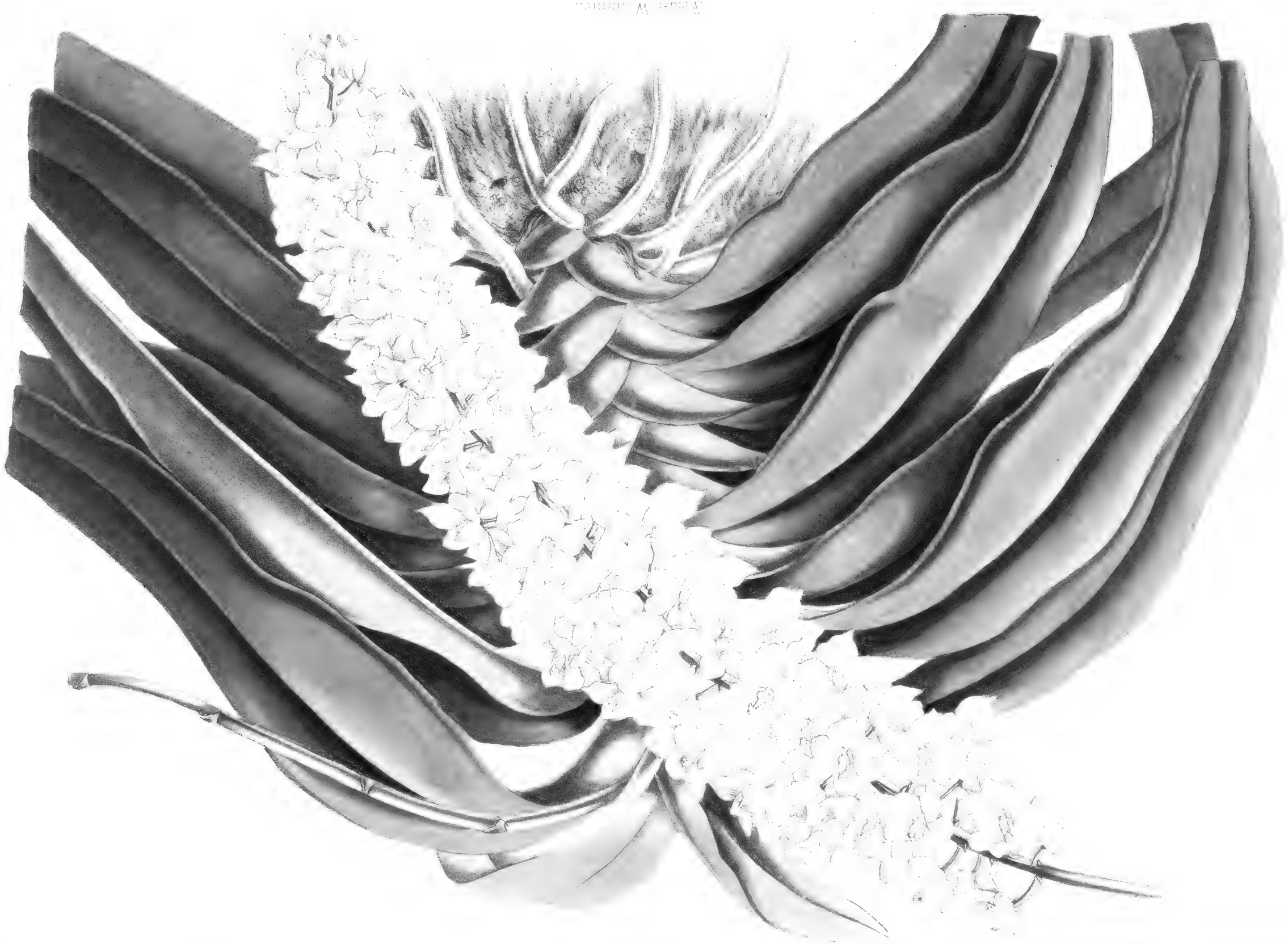


Plate XXI

AERIDES WILLIAMSII

A noble epiphyte, with an upright leafy stem rooting at the base. The leaves are distichous, leathery, broadly lorate, and somewhat channeled, of a dark-green colour, and notched at the apex. The flowers are produced in dense pendulous racemes of from one to three feet in length, and are white, with pale rosy markings at the base of the lip. The sepals and petals are oblong obtuse [illegible] flat [illegible]

Aerides W[illegible] [illegible]

The *Aerides* which we now figure is one which recommends itself to the notice of cultivators by its robust and massive foliage, no less than by the great length of its dense-bloomed cylindrical flower-spikes which, for their beauty and effectiveness, are remarkable even in the noble genus to which it belongs, a genus which comprises without doubt [illegible] are known.

The plant, which is a native of India, certainly produces the finest flower-spikes yet seen amongst the species of *Aerides*, these spikes [illegible] from two to three feet in length, and bulky in proportion. Our drawing was taken from a plant in the collection of C. B. Warner, Esq., of Stratford Green, with whom it has flowered for several years, continuing to present the same remarkable features. We have known the plant for the last ten years or more. It was first flowered by Mr. Warner [illegible] removed from Hoddesdon, and [illegible] shown both in the gardens of the Horticultural Society at Chiswick, and in those of the Royal Botanic Society in the Regent's Park [illegible] three exhibition seasons [illegible] was it considered, that on these occasions *Aerides Fieldingii*, to which it is most nearly allied, was [illegible] the admiration [illegible] up of [illegible]

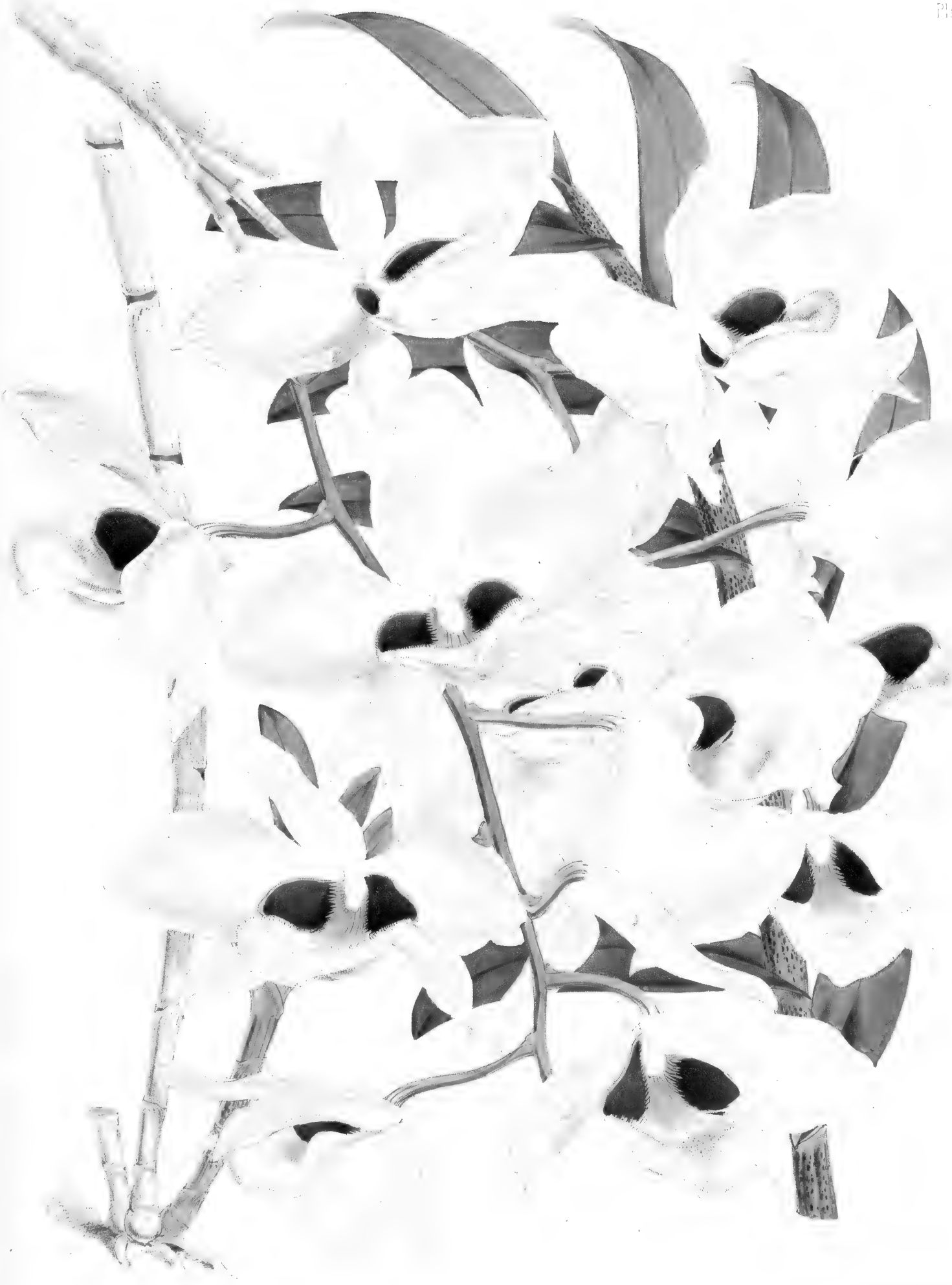
The plant was imported under the name of *A. Fieldingii* by Messrs. Veitch, through their collector [illegible] from this source Mr. Warner obtained it. It was a single plant, selected from [illegible] drooping, and [illegible] from that of any other *Aerides* in cultivation, so much so, indeed, that any one with a knowledge of the plant might at once recognise it by the leaf alone. We suspect it may be a seedling produced, in its native country, from *A. Fieldingii*, and we have no doubt that there are many fine wild forms to be found which have not as yet reached our collections. It is seldom indeed that two plants of the same Orchid quite identical are found, unless they have been taken from the same parent, and hence it may be inferred that in their native country, either through the agency of insects or by their natural habits, they vary [illegible]

If this be so, we may expect many more fine forms to be from time to time added to our collections. Collectors should, however, contrive to see them when they are in bloom [illegible] select the best and most distinct. We [illegible] there are any Orchids that do not sport when obtained from seed. According to our own experience, and we have watched the [illegible] years, there are none of the species of *Aerides* which are not worth growing, which is more than can be said of many other genera of Orchids, that are only interesting to the botanist; but as the taste for these fine flowers increases, we hope that finer and finer species or varieties [illegible] we already possess will be imported in order to sustain it. That the taste is increasing is certain, for Orchid growers [illegible] now than they were five or six years since, and now [illegible] so many of our finest Orchids have been proved

to thrive in houses cooler than had been supposed, no doubt it will go on increasing. Half the Orchids we possess are grown in too much heat, which causes grievous failures. Another great evil is the giving them too much water at the roots, the consequences of which are not found out at the time, but appear afterwards. Of course there are some Orchids that require more water than others in their growing season which these are must be learned by experience

Aërides Williamsii is of compact but very slow growth, sturdy in habit, and furnished with broad, dark-green leaves, more than a foot in length The spikes are produced from the axils of the two-ranked leaves, on opposite sides of the plant, and are from two to three feet in length. The flowers are of a pinkish-white colour, and are produced in May and June, continuing in perfection for three and four weeks.

This plant resembles in its natural habit and habitat the others of its class, and requires similar treatment to that already recommended for *Aërides nobile* (Plate XI). It is difficult to propagate, there having been only one young growth on it for ten years. The stems moreover do not produce roots except at the base. From these causes it will always be rare, unless fresh importations are made. Though the plant has been in the country for so many years, the leafy part is not now more than a foot high, yet we have never known it fail to produce two or three spikes of flowers annually The plant would have been larger were it not that it loses its lower leaves.



W.H. Fitchdel et lith

Dendrobium Dalhousieanum

Plate XXII

DENDROBIUM DALHOUSIEANUM

[illegible] the petals more larger than the sepals [illegible] ovate and of a creamy yellow tinged with rose [illegible] the lip is flat oblong pubescent in front yellow at the base and here marked with a pair of large [illegible]

[illegible] Batsch, *Paxton's Magazine of Botany* [illegible] *Botanical Register* [illegible]

This beautiful *Dendrobium* is a native of India and was introduced to Chatsworth by Mr Gibson [illegible] the [illegible] Orchid [illegible] is one of the [illegible] of this splendid genus and very distinct both as to its growth and flowers. We are indebted to J. A. Turner Esq., of [illegible] Manchester for the magnificent [illegible] of flowers [illegible] one, which is a not unusual production on a well-grown plant) from which our drawing was taken. Mr Turner's [illegible] is one of the finest that we have seen [illegible]

This noble species was rare in gardens a few years since, but a fresh supply was imported, and may now be purchased at a reasonable price. It is a plant that we very seldom see well grown. Some years ago [illegible] the contrast afforded by it with the other Orchids already exhibited. Some growers have an idea that it does not flower freely, but if it is properly treated there will be no [illegible] in this respect.

Dendrobium Dalhousieanum is not a common [illegible] The [illegible] stems are beautifully marked with purple, which affords a distinctive mark of the species. The flower-spikes are produced from the top of the two-year old stems, after [illegible] as much as eighteen inches in length, with as many as from eight to eighteen flowers, each measuring four inches and a half across. The sepals and petals are of a creamy-yellow tinged with rose, and the lip is flattish, two inches broad, of the same colour as the other parts, but having two large blotches near the base of a deep [illegible] and a few small purplish streaks between them. The flowers are produced in June and July.

This being a large-growing plant, pot culture becomes the most suitable for it, but while in a small state it will thrive well on a block with moss. It has been found difficult to grow in some collections. We have seen the plants make a strong growth of young shoots, which have afterwards damped off, which we believe to have been owing to too much water having been given, and to the plant being kept in an atmosphere both too much [illegible] Although an Indian species, we have found it to thrive well in the same house with the *Cattleyas*. We have also grown it in a house to which no fire-heat was applied [illegible] from the beginning of June till September. Under such treatment the plants have [illegible]

generally given to them. What is required is, that a good growth should be made during the summer months, and after this is completed they must have a good rest by withholding the water from the roots—only not so far as to let the stems shrivel. They should be placed near the glass, so that they may have all the light possible when they begin to show flower in spring, and then more water may be applied to encourage a vigorous development of the spikes. The plants often commence growing at the same time that they bloom.

The best material we have found for potting this plant is good fibrous peat and sphagnum moss mixed together, the pot to be well drained and the bulbs kept above the pot so that the young shoots may be free as they are liable to decay if they get any of the potting material about them. In applying water, it should be given so that it does not remain about the young growth.

The following remarks by Mr. Toll, gardener to J. A. Turner, Esq., who grows this plant to great perfection, accompanied the spike of flowers:—"We grow it," he writes, "in a much cooler than most of our Indian *Dendrobiums*, this seems to prevent the rotting off of the young buds, which otherwise often occurs. We induce a strong growth, and afterwards keep the plant dry until it commences to show flower when we permit an advance in temperature, and also increase the humidity in order to ensure fine spikes of richly-coloured flowers. If it is not required to flower early, it may be retarded." This method of Mr. Toll's, which is similar to our own, succeeds thoroughly well, and the plant grows so vigorously and flowers so freely under it, as to have produced from twenty to thirty spikes at one time, with eighteen flowers on each spike!

This Dendrobe is not liable to be much damaged by insects when well grown, but when it is not healthy the white scale will sometimes attack it. It is propagated by division, the stems being separated and potted. It will also produce young shoots on the old stems, which may be taken off when their growth is completed and put on suspended blocks.

Plate XXIII

ONCIDIUM SARCODES

An ornamental epiphyte with [illegible] leaves are [illegible] from the apex of the bulbs. The flowers [illegible] bright yellow conspicuously blotched with dark brown-red [illegible] the marks of [illegible].

Oncidium sarcodes, *Lindley, Journal of the [illegible] Society* [illegible] *Id. Folia Orchidacea*, art. Oncidium, 26.
Oncidium [illegible] *Paxton* [illegible] *of Gardening and Botany*, 27.

This fine species is [illegible] large genus *Oncidium*. This family is, [illegible], one of the largest known amongst Orchids, but we regret to say it is very much neglected by cultivators, [illegible] prized for exhibition [illegible]. Many of them, however, if cultivated as they should be, and as they were generally [illegible] large shows, are very fine and effective plants, on account of their bright and showy colours, which are not common amongst [illegible] of any plant of its colour which can surpass the species represented in the drawing now before us.

This is, as far as we know, the most compact-growing of the larger *Oncidiums* [illegible] flowering, one of free growth, and in fact possesses every good quality that can be desired in such a plant. It [illegible] [illegible] grown [illegible] reason being that it has not occurred [illegible] importations which have taken place of late years, notwithstanding that it deserves to be more common. We know of only one species that grows in the same manner, and that is *Oncidium pubes*, a species not worth cultivating. From this it is indeed a difficult matter to distinguish it either by the bulbs or the foliage, but there can be no mistaking the flowers.

Oncidium sarcodes is, as already remarked, of compact habit. The pseudobulbs grow to the height of three inches, and [illegible] leaves [illegible]. The flower spikes are produced from the base of the bulbs, after the growth is completed, and when the plant is strong [illegible] spikes will sometimes be produced from one bulb. These spikes attain the height of two or more feet, and bearing thirty or forty flowers, each being a couple of inches in diameter. The sepals and petals are of a golden-yellow spotted with rust-brown, and the lip is bright yellow. The [illegible] during the winter months, and are usually perfected about March, April or May [illegible] for six weeks.

This plant is [illegible] of easy culture. It is found [illegible] Brazil, but we do not know the exact [illegible] probably [illegible] *Cattleyas*, *Laelias*, etc. It will thrive either in a pot or on a block. If grown in [illegible] and a soil of fibrous peat. The pot should not be too large [illegible] sphagnum

moss to keep moisture about its roots. When in a pot, however, it does not require so much water,—only sufficient to keep the peat moist even at the time of its vigorous growth.

It generally commences growing when the flowering season is over, and that is the time to repot it if a shift is required, but it is better not to disturb it when it is doing well and the material is in good condition. If, however, the peat should be at all decayed, it will be necessary to turn it out of the pot, to free it from the old soil, and if the roots are in a bad state, to cut them off, and wash every part of the plant with clean tepid water before putting it into the new soil. In repotting be careful to use good fibrous peat, and to have the pot three-parts filled with drainage, which should be covered by a little moss to keep it open. This is one great secret in Orchid culture.

The white scale is one of the most troublesome of its insect pests. This should be kept under, as it is injurious to the plant. Propagation is effected by separating the bulbs, and may be attempted when there are about four old bulbs. The rhizomes should be cut half through, and then left for a time, after which they may be cut through entirely, leaving them however in the pot until they commence breaking. This should be effected after the flowering is over, because if done before, the divided part will most likely shrivel. The flowers will be quite sufficient for the plant to bear, without its being cut in this way while they are being perfected. After they are divided, pot the separate pieces, and keep them in the shade, giving them but little moisture at the root till they begin to grow afresh. Afterwards place them where they will get more light.

Plate XXIV

CATTLEYA SUPERBA

An epiphyte remarkable for the richness of colouring in its fragrant flowers. The stems are club-shaped, furrowed, about a foot [illegible] bearing two leaves, which are short, oval-oblong, obtuse, very coriaceous, and marginate. The flowers [illegible] raceme, issuing from a membranaceous spathe, and are about five or six inches [illegible] in diameter. The sepals and petals are oblong-lanceolate, acute, [illegible] the two and tooth of a bright, deep rose-colour. The lip is three-lobed, cucullate, the [illegible] undulated, so as to meet by their margins over the column, the middle lobe flat, five-[illegible] emarginate, rugose, with elevated veins at the base, where it is white, veined with rose, and marked with a central bar of yellow, the margin being broadly [illegible] with deep magenta-rose. It has [illegible]

CATTLEYA SUPERBA, *Lindley, Sertum Orchidaceum*, t. 22. *In Paxton's Flower Garden*, [illegible] 6. *Paxton's Magazine of Botany*, x. 25.

CATTLEYA SCHOMBURGKII, *Loddiges Catalogue.*

[illegible] *Humboldt, Bonpland, and Kunth.*

EPIDENDRUM [illegible], *Reichenbach fil.* [illegible] *Botanica* [illegible]

This magnificent *Cattleya*, which has sweet-scented flowers, was found in British Guiana by Sir R. Schomburgk, who sent it in a living state to Messrs Loddiges about a quarter of a century ago. The flowers, observes Dr Lindley, if not so large as those of *Cattleya Mossiae*, are from the richness of their colours inferior to none in beauty. According to Schomburgk, the plant appears peculiar to the third or fourth degree of north latitude, it is not to be met with in Essequibo north of the mouth of the Rupununi; from thence it is found southward on trees which skirt the banks of the brooks and rivers which meander through the savannahs. The Caribbees call it Opomopoedi, or Duck-mouth; the Chacoosees, Masono. It is very fragrant, and the splendid flowers last for three or four weeks. Dr Martius also found it near Tarama, on the banks of the Rio Negro, and in forests near Para.

The splendid representation we now give was taken from an admirably managed plant in the fine collection of Thomas Dewley, Esq., of Blackrock, near Dublin, with whom it has bloomed for several years in great perfection. It is the finest variety we have seen, and produces more flowers than any others, from five to six instead of three or four being produced on a single spike. There are several varieties of this *Cattleya*, some finer than others, but they are all well worth growing. The species has been very rare until within the last few months, when a large importation was made. The plants Mr Dewley has received from his collector, besides being very fine specimens, have bloomed the first year after their arrival in this country, which is not often the case. The great item in the successful importation of Orchids is to get them sent over just as they have completed their growth, for if they commence growing on their way they will very probably perish.

Cattleya superba is of compact habit, and attains a foot in height. It bears at the top of the stems two leaves, which are distinct from those of other *Cattleyas*, being short and nearly round, of a dark green colour, and thick in texture, more so than in other kinds, and grow after the same manner. It makes its growth in one year and generally flowers from the first growth, when the bulb has attained about a [illegible]

[illegible]

basal part bright yellow, intermixed with rose and white veins. These flowers, which are also delightfully fragrant, are produced among those and July, and there is no Orchid which has a better effect for exhibition and other decorative purposes than this, on account of its brilliant colours. It continues in perfection three or four weeks, if kept dry

This *Cattleya* has been found difficult to cultivate by most Orchid growers, as a proof of which we rarely ever see a good plant, although great quantities have been imported. One source of failure is, we believe, the keeping of the plants too dry at their growing-season, we find that they require to be kept moist and that they must never be allowed to shrivel. Many plants have also been lost by 'dissection,' which is very injurious to them, for it is difficult to produce young growths from the old bulbs.

The plant may be grown in various ways, such as in pots, in baskets, or on blocks, but we prefer the block system, as the roots appear to revel on the surface of the wood, which is natural to them. Sometimes when grown in pots the roots decay, and it is then a long time before they are renewed. Mr. Bewley's gardener cultivates most of his numerous plants on blocks, on which we have seen them doing beautifully, and making fine healthy roots. They are grown in the warmest house, along with *Aerides*, *Saccolabium* etc., suspended from the roof, and they are always kept moist in the growing-season. Cultivators cannot do better than follow Mr. Bewley's plan.

If grown on blocks, a good-sized one should be used, but there may be sufficient room for the roots to spread, for the plants do not like to be disturbed, a little live moss is to be put on the block, and on this the plant, tying it down with copper wire. If pot culture is from any cause preferred, fill the pot nearly full with drainage, broken potsherds being the best material, then add sphagnum moss to within one or two inches of the margin, and afterwards use good fibrous peat, shaking away all the fine particles. Mix a few broken potsherds or charcoal with the peat, so that water may pass off quickly, the point being to prevent stagnant moisture about the roots. Be careful also not to allow water to remain in the young growths, as it will cause them to rot. After the growth is completed, give a season of rest, with not too much water at the roots, only just sufficient to keep the stems plump.

Like all other *Cattleyas*, this is subject to the white scale, which must be kept under. Sometimes the thrips will attack the young shoots, but this also must be at once destroyed.

Odontoglossum Pescatorei

PLATE XXV

ODONTOGLOSSUM PESCATOREI

[illegible] pseudobulbs [illegible] leaves, narrowed at the base. The flowers [illegible] markings towards the base of the [illegible] twice as broad [illegible] so as to become somewhat [illegible] a pair of the [illegible] parts [illegible]

[illegible] *Flore* [illegible] *Illustration Horticole* [illegible] *Bot. Mag.* [illegible]

The subject of our present illustration was introduced to European gardens a few years since by M. Linden, from the province of Pamplona, in New Granada. A figure of it first appeared in 1853, in Paxton's Flower Garden, as before quoted. It was then remarked that none of the Odontoglots could vie in beauty; the flowers [illegible] were depicted [illegible]. Subsequent experience proves that [illegible] character was not [illegible] however, for the Pescatore Odontoglot is certainly one of the most desirable Orchids to be found in our richest [illegible] collections, a charming and delicate panicle of flowers forming [illegible]. The accompanying beautiful drawing was made from a plant in the fine collection of Mr. Veitch, of Chelsea, with whom it [illegible] bloomed during the spring of 1863. This specimen was exhibited at the Royal Horticultural Society's Garden, at South Kensington.

There are several slight varieties of this species, some superior to others, but all worth growing and deserving to be admitted to the most select collections. At present it is a very rare plant, a small supply only having been imported. It is a native of [illegible] districts, and in its transmission here has to pass through a very hot climate, the heat of which causes the bulbs to decay, and hence the extreme difficulty of getting it to Europe alive. We are indebted to Mr. Linden not only for the importation of this, but also of many other *Odontoglossums*, and as their culture is now better understood than formerly, we may look forward to their being preserved in our collections. Cultivators have found by experience that a cool temperature suits these plants best, and that under other conditions they will not thrive. We intend [illegible]

Odontoglossum Pescatorei [illegible] evergreen species, with pseudobulbs two to three inches high [illegible] leaves of a foot in length. The branching panicle [illegible] with a stain of pink, and [illegible] with a yellow stain and red markings [illegible] several weeks, especially if the plant is strong and vigorous. A plant which exists in the collection of T. Dawson, Esq., of [illegible]

n cates great strength and vigour. Mr Anderson, the gardener at Mencawhank, grows several other *Odontoglossums* remarkably fine. Thus, *O cordatum*, a rare species, is a wonderful specimen, nearly two feet in diameter, and has on it four spikes bearing 60 flowers on each; the plant while in bloom is placed in a greenhouse, and afterwards removed back to the grow ing-house. There also may be seen a splendid pan of *O. citrosmum*, with twenty-five bulbs; and of *O grande* several large specimens, some of the bulbs producing eighteen flowers of large size—truly a grand sight. While *O nævium*, *O nebulosum*, and *O Kerrensis*, are all equally well grown. These were all bought as very small plants, and have been grown to their present state in a few years. We are not therefore without hope that we may see them grown still finer, for the plants improve year after year. The leading point of their treatment is this—they are grown in a cool and light span-roofed house, with little shade, and as near the glass as possible—the great secret of all in the cultivation of this class of plants being to get well-ripened and strong ly-matured bulbs, such as have some strength to produce flowers and foliage. These three conditions being attained any one may grow them with success. There are many other fine Orchids that may be advantageously treated in the same way; that is to say they must have cool treatment, and unless they get it there is no hope of their thriving. They grow naturally where the temperature is not high, most of them on the mountains, and consequently they will bear cold much better than they will bear fire-heat; sun heat however, will do them good at any time provided they have a free circulation of air—applied with caution, indeed, in cold weather, and being made to pass between hot-water pipes, so that it may become slightly warmed.

Pescatorea Odontoglot begins to grow after the flowering-season is over, and this is the most suitable time to repot it if requisite. It should not have too large a pot, for over-potting is dangerous with all surface-rooting plants, and great care must be taken not to injure the roots. We should not advise to cut the plant for propagation, as it is very impatient of being disturbed when once it becomes established. We have seen such plants destroyed by attempting to increase them; besides, it is better to have one good specimen than several miserable ones, which can only yield disappointment. If the plant were large, one or two of the old back bulbs might be cut through and left until established, such, when ready to remove, should be potted into small pots.

This plant requires the same general treatment as that recommended for *Odontoglossum nævium majus* (Plate VII.), under which full directions are given. We have found, from several years' experience at Broomfield, that we can grow to great perfection, all the Odontoglots, many of the *Lycastes*, *Barkerias Pleiones*, and *Arpophyllums*, under the shade of thinly trained grape-vines, thus securing a crop of grapes and a display of beautiful flowers from one house, *Lycaste Skinneri* alone producing a succession of flowers from the beginning of December to the end of April.

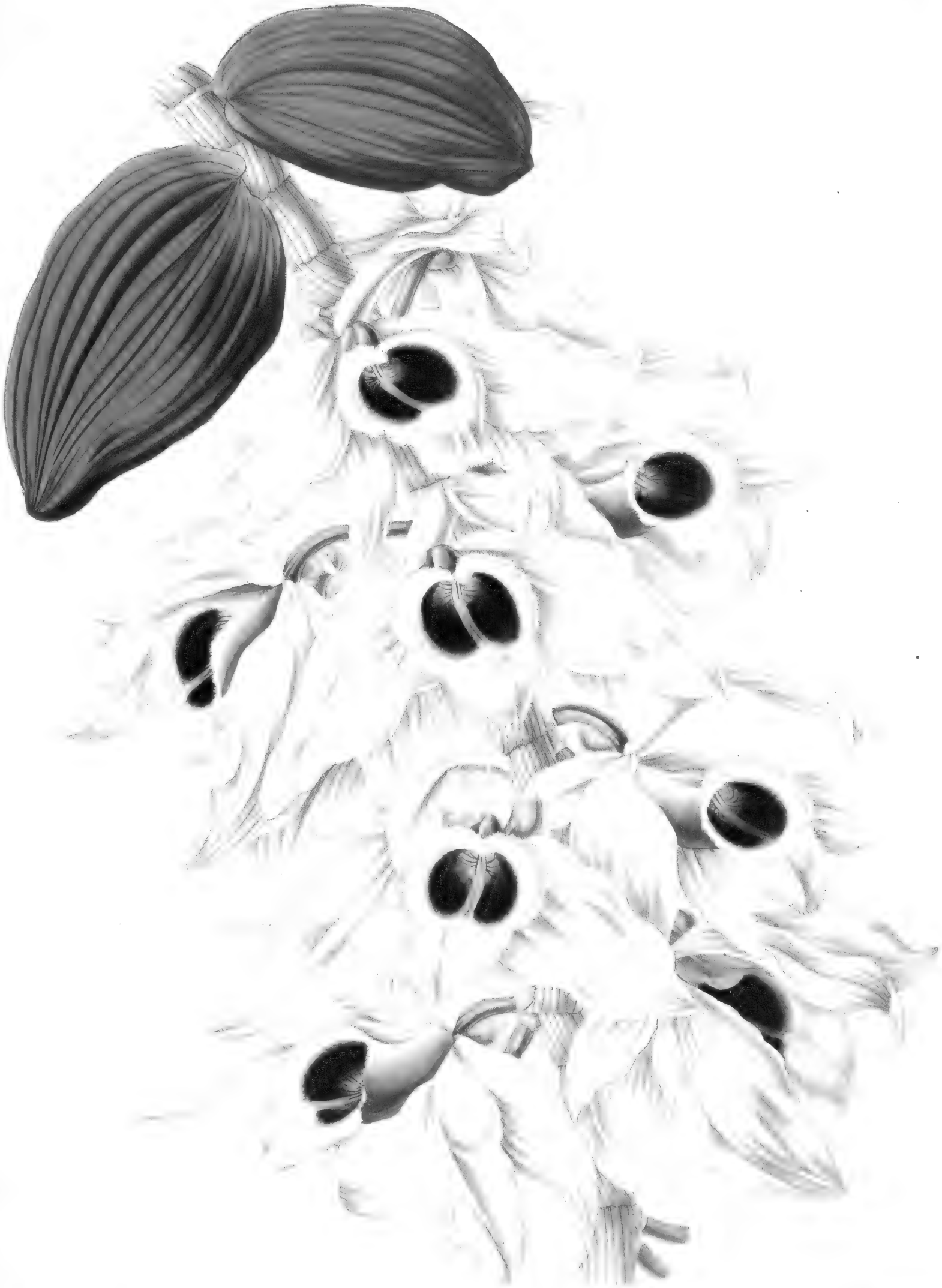


Plate XXVI

DENDROBIUM MACROPHYLLUM GIGANTEUM

[illegible]

Dendrobium macrophyllum var. giganteum [illegible]

Dendrobium superbum var. giganteum, Reichenbach fil. [illegible]

Some [illegible] years ago, *Dendrobium macrophyllum*, one of [illegible] most magnificent of [illegible] family, and one of which our illustration represents a superior variety, was introduced from the Philippine Islands [illegible] the Messrs Loddiges, with whom it first blossomed in 1839. Though [illegible] has since been not only [illegible] through the skill of our Orchid growers, it was seen [illegible] possessing uncommon beauty, and at once made its way into the favour of cultivators, notwithstanding [illegible] flowers emit a perfume resembling that of dried rhubarb roots. It is one of the species referred to the section *Eudendrobium*, and has also been called *D. macranthum*.

There are several varieties of *Dendrobium macrophyllum*, but the one we now figure bears the finest flowers and has also the largest leaves, and the longest and stoutest stems, [illegible] in fact easily separated [illegible] thick fleshy veined leaves, and by the enormous length to which the stems attain when well grown, as much as one-third larger in size and length than the ordinary forms of the species. The flowers [illegible] *macrophyllum* [illegible] which [illegible] all other Orchids, varies a good deal, sometimes [illegible]

Our drawing was taken from a noble plant in the well-known collection of [illegible] Day, Esq., of Tottenham. This plant bloomed last year in such beauty that one could hardly imagine anything nearer perfection; it was certainly one of the most finely-grown plants we have seen, the pendent [illegible] being four feet six inches in length, each of them bearing more than fifty of the large expanded [illegible] flowers. Mr. Day's specimen was grown in a wooden basket, suspended from the roof, and the [illegible] [illegible] flower without foliage, the addition of a few ferns adds very much to their beauty.

This *Dendrobium macrophyllum giganteum* [illegible] season, of deciduous habit, and generally loses its leaves just as it begins to show flower some time after [illegible] [illegible] which are arranged on its opposite sides, and are of a bright green colour, and prominently nerved. The flowers are generally produced in pairs, or sometimes in threes, from the joints of the stem, on either side alternately, and are of large size, each measuring at least six inches across, the sepals and petals of a beautiful [illegible] inches long, and of the same colour beautifully [illegible]

the base, with a row of large, rich, purple-red spots. It generally blooms in April and May, and continues in perfection for about a fortnight, if the flowers are kept dry. It makes a fine exhibition plant.

As to the natural habitat of these Dendrobes, though the atmosphere heat is high in the growing season, yet the plants get also a free circulation of air. In our Orchid houses fresh air, which is of the highest benefit, must be warmed as it enters, by causing it to pass near the hot water pipes. Cold air is dangerous, often destroying the young growths while they are tender, but fresh air must be afforded, for the plants will not thrive when they are kept closely confined. This latter, indeed, is often the condition of *Dendrobiums*, on account of their being grown in baskets, and hung up near the glass, for as hot air always rises to the roof, the heat there is intense, and in consequence, the plants dwindle instead of luxuriating. This is, no doubt, the cause of many failures in growing Orchids.

The noble specimen already adverted to, was grown by Mr Day's gardener Stone, in a basket, amongst sphagnum moss, suspended from the roof in the Indian house, where also were other fine plants of the same kind, together with a splendid lot of *Aerides*, *Saccolabium*, *Vanda*, *Phalænopsis*, etc. We should like to see more of these plants cultivated in the same manner.

The materials best suited to the roots of this Dendrobe are good sphagnum moss, and broken potsherds or charcoal mixed therewith. If a good supply of moss is not to be had, fibrous peat will answer the same purpose, but if this is used, some moss should be placed first in the basket, in order to prevent the peat from being washed away. We have also grown them well on blocks of wood, with moss; but in this way they require a great deal of care in watering, as they must never be allowed to get dry when in a state of growth. This plant requires a thorough rest season of growth, without which it is vain to look for success. It commences to grow soon after it has finished flowering, and the cultivator must be careful not to give too much water until the young shoots have attained the length of about six inches, after which a good supply of moisture at the root is requisite during the remainder of its growth, which continues from June till December. As soon as the growth is completed, water is to be withheld from the roots, only sufficient being given to keep the stems plump, till they begin to show flower, when an increased supply will assist in their development. When the flowers are expanded, the plants should be removed to the cooler Cattleya house, where the flowering-period will be prolonged, and they should be returned to the warmest house when the flowering is over, to induce them to make fresh growth. This is also the time to apply fresh moss, or to renew the basket, if required.

When propagation is desired, it is effected by dividing the old stems just before they begin to grow; each division should have about two old stems and a leading bud. Increase is obtained also by means of the young shoots, which branch out from the old stems; these should be left on until their growth is complete, and then taken off and placed on blocks, or in small baskets with moss.

If well grown, the plant is not very subject to insect attacks, sometimes the red spider and thrips will appear on the young leaves, but they may be kept under by cleaning and syringing, as well as by fumigation.

PLATE XXVII.

CYMBIDIUM EBURNEUM

[illegible]

Cymbidium eburneum, Lindley, *Botanical Register* 18. 7. — *Paxton's Magazine of Botany*, xv. 1.

[illegible] there are some members of the Orchid family which command our admiration on account of their sp[illegible] there are others which charm us by the display of beauty of a different order. Such a one is our present subject, which to its graceful evergreen foliage adds large flowers of perfect purity and the most delicious fragrance. "The flowers of this charming plant," observes Dr. Lindley in his first account of it, "are not only among the largest of the genus, but among the sweetest. They resemble in fragrance those of the Chinese [illegible] than which nothing is more delicious. Not a spot interferes with the pure ivory-white petals except one long yellow stain along the middle of the lip."

This Ivory Cymbidium was first flowered by the Messrs. Loddiges, of Hackney, who were well known for their rich collection of Orchids, and were instrumental in introducing to this country many rare species, of which this is one. It is a native of India, and the finest yet known of the genus to which it belongs. The figure was taken from a specimen in our own collection, which blooms finely every year; the length of time it continues in beauty rendering it a great acquisition amongst winter-blooming Orchids. The flowers are very distinct from those of any other of the race. The plant is yet very rare in collections, although it has been for many years in the country. We have found it to be of free-flowering habit, [illegible] it free[illegible] blooms from the same stems two years successively, which is not [illegible]

[illegible] is an evergreen plant, and very distinct in respect to its stems and foliage from all other species, with the exception of *Cymbidium Mastersii*, which grows so exactly like it that it would be difficult for even the most practised eye to distinguish the two, except they are in bloom. We [illegible] have been deceived, having bought the one for the other. When in bloom, however, it would be [illegible] to confound them, the flowers of *C. Mastersii* being very much smaller, the latter however [illegible] blossoms at a different time, and produces a spike with sometimes as many as [illegible] flowers. Of *Cymbidium* [illegible] who [illegible] Porte[illegible]. One of these is the same as the subject of our figure, the other has smaller flowers and [illegible] very pretty, having [illegible] white and yellow of our plant, a pink spot [illegible] which is not found in the form we have figured.

Cymbidium eburneum is a compact growing plant, attaining two feet in height. The stems are about six inches [illegible] grass-like leaves, of a dark green colour [illegible] graceful [illegible] when not in bloom. The flower-spikes grow from the side of the [illegible]

sometimes [illegible] a bunch of [illegible] flowers [illegible] on each spike. The sepals and petals, as well as the lip, are ivory white, the latter having [illegible] [illegible]. The blooming-season comprises the months of February, March, and April, and the flowers continue in beauty for several weeks.

This plant has been found difficult to grow by many cultivators, but we have not ourselves experienced this difficulty [illegible]; we find it to grow freely, and believe there [illegible] to do so, if the proper treatment be given at a proper time. We have also seen it [illegible] in several places under treatment similar to that which we now recommend. We have, it is true, sometimes seen the leaves spotted, which is no doubt caused by its having been set in a cold, draughty place, and having too much water at the roots, with insufficient drainage; for it requires a good supply of water during the growing-season, and if there is not sufficient drainage, the soil of course becomes soured, and the roots decay. The result is seen in the shrivelling and spotting of the leaves and the stem.

As they produce thick fleshy roots, this and the allied species thrive best in pots, which should not be too small, in order to give room for the growth of the roots. The best soil for potting is good fibrous peat, about three parts of which should be mixed with a little loam and sand, all the materials being used in a rough state, [illegible] broken bricks or charcoal intermixed with them. Good drainage must be afforded by half filling the pot with potsherds, some moss being placed on the top of them to keep the soil from working down. The plant is to be set so that it stands a little above the pot-rim, and very rough peat must be used [illegible] to keep the soil [illegible] from the roots. We have found the plant to thrive either in the Cattleya or [illegible] house, if a good supply of water is provided during the growing-season, which extends from April to December. After this period only enough water is to be given to keep the plant plump. It requires to be grown freely, and the growth to be well matured, to ensure a good supply of flowers; and is better for being near the glass while growing, in order that it may get all the light possible, but it must not have too much sun, for [illegible] is apt to scorch the tender leaves. It is, perhaps, best grown at the warmest end of the Cattleya house, away from cold draughts, which cause the leaves to become spotted.

The best time for repotting is after the flowering-season, for then it begins to grow and to make fresh roots. In potting be careful not to injure the thick fleshy roots, for if they get bruised or broken it will do the plant much harm. Should the soil get into a bad condition, the best remedy is to [illegible] fresh materials, and if the roots are [illegible] [illegible] them back and take all the old soil away.

The plant is propagated by dividing the stems just as they are beginning to grow. Always choose a young growth, with an old matured stem at the back of it. After dividing them, the [illegible] should remain in the pot until the following year, when they may be separated, and potted in the same material as that recommended for established plants.

The leaves are sometimes attacked by white scale, which, as soon as it makes its appearance, must be washed off with a sponge and [illegible] water.

PLATE XXVIII

ODONTOGLOSSUM CITROSMUM ROSEUM

[illegible]

Odontoglossum citrosmum itself is a very love[illegible] plant [illegible] comparison [illegible] of the [illegible] [illegible] specimens [illegible] show that the variety we now figure is very [illegible] superior to it. The [illegible] gardens [illegible] roseum, [illegible] preferable to the original form of the species [illegible] itself surpasses the ordinary *citrosmum*. The original form was [illegible] from Mexico [illegible] [illegible] a very agree[illegible] [illegible]

[illegible] *Odontoglossum citrosmum* [illegible] handsomer Orchids, having flowers of pure w[illegible] [illegible] properly flowered, and producing [illegible] [illegible] surpass [illegible] beauty [illegible] specimen [illegible] [illegible] seldom seen at the large shows, notwithstanding that it is one of the most distinct [illegible] flowers that can be produced for competition purposes, and, having fine dark-green foliage, is an ornamental [illegible]

The charming variety of this well-known plant, to which the present article is specially devoted, is a great [illegible] [illegible] ornamental genus which contains some of the [illegible] species we cultivate. The specimen from which our drawing was taken is growing [illegible] Orchid house. We have never seen one in any other collection producing flowers so [illegible] coloured [illegible] met with having less colour on the lip. Although therefore the old type of *roseum* is to be considered as a very fine species, yet that now figured is more showy, and deserving to be more extensively cultivated, the flowers, when well brought out, being nearly equal to those of a *Phalaenopsis*. A very fine example of the [illegible] form of *roseum* was exhibited at the Manchester Botanic Gardens by Mr. T[illegible], gardener to J. A. Turner, Esq., of Manchester [illegible] flower-spikes [illegible] had been grown in a house along with *Cattleyas*, *Laelias*, etc. This plant is considered difficult to bloom, but the one we have just mentioned flowers annually in great perfection [illegible] [illegible]

The *Odontoglossum Cervantesii roseum* [illegible], is a compact [illegible] grower [illegible] bulbs, which are
about six inches in height, and of a deep green colour. The leaves proceed from the top of the bulbs, and
are about a foot in height. The flower-spikes are produced with the young growth, and reach to the length
of about a couple of feet, bearing a dozen flowers on a spike, each of them being two inches in diameter;
the sepals and petals white, the lip broad, and of a beautiful rosy purple, with the basal part orange. The
blossoms appear in June and July, and last four or five weeks, if they are not wetted, for wet causes them
to spot, and the water which drops from the rafters will seem [illegible]. This plant [illegible] Mexico, and
[illegible] found on trees. We have several species of the genus from the same country. They require to
be treated according [illegible] the [illegible] in which [illegible] are found, some thrive in the more exposed parts of the
country, others in forests, some near the margins of streams, and some on rocks where they obtain but little
nourishment. Yet in all these localities they appear [illegible]. If [illegible] the
particulars of the situations in which the several species abound and grow the most freely, we [illegible] not
meet with half the failures that we now do. Cultivators necessarily have to try experiments in the absence
of this kind of information, before they can ascertain the necessities of particular plants, and sometimes
they may, but often they do not, at first hit upon the correct treatment.

The cause of the frequent failures in the management of this Odontoglot arises from its being grown in
too much heat, though it requires more heat than some other kinds. We have always found it thrive well in
the house with *Cattleyas*, *Laelias*, etc., where the heat in winter ranges from 50° to 60° and, during the
spring months, allowed to rise from 60° to 70°. In warm summer weather no fire heat is requisite, but it
is necessary on cold wet days and nights, for the damp may cause the young growths and spikes to rot off;
this indeed frequently happens if the spikes are not kept off the soil by means of small sticks. The most
suitable treatment for the plants when showing flower, is to suspend the pot or basket to the roof, so that
the pendulous spikes may hang downwards, and thus being in the natural habit, preserves the young buds. We
often hear of the flower spikes damping off [illegible] the plants were suspended in this way the difficulty would
[illegible] not occur. Many Orchids have been lost by keeping them all the year round in too high a
temperature, but it would be wrong to keep them continually in a cool house, though *Odontoglossums* will
suffer less by the latter practice than many others. It may be successfully grown either on a block or in
a pot or basket; indeed, we have grown it in different ways, with nearly equal success. The material best
suited for the roots is rough fibrous peat and sphagnum moss, with good drainage, and they must not
have too much water at any time, only just sufficient to keep the soil moistened while in the resting-time,
which is from October to February, they must only have sufficient to keep the bulbs plump. The plant
shows flower with the young growth, when about two or three inches in length. [illegible]
direct use, is just at the commencement of the growing period.

It is propagated by dividing the bulbs in spring, selecting two old bulbs with a young growth in front;
after dividing, let them be potted or placed on a block, in the same material as that already recommended,
and put them in the warmest part of the house, [illegible] a little water to settle the earth at the roots. Care
must be taken to elevate the plant above the pot rim.

This plant is not subject to the depredations of insects, except the scale, which [illegible] by
cleansing with a sponge and soft tepid water.

PLATE XXIX

CALANTHE VESTITA

A [illegible] Orchid [illegible] large [illegible] angular [illegible] of a pale grey or ash-colour, reticulated on the surface, and terminated by the remains of the leaves. The leaves appear on the young pseudobulbs after the development of the flowers, and are large, broadly lanceolate, acuminate [illegible]. The flower scape rises from the base of the bulbs, and bears a long [illegible] pendulous spike of numerous flowers. The sepals and petals are broadly lanceolate, acute, spread out, nearly uniform, creamy white. The lip, also spreading, is [illegible] in outline, deeply three-cleft, the lateral lobes being oblong obtuse, and the median one broadly wedge-shaped and split into two [illegible] obtuse divisions; its colour is white, in some forms pure, in others marked at the base with either an orange-yellow or a crimson stain. The spur is shorter than the lip, filiform and incurved. The column is united to the lip by its whole length, and there are eight pollen-masses cohering [illegible].

[illegible] *Calanthe vestita*, [illegible] *Flora* [illegible] *Botanical Magazine* [illegible].

PREPTANTHE VESTITA, *Reichenbach fil.*, [illegible].

[illegible] GRIFFITH, *Wight Icones Plantarum Indiae Orientalis*, [illegible].

This remarkable plant, of which two forms are here represented, is a native of the Burmese empire, Moulmein, Mergui, and Tavoy, and according to Reichenbach also of Java. It was first introduced by Messrs. Veitch and Son, and subsequently by Messrs. Rollisson. It is a very beautiful Orchid, the only defect which can be charged against it as a garden plant being its habit of flowering when the leaves are either imperfect or [illegible].

It is a beautiful terrestrial species, exceedingly useful for the decoration of our Orchid houses during the dull autumn months, being a free-blooming plant and continuing a considerable time in flower. When first flowered by the Messrs. Veitch and Son, and exhibited before the Horticultural Society, [illegible] amongst Orchid growers, who were [illegible]. [illegible] at a small expense. We are confident that [illegible] become most extensively grown, for every one who has a house [illegible] having a number of bulbs, an Orchid house may be kept gay [illegible] flowering them in succession. The figure which forms our present illustration was taken from a well-grown plant in the [illegible] of Messrs. Low and Co., of Clapton, who have lately [illegible] together with many other fine species. We are not able to show the graceful habit of the spike, which is too long for our page. The plant is drooping, and though at the blooming period destitute of leaves, yet intermixed with foliage plants, such as Ferns, Dracaenas, etc., or other Orchids with foliage, the plants have [illegible].

Calanthe vestita [illegible] blossoms. There are but few *Calanthes* which grow like this; in fact we only know of one other, an orchid, *C. Veitchii*, raised by Mr Dominy,—a most lovely hybrid, the result of a cross between *Calanthe vestita* and *Limatodes rosea*. The [illegible] a spot at the base of the lip forming a yellow eye, and [illegible].

The plant is of terrestrial habit, and loses its leaves after the growth is completed. The pseudobulbs are thick and upright, and have a silvery appearance. The light green, ribbed leaves grow from one to two feet high, and are three inches in breadth. The flower spikes are produced from the base of the bulbs, after the leaves have matured their growth; they attain the height of from two to three feet, the upper portion being pendulous, and they often produce as many as thirty flowers on a spike, each flower being two inches in diameter. The sepals and petals are white, the lip also white in one variety, but in another marked with a crimson blotch at the base, and in a third marked by a broad band of orange yellow. The flowers continue till the end of January, provided they are kept free from damp.

The *Calanthe* is found growing in the mountainous districts of the Burmese empire and in Moulmein, in places where the temperature is not excessively high, and by experience we find that a strong heat is not requisite for its artificial cultivation. It is indeed easily managed, if proper regard be paid to its wants. An essential point in the cultivation of deciduous Orchids is that they must have a decided season of growth and a long period of rest. If these conditions are secured they will well repay the cultivator for the trouble bestowed upon them by enjoying a profusion of bloom. We grow a large quantity of the plants, and find it useful to furnish cut flowers, and it is grown by Mr R S Yates, of Manchester, purposely for bouquets, choice white flowers being scarce in winter. The blossoms when used singly are admirably suited for bouquets, and they mix beautifully with Ferns.

Calanthe vestita requires a somewhat different treatment to that of many other Orchids. It begins to grow after the season of rest, which occurs about March or April. This new growth starts from the side of the pseudobulbs, which often produce two growths from one bulb, and it is when this growth commences that they should be potted into fresh soil. The bulbs lose their roots annually, and make fresh ones as soon as they begin to grow, and this is the reason why they require potting immediately growth recommences, for if left too long they will be injured or destroyed by the removal.

The plants are very accommodating, for when they have finished blooming they can be removed to any dry warm place until they commence growing again. They may be put either on a shelf or under a dry stage, provided there is no drip from the plants above, for if allowed to lie on the bulbs, would cause them to decay. If the bulbs become at all affected by wet, the only remedy is to cut the decayed parts away, and apply at once some dry sulphur, or lime, which will prevent the damage from proceeding further. During the time of rest they require no water. When the young growth is perceived to be starting from the base of the bulbs they should be repotted. This is our practice to pot them annually about March or April. As before mentioned they lose their roots annually, and soon after they begin to grow they make fresh ones. In potting, therefore, cut off all the decayed roots, and pot the bulbs in fresh soil composed of peat or leaf mould and rotten manure mixed well together, and incorporated with a little sand. This soil should be rough, not sifted. Give good drainage, placing a little moss over the crocks to keep it open, so that the water may pass off quickly, for they require a good supply in the growing season. These plants thrive in the cooler houses adapted for *Lycaste Skinneri*, *Epidendrum vitellinum*, *Odontoglossum grande*, etc. If grown in too high a temperature the leaves spot. We grow them in the same temperature as that recommended for *Odontoglossum necrum majus*.

They are subject to be attacked by several kinds of insects, such as scale, thrips, and red spider. These should all be well searched for, and destroyed, for what is better, prevented. They may be subdued by washing the leaves. The plants are propagated by dividing the bulbs when potted, and the divisions require the same treatment as the established plants. They are easily increased.

PLATE XXX.

ODONTOGLOSSUM PHALÆNOPSIS.

This very rare species of *Odontoglossum* was found in the elevated forest regions of New Granada [illegible] [illegible]

[illegible] We have noticed two varieties, both extremely fine, but differing in the marking of the flower.

Odontoglossum Phalænopsis is an evergreen compact-growing plant, furnished with small pseudobulbs [illegible] inches in height and about an inch in diameter, of a light green colour. The leaves grow singly from the top of the bulbs, and are narrow and grass-like, about ten inches in length, and somewhat drooping. The flowers are produced [illegible] on peduncles six inches or more in height. Each [illegible] sepals and petals white, the lip broad, of a beautiful bright pink [illegible] and margined with white, the basal or upper part orange veined with pink. The plant generally blooms [illegible] April, May, and June, and makes a very [illegible]

This plant, as already observed, is a native of New Granada [illegible] have been made in the cultivation of *Odontoglossum* [illegible]

secure well-ripened bulbs and good foliage. The most essential point is to give plenty of light, affording shade over all the surface from the scorching rays of the sun, but in autumn and winter allowing them all the light possible. Mr M'Morland's house, in which these plants are grown, is a low span-roofed building, with very few hot-water pipes, it faces due south, and the plants are raised on pots, so as to stand as near the glass as possible. The leaves, however, are not allowed to come in contact with the glass, this being very injurious to Orchids, causing them to become spotted. Great care, then, is necessary in order to grow this plant well, but if it gets the treatment it requires, it will amply repay the cultivator. We have already stated that nearly all the *Odontoglossums* require cool treatment. Mr M'Morland grows besides in the same house many other Orchids, which are doing remarkably well, for instance, a splendid specimen of *Angulos Clowesii*, the finest of its class, beautiful specimens of *Cœlogyne cristata*, and fine plants of *Lycaste Skinneri* and others.

This *Odontoglossum* should be potted just before it commences to grow. The operation should be effected with great care, so that the roots may not be injured, for this, if it occurs, may cause the bulbs to shrivel. We have frequently seen Orchids destroyed in this manner. If they should happen to get into a shrivelled state, the best remedy is not to allow them to flower, but to keep them syringed every day until the bulbs are got into a plump condition. Never touch a plant when in a bad state—only to give it fresh soil, in order that it may make its fresh roots, and that it may not be afterwards disturbed. We find it is a good plan to place the plants on blocks with a little live sphagnum moss, and to keep them in a moist shady place until they have made good roots, when they may be placed near the glass, as recommended for established plants.

The material best suited to the roots of this plant is good fibrous peat, intermixed with some live sphagnum moss, and a few small broken crocks. The pots should be three parts filled with drainage, a little moss being spread on the top to keep it open. This is an important item in the cultivation of the plant, as it requires a good supply of water during the growing season, and must never be permitted to shrivel when at rest. The crown must be kept two inches above the rim of the pot, which need not be a large one. As to temperature, it should be treated as recommended for *O. naevium majus* (PLATE VII.).

This plant is sometimes attacked by red spider and scale, both of which should be removed with a sponge and water before they get numerous. It is propagated by dividing the bulbs, leaving a strong one with several old ones behind it. They should be potted, as already advised. The most suitable time for this is just as the plants commence growing; they must be kept in a shady place until they begin to make fresh roots, and when established may be set near the glass.

Plate XXXI

ANGRÆCUM SESQUIPEDALE

An evergreen epiphyte, of robust [illegible] with [illegible] sepals [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] which near the base is [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] narrow [illegible] [illegible].

[illegible] Tom [illegible] [illegible] [illegible] Australia [illegible] [illegible] Botanical [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] 24

The existence of [illegible] sesquipedale, which is a native of Madagascar, was first made known by M. Aubert Du Petit Thouars [illegible] [illegible] [illegible] [illegible] [illegible] introduced [illegible] the Rev. W. Ellis, [illegible] [illegible] was [illegible] [illegible] [illegible] [illegible] [illegible] flowered [illegible] [illegible] [illegible]. The [illegible] [illegible] our drawing was [illegible] was grown in the collection of R. B. Warner, Esq., of Broomfield. This plant [illegible] spikes of [illegible] very white flowers expanded at the same time.

In some remarks which accompanied the account published in the 'Gardeners' Chronicle,' Mr. Ellis states [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] regions of Madagascar, but only in the lower and hotter districts, and there by no means so abundant as the splendid *Angræcum superbum*. "The *Angræcum sesquipedale*," he continues, "does not grow in the moist and thickly-wooded parts of the lower districts [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] parts where the trees are only thinly spread over the country. It seemed to grow most [illegible] [illegible] [illegible] [illegible] parts of [illegible] among the smaller branches. It seemed to grow most freely where there was plenty of light and air. The leaves were neither numerous nor large, and in its native state the plant [illegible] [illegible] a starved appearance and straggling habit. In this state the flowers were abundant [illegible] [illegible] [illegible] [illegible] than when growing in the shade. I once found the trunk of a tree lying [illegible] on the ground, and *Angræcum sesquipedale* growing [illegible] along its entire length. The roots, which had penetrated the decayed vegetable fibre of the tree, were comparatively white, [illegible] [illegible] fleshy, the leaves larger, of a darker green, and more succulent, but there were no flowers. The plant which Mr. Ellis alludes to under the name of *Angræcum superbum* we believe to be the true *Angræcum eburneum*, [illegible] [illegible] [illegible] to our species [illegible] in respect [illegible] beauty. There are but few of [illegible] [illegible] worth cultivating as objects of ornament, their flowers being only fit for botanical study.

This, however, is not the case with the still rare *Angræcum sesquipedale*, as our figure will show. It is a handsome [illegible]-growing species with [illegible] leaves of a dark-green colour [illegible] [illegible] [illegible] bloom on the surface, so that even when not in flower the plant is a good-looking object. The reason [illegible]

containing so rare as that it is so difficult to import, but we may hope that better success will attend the efforts made [illegible] is a reflection as to the means for transmission. The plants become improved. Large quantities have been sent over, but few of them have arrived safely. Collectors should be very careful to pack and dispatch the plants whilst in a dormant state and perfectly dry, for they have thick fleshy leaves, the stems, and are consequently very liable to decay from excess of moisture. Stout glass cases should be used, and the plants should be secured firmly to their sides, so that they may not bruise each other.

Angræcum sesquipedale is a plant of evergreen habit, growing from three to four feet in height, and bearing leaves about twelve inches long. The flower spikes proceed from the axils of the leaves, and are about ten inches in length, supporting four or sometimes five flowers, each of which is eight inches across, of an ivory-white colour and has a [illegible] spur, about fourteen inches in length, hanging from the under side. The plant blooms during November, December, and January, and continues in perfection for several weeks. It is [illegible] more valuable on account of its habit of blooming in winter, when flowers are scarce.

This plant requires the temperature of the Indian house to grow to [illegible] perfection. It requires, in fact the same treatment as the other *Angræcums*, which, like *Aërides* and *Saccolabium*, have no thick fleshy bulbs to support them, and therefore need more nourishment than *Cattleyas* and other pseudo-bulbous genera. It requires but a short season of rest, which should begin about the time it flowers. The plants continue to grow nearly all the year, and must be kept in a plump condition, but too much water must never be given at the roots, especially if grown in pots, as they are very liable to decay. Over-watering is very injurious to those kinds of Orchids that are found growing on trees. They indeed get a great deal of rain sometimes, but from their position there is a free circulation of air about them, and thorough drainage, hence, in our houses, where they are confined, they require less water than some others, more especially when they have moss at their roots. Water therefore, must be given [illegible] If the plants are grown in pots with moss, the latter should only just be kept damp. The plant is of strong free-growing habit, and produces thick fleshy roots at the stem. We have found it to thrive well in a pot with moss mixed with a few broken crocks. Good drainage is necessary. The pots should be three parts filled with drainage material, and the plants set a couple of inches above the rim. It will also succeed on a block, or in a basket with moss suspended from the roof. If grown on a block, some live moss must be placed about it and secured with nails and wire of copper [illegible] rusts, and is injurious to the roots. If baskets are used they should be of copper, or galvanized iron, or rough wood; but an objection to the latter material is, that it soon decays, and thus becomes expensive. We have sometimes seen basket receptacles of pottery used, and they answer very well, except that they are somewhat heavy for suspending from the roof. If bamboo can be procured, it makes capital baskets, and is light, as well as durable.

In other respects, this *Angræcum* requires the same treatment as that recommended for *Vanda suavis* (Page 11), under which full directions are given as to the temperature of the Indian house. It is not much affected by insects, sometimes the scale will attack it, but this may be easily removed by washing.

Propagation is effected by means of the young shoots, which appear from the base of the plant. When these become strong and vigorous, and furnished with plenty of roots at their stems, they may be cut through at intervals, leaving roots on each piece. Some leaves should also be left below the cut, in order to draw up the sap, and induce fresh growth. These young rooted pieces should be placed on separate blocks, or in pots with moss, and kept in a shady part of the house until they become established.

PLATE XXXII

MILTONIA MORELIANA

[illegible]

This [illegible] *Miltonia* [illegible] way to the Exotic Nursery, King [illegible] purple-flowered plant [illegible] the name of *Miltonia spectabilis purpureo-violacea* [illegible]

[illegible] Our drawing was taken from a very fine specimen grown by Mr. Baker, gardener to A. Bassett, Esq., of Stanford Hall [illegible]

The particular plant now [illegible] foliage of a yellowish colour. Several other *Miltonias*, [illegible] *spectabilis* [illegible]

There are several different forms of *M. Moreliana* [illegible] all of them are showy and beautiful. [illegible] at a time when Orchid flowers are scarce, and [illegible] moreover, very [illegible]

Miltonia Moreliana, then, is a compact-growing evergreen plant, [illegible]

r more, so that it is a useful plant for Autumnal Exhibitions, being, moreover, a capital flower to carry requiring in packing only a small stick to support each flower.

Naturally the plant grows on trees and rocks, and in damp shady places where the heat runs high, dur ng the growing season, and in the resting period there is much drought, nevertheless at this juncture the dews, being heavy at night, keep the plants plump and firm, so that they are prepared for starting into growth when the wet season, which lasts for some nine months. Thus we find there is their season of growth and flowering.

The plant may be easily cultivated. The most difficult point in its management is to keep the foliage of a good healthy colour, for it is often seen yellowish and sickly looking, although the plants may appear vigorous. We had them so ourselves. The plant from which our illustration was taken was, however in perfect health, the foliage being as green and beautiful as it possibly could be. When thus grown it forms a lovely object. Mr Baker grows *M. spectabilis* and its varieties equally well. Growers cannot do better, therefore, than to follow his plan for we never saw *Miltonias* with better coloured foliage or with so large flowers as with him during the last three years. The mode of treatment is as follows:—The plants are kept in the East India house with *Aerides*, *Saccolabium*, etc., they are grown in brass-wire pedestals, suspended from the roof near the glass, but where there is at the same There are trees at one end of this house, which keep off the most powerful rays of the sun, though the blinds are seldom used, and hence they obtain abundance of light without too much sun-heat. This we believe to be the correct mode of growing them with good foliage. Mr. Baker informs us that he plants them in Sphagnum-moss and peat with good drainage, and that he believes the grand secret to be the giving them plenty of water during their growing season which causes them to root freely—as, indeed, the plants appear to do. The pans are perforated, and the roots run out in all directions round them, looking extremely healthy. When the plants are in bloom they are removed to a cooler house, where they remain until they have finished flowering, they are afterwards put back into the East India house, and started into growth. They generally commence growing after the flowering is over, and this is the best time to pot them. They must have perfect drainage, with moss over the potsherds, a little rough fibrous peat being mixed with it, and the pot or pan filled up with the material, so as to be able to place the plant on the top, a little above the rim, in which position the bulbs must be firmly fastened to the soil with small wooden pegs. The plants having creeping rhizomes require broad-topped pans or pots, in order to give room for their growth.

The *Miltonias* require but little rest, they generally grow nearly all the year, taking their rest when they are in bloom. They should never be allowed to get dry, indeed the bulbs, instead of being in this way allowed to shrivel, must always be kept in a plump state. We have grown them in the same house with the *Cattleyas*, and found them to do well and flower abundantly. As already described, water and shade, and not so much a strong heat, are what they most require in order to keep the foliage of a good colour, and to grow them to perfection. A sharp syringing in warm weather will improve the health of the plant.

They are propagated by separating the rhizome with pseudo-bulbs, leaving two or three old bulbs at the back of the young growth. The best time to divide them is just as they are starting into growth. When divided, they should be put into separate pots and set in a shady place. A moderate supply of moisture being applied at the roots. They are not much subject to injury from insects. Sometimes the white scale will attack them, and when this happens it must be subdued by washing.

PLATE XXXIII.

ANGULOA CLOWESII.

An epiphyte of bold and showy character, producing flowers at the same time as the young leaf-shoots. The pseudobulbs are large, oblong-ovate, and deeply furrowed. The leaves are broadly oblong-lanceolate and pointed, three or four together, the young pseudobulbs being at length developed, ... [illegible] ... The sepals and petals are similar ... broad ... oblong-ovate and ... the petals somewhat the smaller ... [illegible] ... and unequally two-lipped, the upper lip very short and emarginate, the lower one acuminate and three-toothed ... The column is large and erect.

ANGULOA CLOWESII, *Lindley, Botanical Register* 1844, t. 63; *Hooker, Botanical Magazine*, t. ...; *Reichenbach fil.* in *Walpers Annales Botanices Systematicae*, v. 598.

This fine plant was collected by M. Linden in Columbia some two-and-twenty years ago, and was first flowered by the Rev. J. Clowes, of Broughton Hall, Manchester, after whom it has been named, in the year 1844. There appear to be several varieties of it in cultivation. That originally figured in the *Botanical Register* had a perfectly white lip. Another figured in the *Botanical Magazine*, which has been collected by Mr. Purdie when on a mission for the Royal Garden at Kew, had the ... of the lip of a strongly-marked ... orange colour. That which we now figure, from the superb collection of S. Mucker, Esq., of Wandsworth, ... will be seen, almost ... in colour.

The genus *Anguloa*, which seems to be now recognised by botanists generally, is not too distinct, for it approaches very closely to *Lycaste*, as Dr. Lindley has shown in describing the plant we now figure. The main difference is, that in *Lycaste* the lateral sepals are placed edge to edge, while in *Anguloa* they considerably overlap, which arrangement produces a considerable difference in the aspect of the flowers. It is a small genus, of which five species only are in cultivation, all showy and ornamental plants. We have seen one variety of *A. Clowesii* with a few small red spots on the bright yellow ...; this variety is sometimes called *macrantha*, and is extremely rare. The species of *Anguloa* are of deciduous habit, losing their leaves after their growth is completed, and they are of easy culture if the proper treatment is given to them. They are all, moreover, free-blooming plants when well grown. Some are rare in collections, but the one now figured may be obtained at a reasonable cost. ... species to import, if it is sent at the proper time, that is, when the plants have completed their growth; but if imported when starting into growth they will in all probability die.

Anguloa Clowesii grows to a large size. The bulbs are usually six inches high, and the leaves, which proceed from the top of the bulbs, are from two feet to two feet six inches in height ... of a beautiful light green colour. It commences to grow in April, when the flower-buds are produced from the base of the young growths, three or four in number. The blossoms are ... of a bright golden ... and stand nearly upright, so that they form a kind of ... They are produced in May and June, and continue in perfection for at least a month if they are kept ...

This is an excellent ... for ... its flowers are so large and distinct. It is ...

good traveller, for a stick put to the stalk of each flower will prevent it from getting injured but it must be tied firmly, and must not touch the flowers, for they are easily bruised, and then turn black. A piece of wadding, should be placed within the flower to keep the lip in its proper position, and prevent it from moving, which it has a great propensity to do when the plant is disturbed, this of course must be taken out on its arrival at the exhibition.

The habitat of this species is in low bottoms in the midst of forests, growing on the ground, consequently where there is plenty of moisture in the growing season. When the leaves begin to decay, they must have a good season of rest, this occurs during winter. In the spring the plants commence to grow and bloom.

The finest plant we have seen was grown by Mr Anderson, gardener to J Dawson, Esq., near Glasgow. This was indeed a wonderful specimen. The bulbs were seven inches in height! The plant was grown in a pot, and had ten flowering bulbs, which produced from thirty to forty flowers! Mr Anderson grows his *Angulœas* at one end of his cool house, along with *Lycaste*, *Odontoglossum*, and similar plants, which fact should teach us a lesson in their cultivation. They have been wrongly treated by many growers, and this is the reason we have seen so few good examples of them. The fine specimen just mentioned was grown in a temperature of from 45° to 50° during the winter season when it was at rest, while during summer it was kept in a temperature ranging from 60° to 80°, with sun heat, and the aid of a little fire occasionally to keep off decay, especially in heavy weather. The plant was allowed to have all the light possible, only sufficient shade being given to shield it from the scorching rays of the sun.

These *Angulœas* thrive best in pots with peat-earth and good drainage. They are also better planted level with the pot-rim, as they require a good supply of water at the roots during the summer or growing season. When the growth is completed, they must have a season of rest, the supply of water being reduced to just sufficient to keep the bulbs in a plump state. We have known the bulbs to be rotted in winter through receiving too much water. When this occurs, it is best, before decay has proceeded too far, to cut the damaged portion away with a sharp knife below the part which is affected, and to apply a small quantity of dry sulphur to the wound.

The mode of propagation is by division. The bulbs should be cut apart just before they commence starting into growth, always leaving two or three old bulbs at the back of the leading one. Afterwards they should be potted into the same material as the established plants. Sometimes the old bulbs will produce young ones on the top, and these should be left until the growth is completed before they are taken off and potted. The plants should always be kept free from insects, they are most liable to be attacked by the thrips.

PLATE XXXIV.

CHYSIS LIMMINGHII.

A [illegible] [illegible] elegant [illegible] [illegible] [illegible] [illegible] alternate [illegible] plicately veined leaves, and pendulous flower [illegible] bearing [illegible] six flowers. The sepals and petals are oblong acuminate, and [illegible] nearly uniform (except that the lateral sepals are broader at the base and become somewhat deltoid, and that the petals are there somewhat narrowed); these parts are bluish white, tipped with purple. The lip [illegible] the lateral lobes oblong, [illegible] yellow streaked with crimson, the middle one larger, fleshy, [illegible] purple [illegible] with five parallel [illegible] [illegible] [illegible] in front. The column is broad, fleshy, concave, pubescent towards [illegible].

Chysis Limminghii, *Linden Catalogue* 1857; *Lemaire, Illustration Horticole*, [illegible]

Chysis aurea, var. Limminghii, *Lemaire, Illustration Horticole*, [illegible] t. 240, [illegible] *[illegible] Botanical [illegible]* [illegible] Limminghe.

This very beautiful plant was introduced in 18[illegible], by M. Ghiesbreght, to the establishment of M. [illegible], of Brussels. It was found in Tabasco, a province of Mexico, growing on forest trees near the sea-coast. M. Lemaire was the first to suggest that it was a variety of *C. aurea*, and this conclusion seems to have been arrived at independently by Sir W. Hooker, who observes: "*C. aurea* has the purple streaks nearly obsolete; *C. aurea*, var. *maculata*, has more distinct purple streaks, and a deep tawny blotch occupying the upper half of the sepals and petals. *C. Limminghii*, of Linden, with a structure of flowers, pseudobulbs, and foliage identical with the others, has a nearly white or cream-coloured flower, anything of a golden colour is confined to the lip, but there are purple or lilac blotches on the sepals and petals, and very deep and copious purple streaks and spots on the middle of the labellum. Thus I am compelled to consider all varieties of one and the same species, *C. aurea*."

Our date was taken from a large plant in our own collection, which produced about forty flowers; intermixed with its green foliage these formed a complete bouquet.

It is a deciduous plant, losing its leaves some time after the growth is completed and the bulbs are matured. It is a free-flowering species. We have seen but two varieties, one having more colour than the other, and there are but few good specimens amongst growers. We have noticed a very fine one in the collection of J. A. Turner, Esq., of Manchester, and it is bloomed to great perfection every year. We hope [illegible] to see more of it cultivated, as it is a most desirable plant for exhibition purposes, on account of the distinctness of its appearance. It belongs to a small genus, of which we only know four worth growing,—amongst them *Chysis bractescens*, a most beautiful species, and a great favourite amongst ladies, who use its delicate white flowers to decorate their hair; when so employed, they are found to last a long time, on account of their being of a thick waxy texture.

Chysis Limminghii has thickish club-shaped stems or bulbs eight inches or more in length. The leaves proceed from the top of the stems to the height of a foot, and are of a light green colour. The flowers grow from the base of the bulbs along with the young growth, on a spike about four inches long, sometimes several spikes together when the plant is strong. The sepals and petals are of a delicate blush colour, tipped with purple; the lip is of the same colour, barred with purple, and yellow in the centre. The blooming season lasts through March, April, and May, and the flowers continue in perfection for about three weeks.

kept in a cool house without being wetted. If the plant is required for exhibition purposes it should be retarded as soon as its growth is completed by placing it at the coolest end of the house without water at the roots, until it is required to start into growth to flower, when it should have a little more warmth. It is a capital plant to travel, as the wadding being put between the flowers, and of course removed on its arrival at the place of exhibition.

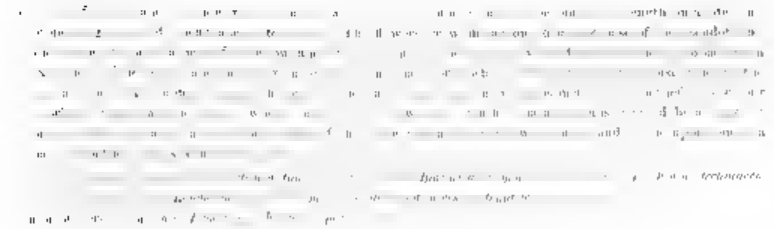
The plant is of easy cultivation, the chief requisites being distinct seasons of growth and rest. The latter commences in spring, at the same time that they begin to show flower. After this growing season has been completed, they should have one of rest, by withholding water from the roots, only an occasional sufficient to keep the bulbs in a plump state. Let the bulbs be well pumped before resting commences, this period is easily known by the leaves commencing to decay and the bulbs ceasing to swell. The roots being of a thick and fleshy substance of course require when growing a proportionate amount of moisture. From experience we have found the temperature of the Cattleya house the most suitable for all the species of *Chysis*, allowing them as much light as possible to secure well-ripened bulbs. If they are grown in a pot, they are best elevated on another pot reversed, as the bulbs are inclined to hang down, and by this mode of elevation they get all the light and air possible.

The thrive well either in pots or baskets, perhaps the latter, from their being suspended from the roof, are the most suitable on account of the pendent habit of the bulbs. The best material we have found for growing them in is rough fibrous peat and sphagnum moss in equal quantities, and they must have good drainage. If cultivated in baskets, moss should be placed next the outside and peat-earth in the centre, as the constant watering would otherwise be liable to wash out the peat. They also do well on blocks, but on these they require more attention, and more frequent moistening of the roots, about which latter moss must be fixed, replacing it annually. We find it better to repot them every season after they have finished blooming, as, like other deciduous plants, they lose their roots during the resting-period, and by giving them fresh material, the bulbs are induced to make stronger growth and to flower more freely.

Propagation is effected by dividing the bulbs just as they have finished blooming, always choosing a leading bulb with one or two old ones at the back. The divisions should be potted in peat and moss, and must have plenty of moisture at the roots. They are not specially subject to insect attacks, but sometimes when young the thrips and red spider will damage their foliage. Of course they must not be suffered to gain the ascendency.

Pl. 12. XXVI.

COELOGYNE CRISTATA.



the up. The natural blooming period is during February and March, and it continues in perfection for a month or five weeks, if the flowers are kept free from damp and in a cool house.

A native of the North of India, this fine species of course requires less heat than many other Indian species, but still it must have some artificial warmth. It is only of late years that we have proved it to succeed well in a much cooler temperature than it had usually been grown in—such a temperature as is given to many species of *Odontoglossum*, or such as may be experienced at the cool end of a Cattleya house, which is the position in which we generally grow it, and in which we have found it to thrive well, and to bloom profusely. But flowers must not be expected without well-matured bulbs; in securing these however, if the proper treatment is given, there will be no difficulty, for the plant is most easily cultivated. It requires a good season of growth, commencing after flowering—in fact, the new growth is produced along with the flower spike, and soon after the blooms are faded it begins to elongate. This is the time to encourage growth by giving new soil, if it is required; afterwards there must be a decided season of rest.

We have found this *Celogyne* thrive better grown in a pot than in any other way, as it requires a considerable quantity of water in the growing season; water should however be given with caution, in order that the young growth may not be destroyed. The soil should be kept damp during the time the bulbs are forming, but when they are fully grown only enough water should be given to keep them plump, until signs of growth reappear, when the quantity may be gradually increased. The best soil is good fibrous peat in a rough state, mixed with a little sand and charcoal, or broken crocks, to keep the mass open, and to allow the water to pass away freely. Good drainage is essential, in order that there may be no stagnant water about the roots. The plant will thrive well in a basket suspended from the roof with moss and peat.

The white scale is its greatest insect enemy, and this may be subdued by constant washing. Propagation is effected by dividing the bulbs just after flowering; this must be done in the manner we have so often recommended for other plants.

PLATE XXXVI

DISA GRANDIFLORA SUPERBA

A [illegible] terrestrial [illegible] stems [illegible] several showy flowers, each [illegible] The sepals are large [illegible] wholly [illegible] not more than half an inch long not shown in our figure; the lateral ones plane [illegible] somewhat laterally deflexed, ovate acuminate, two and a half inches long, and of a rich crimson-scarlet. The petals are small, ovate, at the base of the column. The lip projecting in front is small, [illegible] linear acuminate, and rose-coloured. The gynandrous column is provided with a pair of erect uniform recurved subconvex [illegible] appendages, which are yellow and thickly spotted with crimson-rose, the anther bed forming a long conical beak-like projection between them.

DISA GRANDIFLORA SUPERBA, *Moore, Proceedings of the Royal Horticultural Society*, ii. [illegible] *Floral and Pomological* [illegible]

The old *Disa grandiflora* was figured as long ago as 1825, in the *Botanical Register*, from a specimen flowered, as was supposed for the first time in Europe, by W. Griffin, Esq., of South Lambeth, a well-known cultivator of that day, after whom the pretty genus *Griffinia* is named. A comparison of that figure with our own will be sufficient to show that the title of *superba* is well merited. This name was given at the meeting of the Floral Committee of the Royal Horticultural Society held in July, 1862, when two or three different forms were shown by C. Leach, Esq., of Clapham Park, and the present, as being much superior to the rest, received the highest award that could [illegible] The flowers were larger and better proportioned, the colours richer and more decidedly contrasted than in the ordinary forms. The dorsal sepal was deeply flushed with purple-rose, and marked with very distinct crimson-purple [illegible] dotted lines, and the lateral sepals were of a bright crimson. This specimen had four flowering stems, each with four or five flowers. In others equally well grown, the colours were paler, the dorsal sepal being more bluish than rose-coloured, and the lateral ones orange-red. We therefore readily adopt the name of *superba*.

Disa grandiflora superba ranks amongst the finest of greenhouse Orchids. Our drawing was taken from a [illegible] plant that produced with us eight blooms on one spike—an unusual number, for commonly not more than two, three, or four are produced. It was grown in a greenhouse under vines, but as near the glass as possible where it obtained plenty of light.

The most successful cultivator of this *Disa* is C. Leach, Esq., of Clapham Park, and the horticultural world is greatly indebted to this gentleman for bringing it so prominently under notice as he has done, by the fine specimens exhibited at Kensington and the Regent's Park shows, during the last few years. Every one who has seen these plants must have been astonished at the vigorous growth they presented, with their thirty to forty young shoots and numerous flower spikes; some young stems [illegible] holes in the sides of the pots, so vigorous were they. What they require is coolness and moisture at the roots and a [illegible] of growth during the winter months, at which time they require great care.

This *Disa* has a creeping underground [illegible] shoots about six inches in height and of a light green colour. The leaves are attached to these stems, and the flower spike, when present

proceeds from the top to the height of eighteen inches or two feet, bearing from two to eight flowers of large size (more than four inches in diameter), of a bright scarlet and crimson verging to pink. The blossoms are generally produced in June, July, and August, and continue for five or six weeks. It makes a fine plant for exhibition on account of its splendid colour.

The treatment of this plant is not sufficiently known to admit of a minute and dogmatical account of it being given. The first thing is to ascertain the condition of its native habitation, which is on the banks of watercourses, where the roots get well supplied with moisture during the growing season. The plants rest after the flowering season is over, during this time less moisture is required, and as we have been informed by those who have seen it growing wild, the watercourses become dried up. The growing season recommences in October or November, and continues until the blooming period. The shoots die off annually, and new ones with fresh roots are produced in the autumn. At this season, when active growth commences, they require great care. We have found them making their roots in January and February, and this is the time to repot them, or to put them in wide shallow pans. They do not root deeply in the soil and prefer a shallow pan, as they throw up suckers very freely. We have seen in the collection of R. F. Ainsworth, Esq., of Lower Broughton, Manchester, a well-grown plant under the care of Mr. Mitchell the gardener, who cultivates it in a cool greenhouse with plenty of moisture at the roots during the growing season, and in the same material as we recommend. It is a good plan after the growing and flowering seasons are over, to place the pots in a rather shady part of the garden, and to syringe them occasionally, though not so as to keep them too moist, for this is their resting season, they may however perish if allowed to get too dry. At the end of September or October, they may be put back into the greenhouse, and they will soon begin to throw up their fresh stems, when more water may be given. During the time they are in active growth they may be syringed twice a day or even oftener, this is far better than using a watering-pot, as it serves the purpose of a shower of rain and helps to keep the red spider from the leaves. This insect is very injurious to them, and prevents their growth from being properly matured, which is one reason, no doubt, why we see so many failures with these plants. Water poured upon the stages which they stand on, causes a moist atmosphere to rise up among them, and is greatly conducive to their health.

The soil we have found best suited to the *Dea* is good fibrous peat used in rather a rough state, and with a little silver sand, well-rotted manure, and live sphagnum-moss mixed to it, this should be mixed well together and used with good drainage, and a little moss or rough peat may be advantageously employed to keep the drainage open. Shallow pots or pans are the best to grow them in, and during the growing and flowering season they should be kept in the greenhouse as near the glass as possible, which will cause them to gain strength and flower freely, the roots are to be kept well watered during their growth, and they must have a proper rest after blooming. The most suitable time for potting them, is just as they are beginning to make roots, and they should be potted an inch below the pot rim.

They are easily propagated, as they throw up suckers in abundance. These should be left till well rooted, and then taken off and potted in the material recommended for established plants, after which they must be kept moist and in the shade until they make fresh roots. When they get established, place them near the light, and apply more water to the roots. As already mentioned, the plants are subject to the attacks of red spider and thrips, which must be subdued by constantly syringing both under and over the leaves.

Plate XXXVII

GALEANDRA DEVONIANA

[illegible] Orchids [illegible] elegant [illegible] coloured flowers. The stems are terete, three to six feet [illegible] and [illegible] transformed [illegible] The flowers [illegible] late, spreading and ascendent, purplish brown, with a border of green. The lip is large, prominent, obscurely [illegible] produced into a short, blunt hooked spur, four elevated [illegible] flush at the apex [illegible] purple. The [illegible] large downy erect [illegible]

[illegible] Devoniana, *Schomburgk in Lindley Sertum Orchidaceum*, t. 37; *Paxton's Magazine of Botany*, vol. [illegible] 45; *[illegible] Magazine*, t. 1[illegible]0; *Botanist*, v. t. 93; *Reichenbach fil. in Walpers Annales Botanices Systematicae*, vi. [illegible]

This fine plant was first discovered by Sir Richard Schomburgk, who found it in the neighbourhood of Barcellos, on the banks of the Rio Negro, growing sometimes in large clusters on the trees [illegible] river, sometimes on the ground when the soil consisted of vegetable mould. It was, he remarks, so luxuriant that some of the larger clusters of stems, which sprouted from a common root, might have been from ten to twelve feet in circumference, and the stems often from five to six feet high. This so far exceeds what has as yet been [illegible] that it is reasonable to expect, when this luxuriance is reduced, we shall also obtain much finer flowers than we have yet seen in our hothouses. Schomburgk [illegible] the plant [illegible] on the banks of the Rio Negro, a tributary of the Amazon, and both Spruce and Wallace [illegible] district.

This [illegible] species, which is the finest of its genus, has always been very rare in this country. Our illustration was taken from a specimen in the collection of J. A. Turner, Esq., of Manchester. S. Rucker, Esq., of Wandsworth, exhibited the plant more than fifteen years ago at the Chiswick and Regent's Park shows, and it made a pleasing variety in his collection.

Galeandra Devoniana grows taller than the other species, and the stems are of a brighter green colour, that when once seen it may readily be recognized. *G. Baueri* also makes a fine specimen when well grown. Mr. Blake, gardener to J. H. Schroder, Esq., [illegible] a very [illegible] we have not seen [illegible] This is a great loss to our collections, as it is a very distinct plant. There is another, *G. cristata*, which is quite different from the other two, and well worth cultivating.

Galeandra Devoniana is one of those Orchids which lose their leaves annually. The stems grown in this country are usually about two feet in height, and the foliage is of a light-green colour. The flower-spike [illegible] from the top of the stem when the growth is [illegible] and bears numerous flowers, whose [illegible] white [illegible] pencilled with purple. It blooms at different seasons, and continues in perfection for several weeks, if the flowers are kept cool and free from damp. For its growth it requires a good supply of moisture. We were delighted a short time since to find it thriving beautifully with Mr. Penny, gardener to A. Gordon, Esq., Regent's Park, in a cool house, with *Odontoglossum*, *Lycaste Skinneri*, &c. The plant was growing on a block of wood, and [illegible] doing as well as those in pots, but when grown in this way, it requires a great deal of water, and the block must be kept moist. This plant

had been imported for about a year, but that from which our figure was taken, we have known for several years, and it has always been grown in a pot.

The plant requires a good season of rest. Mr Pilcher, gardener to S. Rucker, Esq., of Wandsworth informs us that his plant sometimes rests for six months, and during this time he keeps the roots quite dry or gives but just sufficient moisture to keep the bulbs plump.

When the plants commence growing, water may be given, but not too freely at first, or the young growth is may damp off. By the time they are grown about six inches high more water may be given, and during the period of active growth the plants should never be allowed to get dry. We have known great injuries to be caused by dryness occurring at this stage, the growth becoming in consequence weakly; but after the growth has been completed, less water will suffice. We find it to grow better when kept near the glass, where it may have all the light possible. The growth is then stronger, and this is also the means of bringing the flowers to a larger size.

This plant sometimes makes two growths in one year, but does not always flower from both. The second starts before the first is completed. The best material for potting is good fibrous peat and sphagnum, mixed well together, with good drainage, the pots being half filled with crocks, and then a little sphagnum put over the crocks to keep them open. The potting material should be carried one or two inches above the rim, and the plant placed on the top, and firmly pegged down. This latter is a point of some importance in the cultivation of Orchids, as it causes them to root more vigorously, besides, if loose, the roots are apt to get injured.

The best time for potting *Calcandras* is just as they start into growth, and before they begin to make fresh roots. They require to be repotted when the soil gets in a close or sour state. It should in such cases be shaken away, and the roots washed before repotting. This, indeed, should be done with all Orchids which have got into an unsatisfactory condition. Both Mr Tod and Mr Pilcher grow their plants at the cool end of the East-Indian house, but we find they will do with less heat, that is, in a temperature of from 50 to 55° in winter, and in a house without fire-heat, except on cold and wet days, warming sufficient.

This plant is propagated by dividing the stems, leaving one or two of the older ones at the back of the leading growth. This must be done when they are starting, and the divisions potted in the material recommended above. Insects do them some mischief, the thrips and red spider especially being fond of the tender leaves, and if allowed to increase they will seriously injure the growth.

Plate XXXVIII

EPIDENDRUM SKINNERI SUPERBUM

[illegible] narrow [illegible] lanceolate and two-ranked. The flowers form long, dense, cylindrical racemes, sometimes branched below so as to become paniculate, are furnished [illegible] The sepals [illegible] the petals [illegible] of nearly the same form as the petals, all of them of a deep purple rose, somewhat deeper tinted in the lip, which is marked towards the base with yellow [illegible].

[illegible]ERIA SKINNERI SUPERBA, *of gardens, and of our accompanying Plate 38.*

This exceedingly beautiful variety of a very beautiful species was introduced from Guatemala by G. Ure Skinner, Esq., to the nursery of Mr. Veitch, of Chelsea, by whom it was exhibited, in fine condition, at an exhibition of the Royal Horticultural Society in 1873, and received the award of a first-class certificate on account of its singular attractiveness. It far surpasses the old *Epidendrum Skinneri* [illegible] size of the flowers and of the raceme, as well as in brilliancy of colour, and [illegible] stronger [illegible] constitution, it usually produces [illegible] inflorescence. These plants have [illegible] or other [illegible] gardens the name of *Barkeria*, but, as remarked to us by Professor Reichenbach, whatever may be thought of the validity of that genus, the wingless column adnate to the lip in this species is sufficient to remove it therefrom. *Epidendrum Skinneri* is found also in Costa Rica, and we learn from Professor Reichenbach that it [illegible] flowered [illegible] by Warszewicz.

This plant is one of the most [illegible] of its class, its charming colour and its long continuance in bloom rendering it most valuable for the decoration of our cool Orchid houses. The original drawing which we now publish was made from a fine plant in Mr. Veitch's collection. Others were flowering at the same time, but that now figured is the finest of them all, the blossoms being larger and of a much deeper colour. The old form, however, is worth a place in every collection, as it is a fine showy plant for the winter months, and is a free-blooming plant when in vigorous growth, which may be secured by giving the proper treatment. The reason of this *Epidendrum* often failing is that it receives too much heat. The cool *régime* is that which should be adopted to keep it in a healthy [illegible].

The variety now before us loses its leaves after having completed its growth. The [illegible] a foot in height, and bear light green foliage. The flower-spike proceeds from the [illegible] when the growth is nearly completed, and attains the height of from twelve to eighteen inches, bearing a great number of flowers of a dark rosy colour. The blooming period continues from November to February, and the individual spikes last [illegible] weeks.

The plants [illegible] the wet season and [illegible] the dry and cooler season, after which they make new growths from the base of the stems. Such growths when made [illegible] must be encouraged by giving larger supplies of moisture at the roots. It has been a too common and fatal mistake to give this plant too much heat and too little water when growing. It has thick fleshy roots, and puts them forth freely to seek for moisture, but in the resting season enough water must be given to [illegible].

They are best grown on blocks of wood, suspended from the roof of the house. We have also grown

them in shallow baskets, with crocks and moss, but we prefer blocks with a flat surface, to which the roots may cling. The plant must be firmly fastened with copper wire and copper nails, as the rust from ordinary nails would injure them, and injury should be avoided as much as possible, as it takes time to get up a flowering specimen, and the only way to preserve it, when obtained, is to study and be guided by its requirements. If this is done, the cultivator may depend on having a fine show of flowers during the winter months and suspended from the roof of the house, the plants have a charming effect when in bloom.

The most suitable temperature is that which has been recommended for *Odontoglossum nevium* (Plate VII.), that is to say, the plants should be kept in an intermediate house, where the heat ranges from 50° to 55° during the winter months, from November to the middle of February, at which latter period a slight rise of temperature by sun-heat will do no harm. After February until May, the temperature should be allowed to rise to 60° by day and 55° by night, during the summer months no fire need be used except on cold wet days, but by October it is necessary to have recourse to fire-heat, which is kept on through the winter, the utmost care being however required in its application, so as to avoid anything like excess, which is at all times dangerous.

In the growing season the plants require a good supply of moisture at the roots, and should be syringed with water of the same temperature as the house in which they are kept. This will help to destroy the red spider, which is very injurious to them, and their leaves being thin, they are very liable to be attacked. The thrips is another inveterate enemy, which should be destroyed by smoking the house, and washing the leaves with clean water. Too much smoke should not be given at once, two or three fumigations on alternate nights is far better, and the insects should never be allowed to get too much ahead before the remedy is applied.

The plants are propagated by dividing the bulbs, leaving two or three old ones at the back of the growing shoot, and placing them on blocks, as recommended for the older plants.

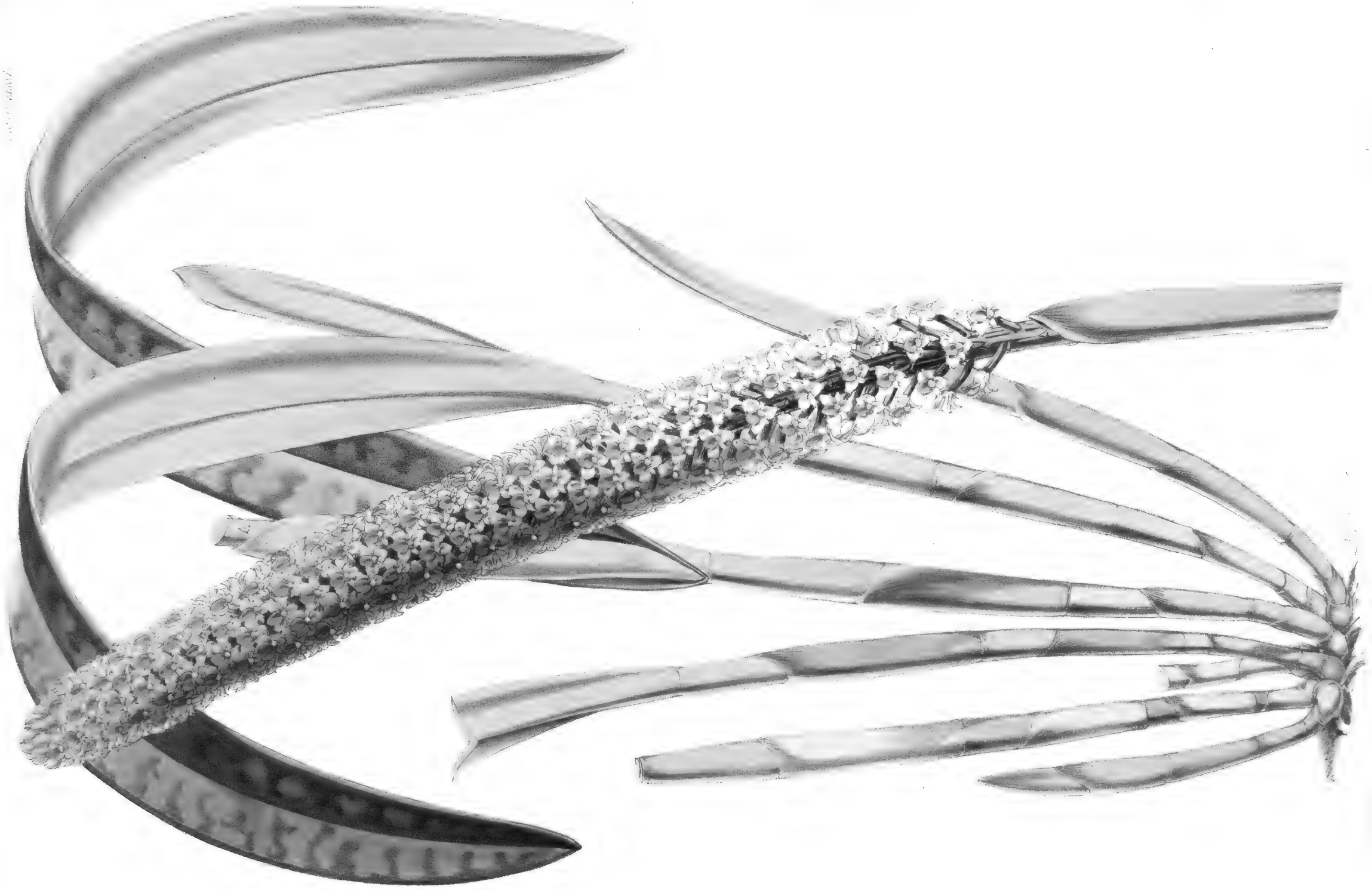


Plate XXXIX

ARPOPHYLLUM GIGANTEUM

[illegible]

[illegible] *Arpophyllum giganteum* is very nearly related to *Arpophyllum cardinale*, [illegible] among other small [illegible] the latter is quite without serratures. This beautiful [illegible] comes from Mexico and Guatemala. It is extremely curious in the formation of its spikes and flowers, which latter are arranged on the spike like a number of small shells, [illegible] This plant [illegible] and is four feet in diameter, with upwards of one hundred [illegible]

[illegible] more frequently [illegible]

[illegible] and a graceful [illegible] a foot in length [illegible] The flowers [illegible] of a rose lilac [illegible] of a purple [illegible] The flowers are produced [illegible] and continue for three weeks [illegible]

We have found the plant to grow well in company with *Odontoglots, Lycastes*, etc. [illegible] with *Cattleya*, *Laelias*, etc., and we have not often [illegible] growing point, and requires a large [illegible] thick fleshy roots and a mass of creeping stems which remains on the top of the soil, while the strong roots strike down into it. It must have a good supply of water at the roots [illegible] growing season, and after that a good rest by withholding water from the roots [illegible] This will [illegible] reason it has not flowered in some collections is because it has been cultivated [illegible]

[illegible]

cracks, and on these a little sphagnum must be laid, and the rest filled up with peat, which should be carried one or two inches above the rim, and the plant placed on the top, where it is to be firmly pegged down, with a little peat on the roots. The plant will also thrive in a basket suspended from the roof, but it then requires more water.

It is not subject to the attacks of insects, except the white scale, and if well looked after, and speedily removed, it will do no harm. Propagation is effected by dividing the stems, leaving a few old ones at the back of the leading shoot. The division should be made before new growth commences, and the divided pieces should be potted in the materials already mentioned, and receive a little water, in order that the bulbs may not shrivel.

PLATE XI

LÆLIA PURPURATA

[illegible] The leaves are thick and rigid, oblong, emarginate at the apex. The pedicels are three to five-flowered, issuing from the terminal foliaceous ovate sheathing spathe. The flowers are large, rose-coloured, and fragrant. The sepals and petals are nearly equal, somewhat [illegible] the same colour. The lip is three-lobed, the obovate lateral lobes convolute round the column [illegible] purple, and the broad roundish or semiovate terminal lobe spreading, crispy at the edge, sometimes slightly crenated, of a rich violet crimson, [illegible] the base [illegible]

Lælia purpurata. *Lindley in Paxton's Flower Garden* [illegible]

Cattleya Dayana. *Lemaire, Jardin fleuriste*

Lælia purpurata. *Reichenbach fil. in Bonplandia Botanical Supplement*

Dr. Lindley remarks of this magnificent plant "but it is very nearly related to *Lælia grandis*, another Brazilian species, which Reichenbach compares with *Lælia crispa*. *Lælia purpurata* is a native of the island of St. Catherine's, where it was discovered by Mr. Burchell. To Messrs. [illegible] and Son [illegible] belongs the honour of first introducing it to this country [illegible] at the meeting of the Horticultural Society, and we believe many plants were sold at the rate of twenty-five guineas. Now [illegible] have been purchased for the same money, and it forms a conspicuous feature in almost every [illegible] collection of Orchids brought to our exhibitions, some of these plants having been imported by Messrs. Low, Veitch, and others. It is curious to observe that although [illegible] like. That which we figure is one of the best.

This *Lælia* is one of the finest Orchids in cultivation. It is rich, moreover, in the various [illegible] variety of colour, very few known species being so much valued, as regards the size of the spike and the intensity of colouring. Our illustration was taken from a beautiful specimen in our own collection.

Lælias are all evergreen Orchids. The species now figured has fine foliage as well as fine flowers. The plant, moreover, serves well for exhibition purposes, as both the [illegible] flowers may be seen to great advantage. Some plants have been known with forty to fifty blossoms open at one time. It is [illegible] bring [illegible] flowers in May or June, and [illegible] by having several plants, and starting them in succession. The [illegible] are [illegible] display [illegible] which also

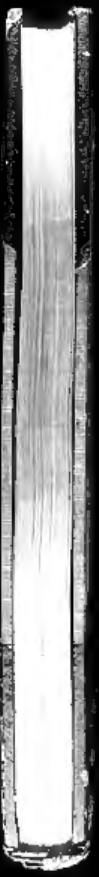
Lælia purpurata is of a compact, free-growing [illegible] The bulbs are [illegible] long, or three feet, and the latter are from two to four inches broad. The blossoms issue from a spathe formed when the growth is completed, and the spikes attain a height of eight inches, and bear from three to five flowers of large size. The sepals and petals are white, slightly tinged with rose, and the lip is of a rich crimson purple. The flowers are produced naturally during May and June, and continue in perfection for [illegible] [illegible]

The [illegible] [illegible] was [illegible] of the *Cattleyas* and [illegible] *Lælia* we

Spine

Fore

Foot



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