SELECT

ORCHIDACEOUS PLANTS.

SECOND SERIES.
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BY

ROBERT WARNER, F.L.S., F.R.H.S.

THE NOTES ON CULTURE BY

BENJAMIN S. WILLIAMS,

AUTHOR OF

THE 'GARDEN-HOWE'S MANUAL,' 'SELECT FERNS AND Lycopods,' 'CHOICE SHORE AND GREENHOUSE PLANTS,' ETC. ETC.

LONDON,

LOVELL NEEVE & CO. 5, HENRIETTA STREET, COVENT GARDEN.

1865—1875.
Dedicated

By Special Permission

to

HER MOST GRACIOUS MAJESTY

QUEEN VICTORIA,

BY HER MAJESTY'S

LOYAL AND MOST OBEDIENT SERVANT,

ROBERT WARNER.
INTRODUCTION.

When in 1865 the first series of forty Plates of Select Orchidaceous Plants was completed, we engaged, in compliance with numerous requests which were then made to us, to publish a second series of similar Illustrations. That pledge we have now redeemed by the issue of a series of thirty-nine Plates representing amongst them some of the most charming of the modern additions which have been made to the Orchid family. We refer without hesitation to the pictures themselves, as bearing out this description of the subjects portrayed, as a choice selection from amongst the many splendid acquisitions which have been and continue to be introduced to our gardens.

We appeal, moreover, to the plates themselves as evidence that, from an artistic point of view, our engagements have been fully met.

Mr. Fild’s happy and facile pencil has brought out, with great success, the points which it was most desirable to set before our subscribers, a result which has been aided by the ample size of our page, which, with few exceptions, is adequate to the faithful portrayal of the leading characteristics of the plants illustrated, without being cumbersome in its dimensions.

The practical information which accompanies each plate is calculated to be of the utmost value to cultivators, especially to those having but a limited experience. As the record of the actual practice of one of the most successful of English trade cultivators, it may be implicitly relied on; while the knowledge which we have ourselves obtained from many years’ experience, and which occasionally supplies an additional hint, renders the instructions all the more complete. The descriptive particulars also, being carefully and faithfully drawn up by a well-practised hand, bear their own especial value.

So well have these Illustrations answered the end we had in view in commencing them, that we have been urgently requested to extend them to a Third Series, which, relying on the support of our subscribers, we shall be very willing to do. The work was not commenced, nor has it been continued, as a speculation for profit, but as a labour of love; and in consequence it has always been and will continue to be our object, to throw the value of the subscriptions into the execution and finish of the plates, and we have on this ground a special claim on the support of those who take an interest in the Orchid family.
This Third Series will be commenced forthwith; and we are not without hope that the circumstances attending the execution of the work may be such as to facilitate a more rapid issue than has been the case with the series just now brought to a conclusion, since many sketches are already in hand, and drawings will be secured of deserving novelties as from time to time they may make their appearance.

Subscribers, however, should bear in mind that it is very undesirable, in a work of this character, to figure new flowers on the occasion of their first blooming in this country, as they rarely show their full beauty under the adverse conditions to which they have been submitted, namely, that of having been shortly before torn from their natural habitats, packed in cases, conveyed thousands of miles, and introduced into our plant-houses without a living root or leaf to support them; while our cultivators are, from want of experience, either in total or partial ignorance of the best mode of treatment.

The price and size of the work, together with the style of execution, will continue to be the same as in this Second Series.

ROBERT WARNER.

8, Crescent, Cripplegate, London.
April, 1875.
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CYPRIPEEDIUM CAUDATUM.

A stemless herb, with smooth leathery spotted leaves, of a sword-shaped outline, arranged in two ranks; and producing an erect-scape, supporting several large showy flowers, which escape from spotted-like leaves. The sepals are ovate-triangular, undulated at the margin, the dorsal one directed forward, greenish-yellow, striped and cross-banded with reddish-purple (or with green), the combined lateral ones dilated at the base, and less brightly coloured. The petals are extended into long pendent linear, wavy milk, eighteen inches or more in length, and these also are bearded towards the base, as well as hairy at the back along the central rib, the colour yellowish, striped with reddish-purple, the latter tint becoming more suffused in the upper half. The lip is oblong, inflated, glumular on the edge towards the base, yellowish-white, more or less stained with reddish-purple (or in some specimens greenish). The stem is covered with long, two bristly triangular lobes.

Professor Reichenbach regards this remarkable plant, with some other species of Lady's-Slipper, as forming a genus distinct from Cypripedium, which he calls Seleniaedium, and distinguishes by its having a distinctly three-celled ovary, Cypripedium itself having the ovary one-celled, with parietal placenta.

Cypripedium caudatum is a native of the Andes of South America, and was met with by Hartweg in the marshy localities. It is perhaps one of the most curious of Orchids, of this species, together with its remarkable beauty, has probably created a greater sensation than any other of its class. Our figure was taken from a fine specimen in the rich collection of W. Marshall, Esq., of Enfield,—a specimen which has been exhibited at several of the shows, and is much the finest we have ever witnessed. There are several varieties of this Lady's Slipper, but the one to which we now refer is certainly the best in colour of any we have met with. Some of the varieties are paler than others, and of a stronger and more upright habit of growth, though in all other respects the same. The long tail-like petals are the most extraordinary part of the plant. When fully developed these often reach to the length of eighteen inches, and complete this remarkable growth in the course of three or four days.

The plant is very difficult to import, having no fleshy bulbs to support it during the homeward journey, and the leaves being in consequence liable to rot. Those who collect it to send to Europe should be particular to send it at the proper time, and in a dry state. It is much to be regretted that we do not receive it in a better condition, as every orchid-grower is desirous of having it well cultivated. It can be bloomed every year by having a mass of plants, but it takes two years to make its growth for flowering.

The plant is an evergreen, and grows from a foot to eighteen inches high. The foliage is of a light-green colour. The flowers-scape are produced after the growth is completed, and rise from the centre of the plant to a height of from twelve to eighteen inches, two and three growing up together. The sepals and petals are yellowish, marked with brown, the tails of the latter being more deeply coloured towards the tips. The lip is of a redish-brown, with the basal part yellow, beautifully spotted with reddish-brown. The plant blooms during the months of April and May, and lasts in perfection for several weeks if the flowers are kept from damp.

It is of easy culture, provided it gets proper treatment. Several of the species, such as C. Stonii and C. Lowii, require to be managed in the same way. The principal point in their cultivation is to give them second series.
plenty of water and a moderate amount of heat at all times, as, with the exception of the blooming season, they are always growing; the new growths beginning to appear just after the blooming season. 

Mr. Marshall's plant was grown in a pot, and kept in the East India house, and we never saw one in better health.

The best soil for it is a compost of one part of turfy loam and three parts of peat, with some silver sand well intermixed. It must have good drainage, and a little moss should be laid on the top of the crocks to keep them open. Stagnant moisture is most pernicious to plants of this class, which are more injured by bad drainage than from any other single cause. This species does not require a large pot, as it roots sparingly. It is necessary to keep it near the glass, and to protect it from the scorching rays of the sun, which would injure the leaves, and leave the plant in a very precarious condition. If the leaves of a plant are not kept in good health, it is folly to expect success in its cultivation. The present subject is not liable to attacks of insects, if kept in health. It is propagated by division, so managed as to secure a young growth with an old one behind it. This division should take place when the plant is starting into growth, and the divided portions should be afterwards potted firmly, using the same materials as those recommended above. After potting, place it in the shade, and do not give too much water until it begins to make fresh roots.

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PHALENOPSIS INTERMEDIA PORTEI.

A stemless epiphyte, producing a few broad, oval, acute leaves, and an arching raceme of handsomely coloured blossoms. The sepals are oblong and spreading, and, as well as the broader rhomboid petals, are white, and not spotted at the base, as in the type. The lip is rich rose, three-lobed, the lateral lobes erect, bluntly wedge-shaped, the middle one ovate, with the two short cirri at the apex standing forward.

**Phalenopsis intermedia**, var. Portei, Botanische Zeitung, xxii. 128.

Of *Phalenopsis intermedia* itself, the *P. Lobbi* of some gardens, Dr. Lindley has remarked:—"It is not improbable that this beautiful plant is a natural mule between *P. amabilis* and *P. rosea*. It agrees with the former in foliage and in the tendrils of the lip; with the latter in colour, in the neatness of its petals, and in the peculiar form of the middle lobes of the lip." The variety now figured, a plant, as our drawing shows, of no inconsiderable beauty, was found by M. Porte during his residence in the Philippines.

The species of *Phalenopsis* are among the finest of Orchids, and that which we now figure is one of the most beautiful and distinct. Our drawing was taken from a fine example in our own collection, which bloomed for the first time three years since, and now flowers annually, continuing its blossoms for several months in succession, notwithstanding which the plant grows vigorously, and has even produced on the old flower-stem a young plant, which has a good flower-spike. This *Phalenopsis* is quite distinct as regards its flower, but the growth and foliage are very much like those of *P. grandiflora*; *P. amabilis* seems to be intermediate between the two. The upper surface of the leaf is of a light-green, while the under side is more like *amabilis*. This plant, the only one we saw in bloom, was collected by M. Porte five years since. It was growing by the side of the beautiful *P. Schilleriana*, and was sent home in the same box together with *P. amabilis* and *P. rosea*. We suspect, from its appearance, that it must be a mule between *amabilis* and *rosea*. Our specimen was supposed to be the only plant in the country, but last year Mr. Lees, gardener to the Earl of Haddington, at Tyningham, flowered one which had been purchased as *amabilis*, and was imported with the plants above mentioned. This latter plant produced leaves twelve inches in length, and bore three branching spikes. It was grown upon a large block of wood standing eighteen inches above the pot in which it was plunged—a capital plan, for the roots cling to the wood, as it is natural for them to do. Often when the plants are potted the roots rot away, and the utmost care is then necessary to prevent the plant from dying. We find the safest plan, if the mass becomes decayed, is to take it entirely away, and cut off all the decayed roots, which encourages the plant to make fresh ones.

A great many plants of *Phalenopsis* are lost through bad cultivation—perhaps more than any genus of Orchids. The reason is, that they get too much water and heat, which causes them to push away too luxuriantly, and as a consequence they become starchy, and cannot endure changes of temperature to which they may be exposed. In this condition they get the spot; and if this happens, they seldom or never recover under the same treatment; but if the treatment here recommended be followed, there is a chance of their making fresh leaves free from spot. Another point in obtaining success is to keep the plants as well exposed to light as possible. They should be put about two feet from the glass; if nearer, they are liable to be affected by cold.

We have cultivated them, and have found them to succeed well in various ways. Firstly, we grew them upon large blocks of wood, plunged in a pot, in the same way as was done with Mr. Lees’s plant.

**Second Series.**
In this manner we have had from sixty to one hundred flowers upon one plant of *P. grandiflora*, which continued to have about the same number for six years in succession. We mention this merely to show that the plants can be grown well in this way.

Secondly, we have grown them well in pots with moss and crocks, suspended from the roof. This plan can be seen carried out in our house at Broomfield, where every year the plants are laden with flowers,—sometimes fifty in bloom at one time, and not a spot on the leaves. They thrive equally well in baskets suspended from the roof, but it is necessary to replenish the moss as soon as it commences to decay. They also thrive well on blocks suspended from the roof, but they then require more attention as to the application of moisture. The temperature we find the most suitable for the different species, is in winter 65° at night by fire heat, rising in the daytime a few degrees higher. We always avoid too much fire heat in winter. The moss should be kept just moist; and in summer, as the plants are nearly always growing, they will take a moderately liberal supply, but the water should always be warmer than the temperature of the house. Another point of much importance is giving plenty of warm fresh air, and thus keeping up a constant motion in the atmosphere of the house.

*Phalanopnidae* are propagated by leaving the old flower-stems, which often produce young plants. These should be left on until well rooted, and then cut off, and treated as recommended above.
PLATE III.

DENDROBIUM LITUIFLORUM.

An epiphyte, with slender, pendent, rosy stems, furnished with oblong-lanceolate leaves, and bearing showy flowers, two or more together, from the joints of the stems. The sepals are spreading, lancolate-ovariate, veiny, and of a rose-like colour. The petals are about twice the width of the sepals, and of a deeper colour. The lip is elongated, convolute, incurved and cornet-shaped, pale-rose with a deep violet eye, the limb being nearly circular.

Dendrobium luteiflorum, Lindley, Gardener's Chronicle, 1856, 472.
Dendrobium Hastifolium, Reichenbach, fli.

According to Professor Reichenbach, who named this handsome plant D. Hastifolium about the same time that Dr. Lindley published it under the name above adopted, it is of East Indian origin. Dr. Lindley calls it "a fine species, with the habit of D. tessaractos, but handsomer, the spreading, veiny, rosy-like flowers being four or five inches across, and the cornet-shaped lip deep violet everywhere, except a border round the expanded part."

No doubt it is one of the most beautiful as well as one of the most graceful of Dendrobium. There are several varieties of this plant, alike, indeed, as to their manner of growth, but some have the flowers much paler in colour than that we have represented, which is one of the best we have met with. It is of deciduous habit, losing its leaves before it shows flower. Several other species resemble it in its mode of growth, so that it is difficult to distinguish them except when in bloom; then, however, it cannot be mistaken, as none but D. nodiglottum approaches it in appearance, and that as regards its growth is very different. The species is extremely rare in cultivation, but few examples having been imported.

Dendrobium luteiflorum produces stems from two to three feet in length, and is of a pendent habit, and furnished with light-green foliage. The flowers are large, and proceed from the sides of the stem, the sepals and petals of a dark-purple colour; the lip white, edged with purple. It blooms in March and April, and lasts for about a fortnight or three weeks in good condition.

We find it to do well either on a block or in a basket. When grown in the latter way, it requires less attention as regards watering; but if the plant is neglected in this respect during its growing season, the plant is very apt to dwindle away, and does not long exist. This is the case with many Dendrobium, especially those of pendent habit. They are subject to red spider and thrips, and if allowed to remain in a dry house they become infested with them, and cannot be made to thrive. The way to check these pests, and also to keep the plants in health, is to give the roots plenty of water during the growing season, after which less will suffice, only just enough being given to keep the bulbs plump. When the plant shows flower it loses its leaves, and then to induce the blooms to come finer, more water may be given; if the plant is allowed to shrink, the blossoms will be small.

We find sphagnum moss and crocks the most suitable material for growing this plant, which should be suspended from the roof either in a basket or pot. If grown on a block, it must be watered twice a day in warm weather, and the leaves must be well syringed, which will help to keep the bulbs plump, and to maintain the plants more free from insects. The East India house will be the best place for growing it; it must, however, not have much sun, and yet it must be placed as much in the light as possible. A fine plant in the beautiful collection of W. B. Paterson, Esq., of Partick Hill, Glasgow, had a very beautiful second seed.
appearance when we saw it. The treatment of this well-grown plant was about the same as that just recommended. It makes a fine plant for exhibition, and if kept cool in the winter may be retarded, but if the collection contains several plants, they will bloom in succession for three months. Being of pendent habit, they always have a charming effect, hanging amongst such foliage plants as ferns, palms, etc., which, if placed as a background, show out the flowers to great advantage.

The plant is increased by dividing it when the old stems produce young ones. They should remain until their growth is completed, and then be taken off, and treated as before advised.
PLATE IV.

VANDA LOWII.

A strictly habited epiphytic orchid, with thick succulent stems, furnished with numerous obliquely-obtuse, strap-shaped, drooping, fleshy, lanceolate, leathery leaves, and very long, simple, pendulous, oval-shaped, flexuose, axillary spikes of showy discrpantry flowers, the two basal ones being quite distinct from the rest. The sepals and petals are usually lanceolate, undulated, and acute, greenish-yellow, almost covered by large, irregular blotches of reddish-brown, but in the two basal flowers they are blunter and more silky, and of a tawny-yellow, spotted with crimson dots. The lip is smaller, ovate, and finely, unguiculate, acute, and rounded near the point, and furnished with two bands of the disk.


RENEANTHREA LOWII, Reichenbach f.1., Xenis Orchidaceae, t. 80. Botanical Magazine, 1864, t. 5475.

The opinion seems to be gaining ground that this species should be removed from the genus Vanda, under which it was originally described by Dr. Lindley, and transferred to Renanthea. The affinity it bears to the latter genus was not indeed overlooked by Dr. Lindley himself, since he observes that “in some respects, especially in the minute, simple, umbellulate lip, sessile near the point, and two-horned here, it resembles the genus Arachnacthus”—itself's synonym of Renanthea. Since, however, with this knowledge in his possession, our great and lamented orchidologist advisedly refrained from disturbing the generic position to which the species had been originally assigned, and indeed held an opinion adverse to its removal from thence, we prefer to respect his decision, and therefore, for the present, at least, retain the original name.

This most extraordinary and exceedingly rare orchid is a native of Borneo, where it grows in the forests, on high trees in very humid places, and whence it was originally sent by Mr. Hugh Low, after whom it is named. It is very distinct in growth from any other species of Vanda yet known, and is easily distinguished by its dark-green foliage, thick fleshy roots, and remarkably long drooping flower-spikes, which attain from six to ten feet in length. Our figure was taken from a very fine plant in the Bournfield collection.

The most remarkable feature of the plant is the dimorphism of the flowers—that is, the production of two kinds of flowers on the same spike. This curious phenomenon is not accidental, since the pair of dissimilar flowers is met with at the base of every spike of blossom; neither does it appear to be functional, since Professor Reichenbach, who has carefully examined fresh specimens, finds that in both forms the organs are equally perfect. Indeed, in a letter from this learned botanist, alluding to our own experience on this point, in which he points out that the same facts had been observed by Mr. Kraner, the gardener to Madame Yemenich, of Flotbeck Park, near Hamburg, it is remarked, that “the basilar flowers fertilized by themselves, the others by themselves, the basilar by the others, and the others by the basilar—all gave ripe fruits, so that there is no sexual difference in the two kinds of flowers.”

This Vanda is a shy blooming plant, and generally grows four or five feet in height before commencing to flower. We have, however, seen smaller examples in blossom, and Mr. Veitch exhibited one in that condition, about two feet in height, several years since. The noble specimen in the collection of S. Rucker, Esq., of Wandsworth, bears numerous remarkably fine flower-spikes, and has been growing for several years in the same house, where it is kept at the entrance, on account of its noble and tropical appearance. It was imported by Messrs. Low and Co., several years since, from Borneo, together with many fine specimens which perished during their voyage—this unfortunately seems to be its common lot, so that it will probably

SOW SEEDS.
always remain scarce in this country. Moreover, it appears that it will not bear cutting, for several plants which have from time to time been taken off those in cultivation refuse to thrive. Mr. Low describes the species as climbing the trees of Borneo to a great height, the enormous spikes hanging from them and having a very grand appearance. He has lately sent home many more specimens, but unfortunately not one has survived; the leaves indeed have been green when the cases were opened, but as soon as exposed to the air they have fallen off. Mr. Lobb was once fortunate enough to get a few plants to this country alive, but we believe all subsequent attempts have been failures.

*Fuchsia Lescii* is an evergreen plant, growing several feet high. It throws out thick fleshy roots, and bears dark-green leaves eighteen inches in length, these growing on opposite sides of the stem. The long drooping spikes proceed from the axils of the upper leaves, and grow to the length of five to ten or more feet. The flowers are of a reddish-brown, interspersed by irregular lines of greenish-yellow, while the two at the base of the spike are of a tawny-yellow, spotted with crimson. The plant thrives best in the East India House, where it can enjoy plenty of moisture in the growing season, which indeed continues nearly all the year, as it has no fleshy pseudobulbs. We find it to succeed well with the other species of *Fuchsia*, such as *trembler* and *icaea*. It blooms during the months of July, August, and September, the flowers continuing fresh for several weeks. The plant requires good drainage, and a compost of sphagnum moss, and as the roots are very thick and fleshy, they need considerable pot-room. It is very important that in the process of repotting, the roots should not in any way be injured, as the plant is impatient of being disturbed. The best plan to adopt when giving it fresh moss, is to pull the old out first, and then having seen that the drainage is right—for on this greatly depends its successful growth—to replace it with fresh sphagnum. Bad drainage is very injurious, and if a plant has not good roots it cannot thrive. Great care should be taken, on the other hand, not to let it shrivel by keeping it dry, for if this is allowed to happen, there is little hope of its recovery, and even if it does recover it will take a long time. This being the case, the moss should always be kept moist, even when the plant is not growing; and when it is in vigorous growth, a more abundant supply of water must be given. We have sometimes seen this plant affected by the disease called spotting. This frequently arises from bruising the leaves, which happens in cleaning them—an operation which should always be most carefully performed, not only in the case of this, but of all thick, fleshy-leaved Orchids. The spot in Orchids is often caused by the rough treatment they get from persons who do not understand their nature.

This plant is not particularly subject to the attacks of insects. Sometimes scales gets upon it, but this may be kept under by cleansing with water, which is to be used of the same temperature as that of the house.
PLATE V.

ONCIDIUM CHRYSTHYRSUS.

A showy epiphyte, with oblong compressed, two-leaved pseudobulbs, which at length become ribbed; oblong-acute leaves; and a thyrse-like panicle of flowers supported by a stalk two feet high or upwards, the branches of the panicle ascendent. The flowers are numerous, with but few purplish crimson bars on the small greenish sepals and petals, and near the base of the broad crimson golden-yellow lip. The sepals and petals are oblong-acute, the lateral sepals united nearly to the centre, then becoming broad. The lip has two deflexed or rounded basal incurved, a very narrow and short isthmus, and a large reflexed anterior portion, which is bifid; the principal calyx at the base is depressed, and three-leaved at the apex, while in front are three calli, which are ligulate and receptacular, and on each side are a few acute teeth. The column wings are oblong-acute or blunt.

ONCIDIUM CHRYSTHYRSUS, Reichb. fil. M.S.*

The Oncidium family forms a very large group of Orchids, some of the species of which are extremely showy and free-flowering, and, we may add, amongst the most useful of epiphytes. The species we now figure, which is a genuine representative of this charming genus, ranks as one of the most beautiful of the whole family. One of its good qualities is, that it is a compact grower; for it must be admitted that many of the Orchids are of sprawling habit, and at the same time not so free-blooming as the one before us. This plant comes from S. Pedro, the most southern district of Brazil, and may be found a short distance from Pont Alegre on Lake Petes. It is to be hoped that some collector may find it, and send a good supply.

Onchidium chrysoglossum, although now a very rare plant, should find a place in every collection as soon as a plentiful supply can be introduced. It is much to be regretted that the species of Onchidium are at present so little generally cultivated, for they undoubtedly include some of the most showy of Orchids; their bright-yellow flowers form an excellent and striking contrast with the colours presented by other genera, while their gracefully drooping spikes render them, in many instances, most useful for grouping.

Some of them have flower-stems as much as ten feet in length; and such as these, when introduced amongst the foliage of ferns, or of other Orchids not in bloom, produce a charming effect. Their blossoms, moreover, last a long time in perfection, both on the plant and when cut and placed in water. A few years since fine specimens were frequently seen at our exhibitions, but now they are seldom shown, cultivators appearing to think that the smaller kinds of rare Orchids, of which, however, few are really fit subjects for our large exhibitions. These large massive Onchidiums ought to be encouraged in order to make up a grand display, for their flowers are generally showy and effective; moreover, when they are grown into such large masses, they form a good background to other plants, and yellow, which predominates amongst them, is a colour always welcome in a collection of these flowers, which it serves to culminate.

We have already mentioned that the species now before us is of compact growth. The mass of bulbs and leaves grows nearly a foot in height, the leaves being of a light-green colour; and the flower-spikes is branching, and three feet in length, proceeding from the side of the pseudobulbs. As to the colour of the flowers, the sepals and petals are of a light-green, barred with red, and the lip is of a clear bright yellow. The plant continues in bloom for several weeks.

* O. chrysoglossum, Reichb. fil. M.S. Aff. Orchidio bicolio; pseudobulbi oblonga compressa basum costatis ligeatis; folis cum costa oblongis acute; pedunculo utroque bipedato, rebus, comis fruticosus ascendendo; bracteis largestibus luteis; labellis oblongis, inferiore medio versus luteis; pedunculo postero obtuso; labellis radiatis elongatis; pseudobulbis duobus compactis petioli minimo; pseudobulbis typici; caulis basi depressus tergo utroque tenuioribus, lamellis luteis, rebus aurantiis, lamelle compressae clavatae succineae appendicibus, caulis acutis punctis subgloso 3-4 mm. oppositis; columna arillicia oblonga subacuta.—H. G. E.
Many Oncidiums are found growing upon trees, and hence they succeed well upon blocks, especially the smaller-growing kinds. The larger-growing species thrive better in pots. That which we now figure succeeds well either in a pot or basket, or on a block, but when grown in the latter mode it requires more attention to keep up a supply of moisture to the roots. If these are not kept moist in the growing season the plant will give less satisfaction, for the flowers will be smaller and less enduring than when it is kept in vigorous health. When grown in pots the most suitable compost is a mixture of good fibrous peat and sphagnum moss, mixed up with some small crocks. Good drainage is essential; indeed, the pot should be half filled with crocks, and some moss or rough peat laid on the top of them, in order to secure perfect drainage, which is one of the principal elements in the successful culture of these plants. Above the drainage, the pot should be filled up with the composts already recommended, placing the plant on the top, so that it will stand two inches above the pot rim, and pegging it firmly down upon the peat, in order to induce it to root freely. Oncidiums require a good supply of water while growing, during which period they should always be kept moist at the roots. After the growth is completed, they must have sufficient water to keep their bulbs in a plump condition; but at this period there must be no excess of moisture, nor any stagnant water lodging about them, or the pseudobulbs will rot. If this should at any time be observed, the decayed bulb should be immediately removed, in order that it may not affect the remaining healthy ones. When they are on blocks they must be well sprayed, and occasionally taken down and dipped in tepid water, to make sure that the block is thoroughly soaked.

Propagation is effected by divided the mass of pseudobulbs just as growth recommences, two or three old bulbs being left at the back of the leading one. After dividing, put them in the material recommended, and take care to keep them moist at the roots, so as to maintain the bulbs in a plump condition.
PLATE VI.

LÉLIA CRISPILABIA.

An elegant and distinct-looking epiphyte, with short pyriform pseudobulbs, surmounted by a single ligulate abaxial borne leaf, and a spike of from four to six falcate-based flowers, or a pseudobulb issuing from a small ophioplectate basis opposite the leaf. The sepals are obovate, ligulate, cuneate, the lateral lobes, and as well as the connate-oblance petals, of an anemise-purple colour. The lip is small, connate at the base, the lateral lobes united together in a saccate form, the middle lobe oblong acute, crenately bisnate, emarginate, and bent sharply backwards; it is white in the centre, bears three cuneate-ovate ears on the median line, and has the lateral ears cuneatulate.

LÉLIA CRISPILABIA, A Richard Herb., according to Reichenbach.
LÉLIA LAWEWESTRA, of English gardens.
LÉLIA CRISPILABIA, Reichenbach ft., Article Orchidaceae, b. 61.

This pretty plant has been reported as an inhabitant of Mexico, but there seems to be some doubt as to its native country, and it is chiefly known as a cultivated species. It is one of the prettiest and most distinct species of its family. The accompanying Plate was taken from a specimen in our possession, which has flowered successively for the last twenty years, and was formerly in the collection of the late Mrs. Lawrence. It is very distinct, both as regards the colour of the bulbs and of the foliage; though the general habit resembles that of L. eunomiius, to which it is allied. This is the only plant we know of, with the exception of the younger ones which have been taken from it. Fortunately it is one of the easiest to propagate among the Lélia, which are for the most part impatient of being divided, and being also a free-flowering species, it ought to be generally cultivated, for it requires but little room, and furnishes flowers of one of the most pleasing colours to be found amongst the whole race of Orchids.

Lélia crispilabia is of a compact habit of growth, and has evergreen foliage of a light-green colour. It produces one leaf from the top of each bulb, and grows about a foot in height. The flower-spikes also proceed from the top of the bulb, issuing from a sheath; they grow to about a foot in length, and bear several flowers of a rich amethyst or purple-lilac colour. The plant continues in flower for several weeks. It moreover makes a good exhibition plant, being a capital one to travel, only requiring a small stick to be placed to support each flower-spike.

We find the most suitable temperature for this species to be that of the Cattleya-house, and the treatment should be the same as that given to other Lélia. Mrs. Lawrence grew it on a block of wood for several years, but afterwards removed it into a pot, which was found much more suitable for it. Since we have had it we have always grown it in a pot, and have found it to succeed well. It requires good fibrous peat and perfect drainage, the pot being half filled with the latter, this covered by a layer of sphagnum moss or rough peat, with the fine parts shaken from it, and above filled up with the fibrous peat, mixed with a little sphagnum moss and a few small crocks, in order to keep the pot open. When the soil is thus prepared, place the plant on the top, taking care to peg it down firmly, which will induce it to root the more freely, and thus to grow more vigorously. The most suitable time to pot the plant is just as it commences growing. If the change is made at that time, it gets sooner established than if potted while at rest, for in the latter case the bulbs often shrivel, and when this happens they seldom recover, though by placing them on a block, with plenty of water, they may sometimes plump up again.

The plants while growing require plenty of water, and must never be allowed to become dry. After the growth is completed, they should have just enough water to keep them in a plump condition. They

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thrive best when placed as near the glass as possible, in order that the growth may be well matured, which is a most important consideration among Orchids. Indeed, they require as much light as possible so that they do not become scorched by the sun's rays. It is desirable in bright weather always to shade the house with canvas by means of a roller, but the shading must only be used while the sun is powerful.

These plants are propagated by dividing the pseudobulb, leaving one or two old ones at the back of the leading bulb. The potting is best done when the plants are starting into growth, as they then at once make fresh roots, and soon get established. Pot them in the same material as recommended above, bearing in mind to keep them in the shade, and, by careful attention, to secure immunity from attacks of insects. The white scale is sometimes a formidable enemy, if allowed to remain on the plants.
The plant from which our figure of this very beautiful variety of *Phalaenopsis* was prepared, was flowered by Mr. B. S. Williams, of the Victoria Nursery, Holloway, and was exhibited by him in 1864, at one of the great Flower Shows of the Royal Horticultural Society, on which occasion it received a first-class certificate. A beautifully grown specimen of the same was also awarded a first prize at one of the Regent's Park exhibitions.

*Phalaenopsis grandiflora* is certainly one of the most beautiful amongst Orchids, as it is also one of the greatest favourites amongst cultivators, but like most other Orchids it varies in character. The one we now represent, is the finest that we have met with, whether we consider the shape or arrangement of the flowers, or the rich orange colour on the upper part of the lip. This plant was imported from Borneo a few years since, along with several hundred other plants of *Phalaenopsis*; but though many good forms have bloomed amongst them, this is so far decidedly the best. The Bornean *Phalaenopsis* is easily distinguished from that which comes from Java, by its yellowish-green flower-stem. There are fine varieties of the Javanese *P. grandiflora*, which, as a rule, bears larger flowers and larger spikes than the Bornean forms; but both should be extensively cultivated. By having a few plants of each, this queen of Orchids may be had in flower all the year round, as each spike will continue blooming for a very long time. At Broomefield we have this year had nearly 900 expanded blooms perfect at one time, and might easily have had more, if the ladies had refrained from cutting so many to make presents. The tinted blooms of *P. Schilleriana* mixed with the several white kinds, and with *P. intermedia Printz*, had a charming effect. *Phalaenopsis* are exquisite as cut flowers, and the spikes, moreover, last for a length of time in water; while, for exhibition purposes, they are great acquisitions, their spikes of ivory-like flowers hanging so gracefully amongst other plants.

We quite agree with the remark of the late Dr. Lindley, that "*Phalaenopsis* are the grandest of all Orchids." This remark was made at the period of the Chelsea Shows, when examples were shown with from 90 to 100 flowers upon one plant, a result which may easily be realized by retaining the old flower-spikes, and allowing them to branch out, and by also allowing strong young flower-spikes to develop. When the plants are in vigorous growth they are able to do this every year. In growing these plants it is a great point to get healthy leaves; and this may be done by keeping them as near the glass as possible, as the more light they get, the more vigorous will they become, and the more enduring will be their health, because, under such circumstance, the growth gets more robust, and the foliage is better matured, and thus enabled to undergo the changes to which it is subjected in our Orchid houses. The plants at Broomefield are always suspended from the roof, and too high a temperature is avoided. Too frequent repotting, or rather relocking, seems injurious to all Phalaenopsis; and hence this operation should not be resorted to except in case of some urgent necessity. It is a far better plan to take away the old moss carefully, wash the second series.
roots with warm water, and then add fresh moss. Our present subject will thrive well under the general treatment recommended for _P. intermedia_ Portmone (see Plate I. of the present series).

_Phalaenopsis grandiflora_ is a compact growing plant with light-green foliage, and large white flowers, the upper part of the lip being of a deep orange-yellow; each flower lasts for several weeks, and the spikes continue in beauty for several months. The flower-stems of _P. grandiflora_ usually extend from two to three feet; but we once saw one of the Javanese variety upwards of four feet in length.

Propagation is effected by means of the young plants which appear upon the flower stems. They are not very frequently produced, but when they are they should be taken off as soon as they have thrown out roots, and be placed on blocks or in baskets, and placed in the warmest part of the house, being well shaded from the sun, and kept moist at the roots. Mr. Toll, gardener to J. A. Turner, Esq., of Manchester, has propagated many plants from the old flower-stems in this manner.

Phalaenopsis are subject to insects, especially the black thrip, which is very destructive, and generally appears on the under part of the leaf; its attacks become very troublesome if they are not well guarded against. The plants should be frequently well sponged with clean water; for if the insects are allowed to increase they will soon destroy the plant, or injure its growth. We sometimes find the red thrip in the heart of the plants, where it soon damages the young leaves. Tobacco water is the most effectual remedy, but if used too strong it also will be very liable to injure the leaves.
PLATE VIII.

DENDROBIUM BIGIBBUM.

An erect-growing and very distinct epiphyte, producing long narrow stems which are fusiform or tapering to the base, and bear towards the top about five or six oblong lanceolate leaves. The flowers are erect, produced from the upper nodes of the stem, and consist of six or eight rich rose-purple flowers, of which the sepals are oblong and acute, the lateral ones produced into a spur; the petals are roundish, and more than twice the breadth of the sepals; and the lip is movable, three-lobed, with rounded lobes, the central one being darkest, while, towards the base, which is gibbous, are three raised notched lines or creases. The spur of the sepals, and the gibbous base of the lip, together produce a kind of double chin to the flower.

DENDROBIUM BIGIBBUM. Lindley, Pictorial Flower Garden, ill. 25, fig. 245; Webster’s Australian Botanist Systematised, vi. 362.

This charming plant was described in 1832 by Dr. Lindley, from weak specimens which flowered with the Messrs. Lodlges. It is a native of the north-west, or tropical coast of New Holland; and though somewhat sparse in its habitat, is very distinct in appearance, and rather attractive, not only on account of the charming colour of its flowers, but also from their form; the breadth of the petals and their spreading direction, produce indeed a considerable resemblance in outline to those of St. Helena, but, he adds, it is much handsomer.

Our plate of this Australasian species was taken from a plant in the fine collection of S. Rocker, Esq., of Wandsworth, in which it has been cultivated for a number of years, being noted as one of the rarest Orchids it includes. There are two or three varieties in this collection, the one now figured being the best of them.

Dendrobiums decidedly rank amongst the most beautiful members of the Orchid family, being free-flowing as well as showy, and affording much variety of colour. They are, many of them, large-growing as well as graceful in habit, and all the more valuable as, by having a good collection of them, the Orchid-house may be kept gay all the year round. They are, moreover, very accommodating, for, after they have completed their growth, their flowering can be retarded by putting them into a cooler house, and keeping them there until they are required for blooming, when, of course, they should be returned to a warmer position.

Dendrobium bigibbum is an upright-growing evergreen plant of dwarfish habit, with light-green foliage. It generally flowers from the side of the stem, but sometimes from the top; and on the old bulbs the spikes are often nine inches in length. It sometimes produces flower-spikes from the same bulbs for several years in succession, a circumstance which does not frequently occur in this class of plants, though several species will flower from two- or three-year-old bulbs.

This plant will thrive either in a basket or in a pot. Mr. Fitcher, who has charge of Mr. Rocker’s plants, has cultivated it successfully for several years, and has found that it succeeds well in the same house in which he grows Cattleyas and Laelias, though it will thrive even in a cooler house than these. He pots his plants in fibrous peat and sphagnum moss, giving good drainage, and allowing a plentiful supply of water during the growing season. In order to keep the plants in a healthy condition, it is found requisite to syringe the foliage either in the morning or afternoon; if it is allowed to get into a shrivelled state it will be a long time recovering.

S succeeding.
Insect depredators must always be kept under. Sometimes the thrips will attack the leaves, and this is very injurious to their health, and decidedly a disfigurement to their appearance. The propagation is effected very slowly, especially as the plant does not increase its size very quickly. The best mode is by division, leaving one or two old bulbs at the back of the leading growth. The divided pieces must be potted in peat and moss, and be kept moist until they are established.
A remarkably fine variety of *Leelia crispa*, distinguished from the type by its vigorous habit, and its large and beautifully-coloured flowers, which are broader in all the parts, the sepals and petals tinted with purple, and the lip much broader, blunter, and more richly coloured with deep purple breaking out into radiating lines.

**LELIA CRISPA PURPUREA.**

The type of this beautiful plant is more familiarly known in gardens by its old name of *Cattleya crispa*; but it has now been found to belong to that group—a rather artificial one it must be allowed—to which the name of *Leelia* has been applied. It represents a group of fine showy plants affording numerous shades of colour, but of which, while some are exceedingly rich in tint, and others are of paler hue, the one now figured is amongst the most beautiful. That which is named *superba* is also particularly fine, and produces in great abundance, large bold flowers, which stand well up above the foliage; it is easily distinguished from the rest by its strong habit of growth, its light-green bulbs, and its dark-tinted foliage. Cultivators should be careful in purchasing this species, for some of the varieties are shy in blooming, and the flowers when produced are comparatively small; but there is nothing more charming than some of the best varieties, the rich colouring of the lip contrasting so finely with the white of the other parts of the flower. They are of free-growing habit; and make excellent ornamental as well as exhibition plants during July and August, when other Orchid flowers are becoming scarce; moreover they are not at all expensive plants, so that most cultivators, small and large, can obtain them.

*Leelia crispa* grows about two feet high, and bears a single leaf at the top of the stem, which leaf is of a dark-green colour. The flowers are produced from a sheath in July and August after the growth is completed, the sepals and petals being of a pure white, and the lip of a rich crimson, fringed and edged with white. The stem produces from four to six flowers on a spike, and these continue about a fortnight in perfection, provided they are not syringed, which is apt to spot the delicate white of the sepals and petals.

This fine *Leelia* requires to be grown in the Cattleya-house, with a moderate amount of heat and moisture during the growing season, which is in the winter and spring months. In winter great care is necessary to prevent the young growth from getting any moisture, for this might cause them to rot, which would probably stop the blooming of the plants, as the second growth would become weak. We have found pot culture the most suitable, as the habit is strong and robust. Fibrous peat and sphagnum moss should form the compost, and the pot should be half filled with crocks, in order to secure good drainage—a thin layer of moss and rough peat, mixed, being placed over the crocks, and the pot then filled with the material recommended, in such a manner that the plant may stand one or two inches above the pot rim. This is the mode of potting we have always followed, and we have found it to be the best for all *Leelia* and *Cattleya* requiring pots. Some of the smaller growing kinds thrive best on blocks, or in small pans or baskets suspended from the roof. We have seen them grown very successfully by Mr. Anderson, gardener to T. Davison, Esq., of Meadow Bank, in a kind of basket made of pottery ware, which suits the purpose well; and this mode of
treatment, by getting them nearer the light, induces a more vigorous growth, and secures the better ripening of the stems; and unless these points are realized, we cannot expect good flowers.

With insect enemies constant warfare should be waged. The white scale is the most troublesome, and affects the young growth, but it may be kept under by frequent syringing with clean water.

Propagation is effected by division at the time when the stems are just starting to grow; two or three old stems should be kept at the back of the young one. The divisions should be potted in the material recommended above, and they must be kept moist (not wet), and in a moist atmosphere, until well rooted. They should never be allowed to shrivel, as Lycias are difficult to bring back into a healthy condition when once they go wrong.

Good healthy robust roots are essential to the successful growth of all plants, orchids by no means excepted. Therefore, as some kinds of peat soil become converted into a soddened and unhealthy mass in the course of one or two years at the furthest, and as when in this state it is inimical to a healthy root condition, it is most desirable not to allow more than two years to elapse, without renewing the soil by the process of re-potting.
PLATE X.

ANGULOA RUCKERI.

A stout epiphyte of bold and striking habit, with large oblong ovate pseudobulbs, broad plaited leaves, and fleshy irregularly goblet-shaped flowers, growing singly on naked peduncles, which are furnished with spreading inflated bracts. The sepals are subequal and acute, and, with the bluish petals, are convolute into a half-globular form. The lip is three-lobed in front, its lateral lobes obtuse, and equaling the intermediate one, which is bilobately funnelform and hairy, one of the labia being exangulate, the other three-toothed.

Anguloa Ruckeri, Lindley, Botanical Register, 1846, t. 41.

Anguloa Ruckeri, observes Dr. Lindley, is immediately recognized by its flowers having deep crimson spots on a yellow ground, and a deep crimson lip. It is a native of Columbia, and is a very ornamental species. There is a variety, called angulosa, with the flowers of a deep rich blood-colour; and another, called purpurea, with the flowers purple. They are all plants desirable for the cultivator. Our drawing gives an excellent representation of the typical plant, which was first flowered in the fine collection of S. Rucker, Esq., after whom it is named. The plant is rare, there being but few good specimens in cultivation,—indeed we have never met with this species amongst recent importations.

The Angulosa are mostly alike in their habit of growth. They have thick bulbs, and flag-shaped leaves, from eighteen to thirty inches in length, and they generally lose their leaves when they commence growing. The flowers are large and very curious; the inner part or lip is moveable, and hence, when required for exhibition, this part should be secured by a piece of wood or thin paper, placed inside the flower, to prevent its moving, in order that it may be carried in safety. They produce their flowers along with the young growth from the side of the bulb. They make fine exhibition plants on account of their large and showy flowers, and their distinctness from other Orchids. They resemble Lepotes more than any other of their allies, in so far as regards the shape of the bulbs: indeed, they have been imported and sold as Lepotes, though an experienced grower would detect the difference.

Although the leaves of Anguloa Ruckeri are from eighteen to thirty inches in length, as described above, yet from their half-plaiting habit the plants seldom stand more than from a foot to twenty inches in height. The bulbs are from four to six inches high; and the leaves, which are of a light green Colour, are from four to six inches in width. The young growths are produced in the early spring from the side of the bulb. The flowers proceed from each side of the young growth; they are of large size, and nearly of the shape of a tulip, and the sepals and petals are of a rich brownish-orange colour, spotted with dark brown, while the lip is of a greenish-yellow; each blossom continues for three or four weeks in perfection. It is a capricious exhibition plant, and a good one to carry if well tied, each flower being fastened to a small stick, but the stick must not touch the flower, as, being remarkably fleshy, it will most probably bruise it.

The plants are easy enough to grow, their habit being better understood than it was a few years back. They were formerly grown in too much heat, and with too little water. We now find the coolest house the most suitable to perfect their growth; in this they produce their blossoms more freely, the more so if they get a good rest from the time their growth is completed, until the time of re-storing them to grow in spring. Never allow them to shrivel; they have, however, thick fleshy bulbs, and therefore do

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not require so much water when at rest,—merely sufficient to keep them plump. The most suitable soil is peat, with a little live sphagnum moss. They must have good drainage and large-sized pots, as the plants themselves grow to a large size. During their growing season they must have a good supply of water, as their native habitats are low and damp.

The best plant we have seen exhibited was grown in a cool house with _Lycaste Shimperi_, etc.; and we may almost advise the same treatment.

The temperature must range in winter from 45° to 50°, and during the summer from 60° to 80°, with sun heat, and a little fire occasionally to keep off dampness. In dull weather the plants should have all the light possible to make their growth perfect, and to ripen the bulbs; but they should always be shaded from the rays of the sun.

We have seen the bulbs rot in the winter under certain treatment, this evil being often caused by too much dampness. When it occurs, cut the decayed parts away, and dry the wound with sulphur or lime.

These plants are subject to insects, such as thrips and green fly, which should not be allowed to accumulate, or they will damage the young growth. The leaves are tender, and great care should be exercised in cleansing them that they are not bruised.

The plants are propagated by dividing the bulbs just as they begin to grow in spring. The old bulbs generally break well; they require the same soil as recommended for established plants. After dividing them, keep them at the warmest end of the house, with plenty of moisture to prevent them from shrivelling; but avoid, if possible, everything that might be liable to damage the young growth.
PLATE XI.

DENDROBIUM DEVONIANUM.

A beautiful showy epiphyte, with long slender articulated striate stems of decumbent habit, the younger ones leafy; the older bearing the flowers in clusters from the nodes. The leaves are linear-lanceolate, distichous, submembranaceous, and accuminate. The flowers are crowded, and beautifully coloured; the sepals lanceolate, entire, white, tipped with soft rose-purple; the petals of the same colour, but ovate and dilated; and the lip acuminate, broadly cuneate and plumosely fringed, tipped like the petals with rose-purple, and marked inside with two large, conspicuous, deep orange-coloured spots. The spur of the flower is very short.


Dendrobium pulcherrimum, B. Devonianum, Reichenbach, fl., Wo:ger's Annales Botanices Supplementation, vi. 284.

This lovely Dendrobium was found by Mr. Gibson among the Khasya hills, where it was met with hanging from trees in very dense woods, at about 1500 feet above the sea. "From its disagreeably rigid habit in the wild state, and the absence of any traces of flowers to determine its character, its introduction was a matter of question. Fortunately, specimens of it were secured in order to learn what its blossoms would prove; and the event has shown that no dependence can be placed on habitus, as the flowers are amongst the most beautiful of which Dendrobiums can boast." It was first flowered in this country at Chatsworth, in 1840.

The Dendrobium family is one of the largest amongst really good Orchids, and we may confidently say that D. Devonianum is one of the finest of them all. When well grown, it is indeed one of the most beautiful of all Orchids, its slender, graceful habit of growth, and its long spikes of flowers, altogether producing a charming effect. Our Plate was taken from a plant in our own collection, where it has flowered finely. It is a well-known species, but notwithstanding the quantity imported, we seldom meet with well-grown plants. Some cultivators do not appear to succeed well with it, the reason of which is that they do not treat it properly. We have seen it grown well in some collections, where it has been kept in the East-India House, with plenty of water during the growing season, and syringed twice a day, in order to keep away the red spider, which is the most powerful enemy it has to contend with.

The Dendrobium Devonianum is distinct from other Dendrobiums in growth as well as in Blossom. It is deciduous, losing its leaves after its growth is completed; and when the bulbs are well ripened, a good return of lovely flowers may be expected. The plant does not seem to vary much in its colour, or in the form of its flowers, such variations as do occur mostly depending upon how it is grown. If grown vigorously, the flowers will be larger and better coloured, and when this is the ease it makes one of the finest exhibition plants we have. When suspended in a basket, it has a charming effect, especially if hung amongst ferns or foliage plants, for when in bloom the plant is itself devoid of leaves. By having several plants, they may be kept in perfection from the beginning of May until the end of June. This Dendrobium is of a pendulous habit; the stems growing to the length of four feet, and the blossoms being produced for nearly their whole length. The flowers are two inches in diameter; they appear in May and June, and continue for about a fortnight in perfection.

This plant grows naturally in situations where it is protected from the burning sun, and where it is sustained by the heavy dew. There is a growing season, during which it gets a good supply of rain, while

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in the resting season the temperature is lower and much drier. The commencement of the growing season is the time when it produces its lovely flowers, and makes its growth.

This plant will thrive either on a block, or in a basket suspended from the roof. The best material in which to grow it, is good sphagnum moss, and rough fibrous peat, mixed with broken charcoal, or coke and moss; it requires plenty of water in the growing season, and this should be applied over the leaves, as well as to the roots. It is subject to red spider, which, if allowed to accumulate, will cause the foliage to turn yellow and fall off, and will thus injure the growth. We have never seen this Dendrobius grown better than when plenty of heat and moisture is given during the growing season, and this is the only way in which it can be grown to perfection. When the plants are at rest, endeavour to keep the bulbs plump.

One other important point in the management of this plant is, never to allow any bad, decayed material to remain about it, or it will not thrive. The moss must be fresh—if growing, all the better; it tells when the plant is dry, and, by using green moss, the moisture rises from it amongst the leaves, and assists in keeping down the red spider. Wire-baskets should be used, for wooden ones rot, and cause the moss to decay. If cultivated on blocks, let them be of hard wood, with live sphagnum moss about the roots. The plants require more water when on blocks than when in baskets; they should never be allowed to get too dry, but should be syringed twice a day whilst they are growing.

Propagation is effected by dividing the plants on the old stems, after they throw their young growths; these should be taken off when matured, and placed on blocks with live moss; and if treated as recommended, they will soon make good plants. If the old bulbs are cut off, they will often make young growths, and form plants by the end of the season. Sponge the leaves, in order to keep them in a healthy condition, and look well after insects, with the view to subdue them.
PLATE XII.

CYPRIPÆDIUM SUPERBIENS.

A handsome semi-pemnnual, stemless, with globose-flattate leaves, keeled beneath, and chequered on the upper surface with alternating patches of light and dark green. The large flowers are solitary on the peduncles, which rise directly from the root, and bear a short bract at the base of the ovary. The dorsal sepal is ovate acute, the lower one much smaller, and both white, streaked with green lines. The petals are oblong-globose, blot., white with green lines, spotted thickly with dark purple spots, and fringed with purple hairs. The petals of the lip are elongated, with the margin reflexed towards the back, and strongly nerved; it is of a livid brownish green, becoming purple in front. The stamens is triangular, obtuse, white, tessellated with green, and the stigma is oblong.

Cypripedium superbiens, Reichcnboehl, p. 1, Banglad. 1855, 227; H. Nowie Orchideas, ii. 9, t. 103.

This very handsome species of Lady's-slipper is closely related to C. barbatum, pectorum, and camingus, but differs in the elongated deflexed petals, and in the structure of the barren stamens (ctenium), which has an introrse tooth on each side towards the front, the intermediate part reflex, with an exerted tooth. It is a native of Java and Assam and is a beautiful species, distinct from all others; indeed it may be regarded as the best of the barbatum group. It is of free growth and good habit, and has finely variegated foliage, so that when out of bloom it has a fine appearance. The name superbiens is most appropriate, it being perhaps the most beautiful of the genus. The plant continues for a considerable time in bloom, which makes it more valuable, whether for home decorative purposes, or for exhibition. It is an excellent plant to travel, when properly packed, with a stick placed to each flower, which, however, it should not touch, lest it should bruise it. Cyripipedium have been exhibited for two or three months in succession at Warrington shows, and we have never found them to get injured unless they have been accidentally rubbed. Those of the barbatum section continue in bloom equally long; while those of other classes such as condaminum, Stanisl. Linnii, etc., last about five or six weeks, if the flowers are kept dry, and not in too high a temperature.

Cypripedium superbiens is as yet a rare plant. There are not few fine specimens in the country, and when sold they fetch a high price; but small plants can be purchased at a moderate rate, so that any one who desires to do so can obtain it. The foliage grows from about six to ten inches in height, and is most beautifully variegated. It produces its flowers from the centre of the growth, after it is completed, in spring. The flowers are large, and grow singly or in pairs about a foot high. It blooms during June and July, continuing a considerable time in perfection; after this it recommences to grow.

The plant is of easy culture, but requires great attention, having no bulbs to support it. To compensate for this, more moisture is required. It appears to be always growing. As soon as it has made its growth, the flowers begin to show themselves; and after they are past, the plant commences growing for the next year's flowering.

We grow it in the East-India House, as near the light as possible; and as all the Cypripediums require the same treatment, we keep them together. We have grown them with Cattleyas, and found them do well. The principal points to be attended to, are the temperature, and the material they are grown in.
We find the best material for *C. superbus* to be fibrous peat, sphagnum moss, and a small quantity of silver sand, with good drainage,—a thin layer of sphagnum moss or peat being placed over the cracks to keep the drainage open. The pot is to be filled with the material recommended, so that the plant is level with the rim of the pot, and rough peat must then be placed on the top, as the roots are thick and fleshy, and require a great deal of moisture. By providing good drainage, the water passes off quickly, and this is a great point in Orchid culture. If there is stagnant water in the pot, the soil becomes soddened with it, and the plant soon gets out of health. We prefer to give the plants fresh soil every year; and even if the old soil be good, a little fresh on the surface is of great benefit, and induces new roots. The plants require a rather large pot, as they root freely. A few pieces of charcoal mixed with the soil will be found beneficial.

These plants are propagated by division. The new growths are taken off after they have rooted sufficiently, and are potted separately. The best time for division is just as the plants begin to grow; the old pieces then break very freely.

Insects are a pest to all plants, and to these among others, they should consequently be well sought after, and destroyed. We have seen *Ophioglossum* attacked by the small red thrips, which often eat away the heart of the plant. We find tobacco-water an excellent means of destroying these. They must never be allowed to have any rest, but must be got rid of, for they turn the leaves brown, and if allowed to get ahead, ultimately kill the plants.
PLATE XIII.

ODONTOGLOSSUM PULCHELLUM.

A pretty small epiphyte, with oblong, compressed, uncipital pseudobulbs, bearing a pair of long, linear, obliquely truncate leaves, and producing slender, two-edged spapes, equaling the leaves in length, and terminating in a raceme of several moderately sized white flowers. The sepals are ovate; the petals oburate; and the lip three-lobed, the lateral lobes being triangular, and the intermediate one oblong, subacute, and recurved at the apex; the lip bears at the base a firm, fleshy crest, which is yellow, spotted with crimson, almost horse-shoe shaped in front, and three-lobed behind.


This Orchid, est. Odontoglossum 22. Reidenbach, fl., Wepers' Annales Botanica Systematica, vi. 840.

Though not comparing in grandeur or in captivating beauty with some of the species of this remarkably ornamental genus of Orchids, Odontoglossum grandiflorum and O. Alexandri to wit, the species we now figure is really a desirable plant for the cultivator on account of its free blooming qualities; while it is by no means devoid of a quiet comeliness of its own, and this, together with its usefulness for decorative purposes in a cool state, is sure to gain for it the suffrages of many admirers. The absence of showy or brilliant colours is indeed amply compensated for by the chaste and delicate purity of its almost yellowish flowers, which, moreover, yield a most grateful perfume.

Odontoglossum pulchellum is a native of Guatemala, whence it was sent by the late lamented Mr. G. Ure Skinner, and it appears to have been first bloomed in this country by Mr. Bateman, in 1841. It is a member of a genus which has always been greatly admired by Orchid growers, and which has lately come into high favour, on account of the beauty and delicacy of colouring and markings in many of the species, and from the fact that they require but little artificial heat for their successful cultivation. Collectors have accordingly sought them out eagerly in the mountainous regions of New Grenada, Peru, etc., and this has resulted in the introduction to European gardens of some of the most exquisite gems that have ever ornamented our plant-houses.

The species now figured, being, as just stated, a native of Guatemala, thrives best under moderately cool treatment, though more heat is necessary for it than is required for those of its gayer-coloured relatives, which come from the high regions of New Grenada.

We have had within the last few years, from various sources, many importations of a plant purporting to be Odontoglossum pulchellum, most of which have been inferior varieties, and many of them utterly worthless in a horticultural point of view. The present form, however, is well deserving a place in the most recherche collection of Orchids, more particularly where white flowers are in request in the early spring months, for they are admirably adapted for wreaths, or for ornamenting the hair, and when cut and mixed with Perns in a bouquet are exceedingly lovely.

Odontoglossum pulchellum is a graceful and compact-growing evergreen plant, and is furnished with bright shining green pseudobulbs, which are about three inches in length, and stout, and somewhat oblong in shape. The leaves are produced two together, from the top of the bulbs; they are narrowed at the base, less than an inch in width at the broadest part, and from twelve to fifteen inches in length, gracefully arched and of a cheerful bright green colour. The erect flower-stem is produced from the base of the mature pseudobulb, and attains the height of twelve or eighteen inches. The flowers are an inch and a half in second series.
diameter; the sepals and petals are pure white; and the lip is of the same colour, but having the basal part orange-yellow, dotted with small chocolate-coloured spots. The plant generally produces its lovely nodding spikes of bloom during the months of February, March, and April—a season of the year when choice, white, and delicately-scented flowers are especially valuable. It remains in full beauty for many weeks, if preserved from damp. Like the other species, it requires to be kept slightly moist all the year round, and not to be subjected to such marked periodical seasons of rest as many Orchids require.

In potting this plant, thorough drainage is of the first importance. The soil best adapted for its growth is good fibrous peat, the pot being surfaced with live sphagnum moss. During the summer season a bountiful supply of water is requisite, but this must be moderated during the dull months of winter, though, as before mentioned, water must not be entirely withheld at any time. It should be grown in an intermediate house, where the temperature ranges from 50° to 60° during winter. In the summer, little fire-heat will be necessary; but the plants will require shading from the hot sun, and a liberal amount of air must be admitted, to prevent the temperature becoming too high. Propagation is effected by dividing the bulbs at any time of the year, save when the plants are growing vigorously. The leaves are sometimes subject to the attacks of red spider, and of green and yellow fly, which must be carefully washed off with clean water. This we find to be a better remedy than fumigation for the plants of this genus, as tobacco-smoke often causes their leaves to decay.
PLATE XIV.

CHYSIS LEVIS.

A remarkably showy evergreen epiphyte, with spindle-shaped striated pendent stems, plicated leaves, and lateral many-blossomed racemes of handsome pale-yellow flowers, heavily stained with deep orange. The dorsal sepals are linear-oblong, and the lateral ones obovate; the petals are falcate; and the lip is furnished with falcate lateral lobes converging over the column, and a subrotund, cuneate-gland, tipped intermediate lobe, spotted with crimson; the column is deeply excavated at the base.


The plant from which our Illustration of this beautiful Orchid was taken, was grown in our own collection, a fine specimen which blooms admirably every season, and which is the only example of its kind that we have seen in flower. The species is, without exception, the finest of the genus that has, up to the present time, been introduced to European gardens,—though all of them are worthy of general cultivation,—and it is therefore very much to be regretted that it should still remain so exceedingly rare as it proves to be. So uncommon is it, indeed, that even in good and extensive collections of Orchidaceous plants, the present species is but rarely to be found.

Being deciduous in habit, that is, shedding its leaves soon after the growth is matured in the early autumn months, it should be kept cool and dry until it shows signs of renewing its growth in the ensuing spring; for one of the principal requirements in the successful management of the plants of this genus is a thorough and decided period of rest after the growing season is over.

Writing, in 1851, of Chysis aurea, and as figured in the ‘Botanical Magazine’ t. 3576, (which, Sir W. Hooker observes, is very nearly allied to Chysis trisetifolia), Dr. Lindley remarks as follows:—"Upon again referring to the materials in our possession, for illustrating the differences in the three species of Chysis, we find little to alter in what was formerly said about them. The principal ridges at the base of the lip of Chysis trisetifolia are, no doubt, downy half-way up, as Sir W. Hooker states, and they vary in number from five to seven, but they are much shorter than in Chysis aurea, and the lip is wholly destitute, in our specimens, of the internal hairy very peculiar to Chysis aurea. The most material difference between these species is, however, the great inflated bracts of Chysis trisetifolia, to which there is no approach in Chysis aurea. As to Chysis levis, it has the bracts of the latter, from which it is distinguished by a shorter middle lobe of the lip, and smooth short ridges, the two lateral of which are rudimentary. We have not seen it alive since July, 1849."

Chysis levis is nearly allied in habit to Chysis aurea, and, like it, produces thick, fleshy stems, upwards of fifteen inches in length. The leaves which sheathe the bulb when young, soon fall off, and leave only those on the top, which are from twelve to eighteen inches in length, and light-green in colour. The flowers-spikes are produced with the young growth, and are pendulous, bearing eight, or more flowers upon each spike. The sepals and petals are yellow and orange, while the lip is orange, banded with scarlet or crimson, and beautifully fringed round the margin. The season of flowering is usually during the months of May and June, and the flowers retain their beauty for more than three weeks if the plant is kept in a cool house, and the blossoms are carefully preserved from contact with water.
The flowers of this species, like those of all the others belonging to the genus, are thick and firm in texture, and waxy in appearance. Like those of Ongus brevifolius and Ongus Limningia, they could be easily packed to travel; and as they are very handsome, distinct, and showy, the plant would prove an excellent one for exhibition purposes.

This species succeeds best when grown in baskets and suspended from the roof, and should be planted in a mixture of good fibrous peat and pieces of charcoal, with a little live sphagnum moss on the surface. It is a native of Guatemala and Mexico, and should be grown either in the East Indian or Cattleya house, when the bloom is past, and while the young stems are swelling to maturity; but after this, it should be placed in a cooler house, and the copious supply of water requisite for it during the season of growth must be diminished to just sufficient to keep the pseudobulbs from shrivelling.

The plant is easily propagated by division, separating the old stems as soon as they have finished flowering. The only insects by which the plants of this genus are liable to be infested are, the red spider, or sometimes the thrips, but these are easily destroyed if ordinary care and vigilance are bestowed upon the use of the well-known remedies.
Plate XV.

Phalenopsis Lowii.

A lovely stove epiphytic, producing thick roots from a short stem, which is furnished with a few oblong-acute fleshy leaves, and bears a slender, branching horizontal, supporting numerous showy white flowers, delicately tinted with rose, and having a deep rose-purple lip. The dorsal sepal is broadly ovate-acute, the lateral ones oblong; the petals are broad, very obtuse, cureate at the base; and the lip is small, three-lobed, as long as the lateral sepals, erect at the apex, and crested at the base; its lateral lobes short, linear, and reflexed, the middle one oblong with a curvate median line; the column is furnished with a long proodiform rostellum.


We have in Phalenopsis Lowii a very beautiful and distinct species of this queerly genus, which, though it cannot compete in point of size with some members of the family already figured by us, yet for the delicate colouring of its flowers and its chart beauty, is surpassed by no other that has hitherto been introduced. Our illustration was taken from a plant kindly furnished by the late J. A. Turner, Esq., of Manchester, in whose collection it bloomed in the autumn of 1866. This is by far the finest specimen of its kind that has come under our notice, and is a fine example of the skill acquired by the gardener, Mr. Toll, in the cultivation of these plants. The example figured in the 'Botanical Magazine' above quoted, the first figure of this species which had been published, represents it in a much less developed condition, and bearing only four flowers on the spike.

If, observes Sir W. Hooker, in his remarks accompanying the Plate just alluded to:—"If this species falls short, in size and purity of white in the flowers, of the well-known Phalenopsis amabilis, it compensates for those deficiencies in the delicate rose-flats of the petals and labellum, and the shape of the lip and of the rostellum are very remarkable,—that of the latter quite resembling the head and long beak of a bird." It is truly a most lovely plant, perfectly distinct from all other known species,—approaching, indeed, in the size of its flowers and the breadth of its petals, to the old familiar pure white species, Phalenopsis amabilis and P. grandiflora, but in its tints coming nearer to Phalenopsis rosen and P. intermedia; while in the form of its lip, and in the long proodiform beak of the column, it is very remarkable, and unlike anything else which occurs in the genus.

We are indebted for the introduction to our gardens of this novel and beautiful species to the Messrs. Low, of Clapton, and to them belongs the credit of having first flowered it in this country, a circumstance gratefully acknowledged by Professor Reichenbach, in the naming of the plant in honour of Mr. Stuart Low. It was originally discovered by the Rev. G. Parish, in Moulmein, a region of British India which seems to abound in rich, rare, and beautiful species of Orchidaceae, for a great quantity of our newest and choicest East Indian Orchids are natives of that province.

The plants of this genus form none of the thick fleshy pseudobulbs, in which matrimony can be stored to sustain vitality during a long period of drought, so common in this order; but, on the contrary, they have tender, fleshy leaves, which, if injured in any manner, cause the whole plant to rot. They are consequently very difficult to import in a living state into this country; and the present species in particular would seem to be less able than others to withstand the drought and confinement of the voyage home, so that, up to the present time, it remains a rare plant in cultivation. As, however, it appears to be tolerably second series.
abundant in its native wilds, we hope it may soon be imported in larger quantities, and with better success, than has hitherto attended the efforts made for its introduction.

Platanopsis Lovii is abundantly distinct from the other known species. It is a small growing plant, with oblong, acute, fleshy leaves, which are from four to six inches in length, and dark-green in colour. The flower-stem is produced from the axil of a leaf, and is slender and branching, varying from six to twelve inches in length, and upon this are borne the delicate and beautiful white rosy-tinted flowers. The lip is curiously shaped, while the column, with its beak, closely resembles the head of some little bird, and thus affords a good distinguishing character.

The habit of the plant is not so free and robust as that of most other members of the genus, neither are the leaves so large or so thick in texture, and it has consequently hitherto been considered a somewhat difficult plant to cultivate. To ensure success in its management, it should be grown upon a block of wood with a little sphagnum moss, and suspended a short distance from the glass, as the plant luxuriates in an abundance of light, but does not endure strong sunshine. For further details we must refer our readers to the directions given for the cultivation of *P. intermedia* Forst., under Plate II., and of *P. grandiflora* screen, under Plate VII. of the present series of this work.
ODONTOGLOSSUM REICHENHEIMII.

A fine stem epiphyte, with elongate oblong pseudobulbs, bearing at their apex a pair of oblong acute leaves, and from their base a stout spotted scape supporting a panicle of numerous showy flowers. The sepals are oblong-lanceolate, terminating rather abruptly in a sharp point, pale greenish-yellow, almost wholly covered by about four broad transverse bars of a dark purplish-brown, paler but similarly marked behind; the petals closely resemble the sepals in size, form, and colouring, but are slightly narrower; and the lip is oblong, sessile and ovate at the base, obliquely lobulate, dilated and apiculate at the apex, pale purple in the lower half, white upwards, and bearing on the dish near the base a pair of slight ridges, and on each side a slightly tubular callus; the wing of the column is almost wanting.

This fine plant, which was discovered in Mexico by M. Glaziou, growing on the calc-terae which cover the west side of the Cordillera of Mexico, in many respects resembles Odontoglossum Karwinskii, the Alidae Karwinskii of Lindley, from which Prof. Reichenhart many years ago distinguished it. The general resemblance between the two is indeed very close, and as Odontoglossum Reichenheimi itself evidently varies considerably in the colouring of its lip, it is possible that varieties of structure, forming connecting links between the two, may some day be met with. The variations we refer to are evident in the figures of this plant which have been made public. In that of Mr. Linden the lip is wholly of a pale rose-purple; in M. Lemaire's, as in that annexed, which represents the plant as it bloomed in our own collection, only the lower half of the lip is of this colour, the lip being white; and in that published by Mr. Bateaux the lip is white, with merely a horseshoe-shaped band of this pale purple on its disk.

The Odontoglossus are just now a very popular family of Orchids, and very much in request. That which we here illustrate is, as will be seen, a beautiful species, and very rare in collections, though it has been for some years in cultivation. It is an abundant bloomer, and requires cool treatment. We have seen the pseudobulbs grown to more than seven inches in height, and under such circumstances the spikes which were produced were very fine.

Though closely allied to O. Karwinskii on the one hand, and to O. Loes on the other, the species now figured is very distinct from any other Odontoglossum, and may be distinguished by the number of its growths, and by its strong flower-spikes. It is decidedly worthy of a place in every collection, however small. One of its great recommendations is, that the flowers continue in perfection for several weeks.

O. Reichenhartii is, as we have indicated, a strong growing plant. It has thick fleshy pseudobulbs, and dark green foliage, and the long flower-scoes are produced from the side of the pseudobulbs, and grow to the height of three feet, becoming more or less branched. The sepals and petals are of a yellowish-green barred with purplish-brown, while the lip is white at the upper part, and of a beautiful rose-colour at the base, and not folded back on the column as in O. Loes. It makes an excellent exhibition plant.

This plant thrives best in a pot with fibrous peat soil, and must have good drainage; for it requires to be well supplied with water at the roots during the growing season. After the growth is completed, less water will suffice, though the plant must never be allowed to become shrivelled in its resting season, but must.
always be kept plump. The plant requires a good-sized pot, as it is a robust feeder, but the pot should always be at least half-filled with drainage, and rough peat must be used on sphagnum moss. The water must be allowed to pass off quickly, for if it were to become stagnant it would cause the thick fleshy pseudобulbs to rot, especially if this occurred in winter. In other respects this species requires the same treatment as O. hastilobium.

This plant is propagated by dividing the pseudобulbs when they begin to push; at that stage they make roots sooner and at once commence to grow, so that they quickly get established. After dividing, they must be potted in the same kind of material as that recommended above. We have not found that the plant is at all liable to the depredations of insects.
A magnificent, showy epiphyte, with ovate, furrowed, and transversely wrinkled pseudobulbs, which produce from their apex a pair of oblong, pointed leaves. The scape arises from the root, and is extended into a long, climbing panicle, several feet in length, and rather sparsely furnished with large showy flowers, three to four inches across, of a olive-yellow color. The sepals are oblong-obtuse, undulated, and clawed, olive-yellow in some plants, clear yellow in others, the dorsal one marked at the base with a few purple dashes; the petals are of similar size and shape, clear yellow; and the lip is small, hastate, purple, yellowish towards the tip, and furnished in the centre with a great white crest, consisting of a central keel and two reversed teeth on either side; the wings of the column are rounded.


We have here a most remarkable Orchid, whether we regard the size and striking character of its unusually regular and leathery flowers, the long, clavate inflorescence, or the peculiar and, as it would seem, variable color. It would indeed appear that the colors vary to a very remarkable extent, since while Dr. Lindley describes (from dried specimens no doubt, and therefore perhaps not quite accurately) the sepals as purple-brown and the petals yellow, the plant represented in our Plate had the whole flower except the lip yellow, the sepals being dashed over by an olive that difficult of imitation, and others which have subsequently bloomed at Farnham Castle, have the sepals, like the petals, of a clear yellow. The symmetry of form given to the flowers of this plant, by the equality of size and regularity of position of the sepals and petals, is a very unusual feature in the Orchid family, wherein grotesque irregularity is all but universal.

This fine and masses-flowered species—one of the most beautiful of the genus—was first flowered in this country by Lord Lonsdale from whose valuable collection at Grinstead Park, near Tadcaster in Yorkshire, a fine plant was exhibited last year at one of the Tuesday meetings of the Royal Horticultural Society. This plant most deservedly obtained a first-class award, and we may here incidentally remark, that the lovers of new plants are greatly indebted to the Society for the opportunity which these meetings afford for the display of novelties; indeed were it not for them, many choice plants would bloom in obscurity, and would die off without being seen by the public.

This grand plant will prove to be a welcome addition to our orchid-houses, as well as to our exhibition tables, for its flowers are totally distinct from those of any other of its class. It is of free-blooming habit, and it comes from a cool climate—both these being strong recommendations, which will make it sought after by cultivation generally. At present it is scarce, but we anticipate a better supply, so that those who really desire to do so, may not doubt soon possess it. There are several varieties amongst the plants which have bloomed in England, varieties differing in the colour and in the size of their flowers, as occurs with most other Orchids, owing to their being produced from seed in their wild state. In some cases indeed, the varieties produced are almost endless; and this adds greatly to the interest which attaches to the blooming of imported Orchids, amongst which we may always look for something novel. There are several **Oncidiums** like the present in respect to growth, and it is therefore difficult to distinguish it until it blooms.

**Oncidium Macranthum** produces ovate furrowed pseudobulbs, about three inches in height, and its light...
green foliage reaches to a foot or more in length. The scape supporting the panicle of flowers is very long, and of a climbing habit, sometimes reaching to eight or ten feet in length; it is produced from the side of the young growth. The flowers, in the form we have represented, are fully three inches across, and almost regular in form; the sepals being of a rich chestnut-tinted yellow, while the two petals are of a clear yellow, and the small hastate lip is of a reddish-purple, with very prominent white crests. The flowers are produced in the spring, and last several weeks in beauty.

This plant is of easy culture under proper treatment. It should be grown in the cool-house, along with the Odontoglossum. We find that it thrives either on a block or in a pot. If grown in a pot, perfect drainage is necessary, together with a soil of fibrous peat mixed with a little sphagnum moss. The pot must not be too large, as over-potting is dangerous, though as the plant increases in size a larger pot may be given; it is, however, always of the highest importance to see well to the drainage. When planted on a block of wood, the roots must be covered with sphagnum moss, and the block must be suspended from the roof. Treated in this way, it must be borne in mind that more water is required, especially during the growing season. After the growth is completed less water suffices. On the other hand, the pseudobulbs must never be allowed to get dry, so as to shrivel, for this is extremely injurious. They should always be kept in a plump condition.

Propagation is effected by dividing the pseudobulbs just as the plant begins to grow, at which time fresh roots are quickly formed. After they are divided, put them in pots or on a block, but always keep them in the shade, until they get somewhat established. Insects should be well sought for, and arrested. If allowed to accumulate, the plant will soon suffer.
Plate XVIII.

SACCOLABIUM (GUTTATUM) HOLFORDIANUM.

A remarkably handsome tree epiphyte, with disciform, leathery, channelled, arching leaves, oblately rostrate at the apex, and having long pendulous dense cylindrical racemes of pretty-scented white flowers. The sepals are ovate, the petals oblong, both white, spotted with bright purple-rose; and the lip is oblong, emarginate, of a rich bright purple.

SACCOLABIUM HOLFORDIANUM of gardens.

The subject of our present illustration may be regarded as the finest of all known forms of Saccolabium guttatum, a plant which, as well as S. Brownii, is referred by Professor Reichenbach to the genus Rhynchostylus of Bunge. This learned orchidologist regards S. guttatum and S. Brownii as the varieties of a species, which he calls Rhynchostylis rhizoma, the extreme forms of which he considers to be connected by numerous links through the copious varieties which are known. They are all remarkably ornamental plants. Indeed, the Saccolabium rank amongst the most beautiful of Orchids, and are everywhere prized by cultivators.

The magnificent specimen of S. Holfordianum, which we have here represented, and which gives an excellent idea of the general character of the plant, was taken from a fine plant in our own collection. This particular form is rare as well as beautiful. The merit of its introduction is due to R. S. Holford, Esq., of Western Park, Gloucestershire, in whose collection we saw it many years ago, blooming magnificently. We then pronounced it to be the finest Saccolabium we had seen, and it has kept this high position ever since, being up to the present time unapproached by any other form in respect to its magnificent spikes, and the rich colour of its flowers—a colour which is indeed unapproachable by art. The foliage moreover is remarkably distinct, on account of its breadth, and altogether it forms a most noble plant. We have seen it with fourteen glorious spikes, when it was the admiration of every one. We have said that the plant itself is rare, and we may add that fine specimens are exceedingly scarce. Many plants have been exhibited and sold for S. Holfordianum, which have not been true, though in many cases they have proved to be fine varieties of S. guttatum, to which type indeed S. Holfordianum belongs. The true plant may at once be recognized by the breadth and by the blunt ends of its foliage.

This Saccolabium makes one of the finest of all plants for exhibition, as well as for the decoration of the orchid-house. And here we may remark that one cannot but regret the absence from our great London exhibitions of remarkably fine plants, such as we were shown at the time of the Chiswick shows. There Saccolabium were frequently seen with from five to ten spikes of blossoms, or even more, on the same plant, and those who were in the habit of visiting these Gardens at the time referred to often speak with regret of the absence of such remarkable specimens from the exhibitions of the present day. In fact, while most other exhibition plants have gone on increasing in size, Orchids have certainly become less.

Saccolabium Holfordianum is a strong-growing compact epiphyte of evergreen habit, producing broad dark green leaves of from twelve to eighteen inches in length, and very blunt at the tips. The spikes are often as much as eighteen inches in length, the flowers being rich and showy in colour—white, spotted with deep rose. It blooms during May and June, and if kept from damp and at the coolest end of the house, will last for at least four weeks in perfection.

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It requires the same treatment as other East Indian Orchids—plants which, if attended with care, and supplied with proper heat and moisture, will be found sufficiently easy of cultivation. We find that those are the main points to be studied in order to ensure success with Orchids of this class, though many growers are apt to think them immaterial. Another important matter is to have a well-constructed house, of proper dimensions, and provided with perfect means of ventilation. We have always adopted the kind of house which is recommended in the ‘Orchid Manual,’ and have ever found it perfectly suited to the purpose.

*Saccothrix* continue growing nearly all the year, and therefore require to be kept constantly moist at the roots. The actual supply of water must of course be given in accordance with the state of the weather. We seldom syringe *Saccothrix*, as the water lodging at the bases of the leaves would rot the heart of the plant, and probably cause the leaves to become spotted, which is what we designate the “orchid disease,” and which is generally brought on by improper treatment. In their native country the plants grow on trees, and consequently their roots are benefited by a free circulation of air. They will thrive either on blocks or in baskets, the latter being the most natural way to cultivate them, though we also grow them in pots, and in that way we find that they are more convenient to move. We are careful to give them good drainage, and find the most suitable material for their roots to be sphagnum moss; no other answers so well. One thing, however, must be attended to, namely, that the moss does not get decayed; when it decays, it must be immediately removed, clearing away at the same time all the dead roots, and supplying fresh moss. If this treatment is adopted, the plants will be found to root in a free and healthy manner.

The *Saccothrix* are propagated by removing the offsets when rooted; but the plants generally get to a good size before they produce any. It is of the greatest importance to keep them free from the scale insect, for if that is allowed to accumulate, it will soon disfigure them.
PLATE XIX.

DENDROBIUM FIMBRIATUM OCULATUM.

A noble epiphyte of great beauty, with erect jointed stems, which grow from three to four feet high, and are clothed with alternate distichous lanceolate leaves, four to six inches long. The flowers are produced in long pendent racemes from the upper joints of the slender and then leafless stem. The sepals are oblong, entire, spreading, and of a rich golden yellow. The petals are broader than the sepals, edged with minute teeth, and also of a golden yellow; and the lip is large, rounded, undivided, spreading at the mouth, of a somewhat pale yellow, with a large deep blood-red spot near the base, the whole of its surface and of the margin being villosisubinate.

Dendrobium fimbriatum oculatum. Hooker, Botanical Magazine, t. 1109; Lindley, in Paxton's Flower Garden, ii. t. 84; Ericksen's Jardin des serres Helvetiques, t. 293.

Dendrobium Paxtoni, Paxton, Magazine of Botany, vi. 169, with plate; et C. of Lindley; Flora Brasiliensis, t. 736.

This beautiful species is most nearly related to Dendrobium eleatum, and Dendrobium Gibsoni, both of which differ in not having fringed petals, the former also in the long membranaceous bracts borne on its inflorescence, and the latter in producing smaller and more flabby flowers which are not so much expanded. Two varieties are known: the one first figured in the 'Exotic Flora' by Mr. William Hooker, and which has the flowers whole coloured or unspotted; the other, represented in our Plate, which has larger blossoms, and a rich deep reddish-brown spot towards the base of the lip. This latter is not unfrequently grown in gardens under the erroneous name of Dendrobium Paxtoni, which, even singularly enough, seems to have originated with Mr. Paxton himself, in his 'Magazine of Botany,' and to have altogether puzzled Dr. Blandwich when describing the plant transferred from that work to the 'Flore des Serres.' In truth, Dendrobium Paxtoni belongs to a different group, and bears a two-flowered inflorescence, as originally described by Dr. Lindley.

This beautiful plant is a native of India, and was introduced to the Chatsworth collection through Mr. Gibson, by whom so many fine Dendroches were for the first time sent to Europe. Dr. Lindley refers to it as a native of Margui. It has now become somewhat plentiful in this country, but is none the less worthy of cultivation on that account. Indeed, few Orchidaceous plants contribute more towards the embellishment of our plant-stores than the various species of Dendrobium, and in this respect the fine variety represented in our present Plate, drawn from a specimen which bloomed in our own collection, certainly stands in the very first rank.

Dendrobium fimbriatum oculatum is a plant of erect growth, attaining a height of from three to four feet. The leaves are arranged upon the stems in a distichous manner; and from near the apex of the two-year-old growths, the long drooping racemes or spikes of flowers are produced. The same stems or growths continue to produce flower-spikes at various times, for several years in succession. The flowers in this variety are of a rich deep orange colour, the petals being minutely toothed at the edge, whilst the broad expanded lip, which is of a pale yellow, is beautifully fringed, and marked near the base with a semicircular blotch of deep velvety blackish-purple.

This fine plant produces its very attractive flowers at various seasons, but principally during the months of May and June, on which account it forms a beautiful object for public exhibitions. By many Orchid growers it is pronounced difficult to bloom, and as a consequence it is discarded for exhibition purposes.

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but this estimate of its habit is not borne out by the facts. We ourselves have seen it frequently exhibited in a very finely developed condition—upon one occasion with upwards of fifty of its magnificent spikes of flowers, in full perfection, in which state the effect it produced was gorgeous in the extreme.

It is a robust growing plant, and thrives best under pot culture, requiring similar treatment to that given to Dendrobium noble, that is to say, the plants should be grown in a somewhat high temperature, with an abundant supply of moisture in the atmosphere, and the roots should also be kept well supplied until after the growth is completed, when the plants should be removed into a cool and comparatively dry atmosphere, and water must be withheld from the roots, except in just sufficient quantity to prevent the stems from shrivelling. In spring, when the flower-spikes begin to show, a more plentiful supply should be given, and the plants should then be removed into a higher temperature in order to encourage the healthy and vigorous development of the flowers.

The material best suited for the successful cultivation of this plant is a mixture of good fibrous peat and sphagnum moss, in about equal parts, to which may be added a few lumps of charcoal. It is necessary to take especial care in potting, that the base of the stem is kept well above the rim of the pot; this should be done in order that the young growths upon first starting may not suffer decay, an injury which is very liable to occur if they are buried in the potting material.

The insects which affect this plant are the white scale and the thrips. The former is easily kept away by washing; and the latter is principally fostered by applying too much fire-heat, and keeping the atmosphere too dry. Hence the remedies are obvious. To increase these Dendrobio the stems must be cut apart at the base, and the plant divided. Sometimes they will produce young plants on the top of the old growths, and these when fairly developed, may be taken off and planted.
A lovely epiphyte, of dwarfish habit, with crowded narrow elongate-ovate pseudobulbs, terminating in a solitary ligulate oval leaf, and producing from their base the nodding spikes of large white, handsomely-marked flowers. The sepals are oblong acute, entire, white with a few transverse brownish-red bars, the dorsal one with an obtuse spot in addition, at the base; the petals broader, heart-shaped and margin marked at the base with an obtuse spot encircled by a semicircle of roundish spots of the same colour as those on the sepals; and the lip has a broad costate-triangular, oblong, truncate, and sinuate-crenate lamina, and on the narrowed basal portion a truncate-ovate, yellow callous, abruptly three-lobed in front. The column is elevate and wingless.

ODONTOGLOSSUM WARNERIANUM.

This very rare and beautiful Odontogloss is referred to by Professor Reichenbach, by whom it was named and described, as being a connecting link between Odontoglossum wilkisonii and Odontoglossum Rossi, having the broad petals of the former, and the slender narrow pseudobulbs of the latter. Its affinity with Odontoglossum maculare has also been pointed out by its describer.

The plant is supposed to be a native of Mexico, but nothing positive is known as to its history or introduction. It flowered first, we believe, in our own collection several years ago, when Professor Reichenbach did us the honour to name it after us. More recently, when it had become better established, it afforded the material from which the present beautiful illustration was prepared.

It is a species of dwarf compact habit, furnished with small flask-shaped pseudobulbs, which are about two inches in height and an inch in diameter at the base, of a deep green colour, tinged at the top with reddish-brown. The leaves grow singly from the top of the pseudobulbs, and are somewhat erect, deep green above, paler beneath. The flowers are produced upon nodding spikes from the base of the pseudobulbs; the sepals and petals being white, spotted and barred near the base with transverse lines of dark chocolate colour; the lip is large, pure white in front, stained with yellow at the very base where the crest is developed, while the column is tinged with lilac.

The plant generally produces its lovely blossoms during the autumn or winter months, a season of the year when flowers of any kind are valuable, such charming ones as those of the present species being doubly so, especially since they continue in full beauty for a considerable time, if they are but kept free from contact with moisture.

ODONTOGLOSSUM WARNERIANUM thrives best in a moderately cool house, with a moist atmosphere. Although grave errors have been committed by attempting to grow the denizens of cool regions in too great a heat, and many charming species have thereby been lost to our gardens, yet it is to be feared that equally great mistakes have been made by Orchid growers in raising to the opposite extreme, and exposing their plants to a degree of cold which is by no means justified by the information we have concerning the climate of their native habitats.

This plant, like many others of the same genus, should be kept moderately moist during winter, and must not be dried or rested at that season, as many Orchids require to be, for we have found many
Odonloglots to grow more during the dull winter months than during the summer. The pots should be well drained, and the material for potting should be composed of two parts live sphagnum moss, mixed with one part peat.

The insects by which this and other Odontoglossums are liable to be attacked are the white scale, and sometimes the yellow fly, while if kept too dry, or in too great a heat, the thrips will make its appearance. For all these pests, we recommend careful washing with soft soap and water as the safest and surest remedy which can be adopted. Fumigating with tobacco or tobacco paper is to be avoided, for we have found by experience that it is very prejudicial to the foliage of the small-growing Odontoglots.
PLATE XXI.

SCHOMBURGKIA UNDULATA.

A bold and remarkably handsome epiphyte, with stout fusiform pseudobulbs, surmounted by a pair of thick oblong leaves, and terminated by an elongated peduncle supporting a dense terminal raceme of brown and purple flowers. The sepals and petals are oblong-ligulate, much undulated and twisted at the edge, and of a deep purplish-brown colour. The lip, which is bent upwards parallel with the column, is cleft at the base, lobed, the lateral lobes purple, obtuse-angled, and turned up towards the column, the middle lobe obtuse acute, white in the centre, with five undulated ridges, deep purple at the margin. The column is purple and winged.

SCHOMBURGKIA UNDULATA. Lindley, Botanical Register, 1844, note 21, also in note under t. 12; M. Botanical Register, 1845, t. 53.

BLETTA UNDULATA. Reichenbach fl., in Walpers' Annals Botanici Systematicae, vi. 420.

This fine plant was first found by the indefatigable traveller Linden, who gathered it in New Grenada, at 2,400 feet elevation, on rocks near Paqui, "the natural bridge of Leoncino." When first flowered in this country by Mr. Reckner in 1844, the spikes were small, some five- or six-flowered only, but Mr. Linden's wild specimens bore as many as twenty flowers, so that something like the grand appearance it presents in our Plate was confidently looked for amongst cultivators, and may indeed be seen every year in our collection at Brookfield. It is closely related to habit to Schomburgkia crispata and Schomburgkia marginata, but it differs from both these species by its very long, narrow, crisped sepals and petals.

The genus Schomburgkia was established by Dr. Lindley in the "Secta Orchidacearum," and "differs from Epiphyllum and its allies in having eight pollen-masses." The large size of the elongated pseudobulbs is a characteristic feature of the species; indeed one of them, Schomburgkia tibicinis, which has thick conical hollow pseudobulbs from one to two feet long, in the Cow's-horn or Trumpet Orchis of Honduras. The interior of the hollow pseudobulbs of this plant is as smooth as the hollow interior of a bamboo stem, and is often made the home of a colony of ants. Amongst the species introduced to our gardens are:—S. crispata, from Demerara, with yellowish-brown crisp flowers and a white lip; S. marginata, from Demerara and Surinam, with purple flowers, yellow at the edge; S. tibicinis, from Honduras, with rich reddish-purple flowers, and a beautifully marked orange lip, bordered with purple; S. rosea, from Santa Marta, with deep red flowers, having a rose-coloured lip, and said to be the glory of the genus; S. Lycioides, from Jamaica, with charming white flowers, everywhere transversely barred with purple; and the New Grenadine plant now figured, S. undulata.

The subject of our beautiful illustration is of a compact and free-growing habit. The fusiform pseudobulbs and leaves grow from one to two feet or more in height, the latter being from two to three inches broad, thick, and of a deep green colour. The flower stem, which arises from between the leaves at the top of the pseudobulbs, is produced to a considerable length, and is terminated by a spike or raceme in which are borne some twelve or fourteen large handsome flowers. The sepals and petals are of a purplish-brown, with the margins beautifully waved or undulated; the side lobes of the lip are purplish-brown, the front lobe violet, with several raised white lines on its disc. The flowers of this fine epiphyte.

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are produced during the dull winter months, and last for a considerable time in full beauty, if moderate care is taken to keep them from being wetted when using the syringe.

The same mode of treatment as that which we have previously described as applicable to Cathtesia and Lolita, will suit this Schomburgia admirably, for although all these plants will grow upon blocks of wood suspended in the air, most of them succeed far better when planted in pots, in a proper compost.

Schomburgia undulata begins to grow after blooming, and at that time a little extra heat and moisture are necessary to induce a robust and vigorous development. When this is completed, water should be almost entirely withheld, and the plant should be placed close to the glass, in order to ensure the thorough ripening of the pseudobulbs, as upon this ripening process being perfected depends, in a great measure, the display of flowers in winter.

Propagation is effected by division of the pseudobulbs, care being taken to secure a young growth or leading shoot to each piece. If this is not attended to, a considerable time may elapse before the new plant will make a start, preparatory to gladdening the eyes of its possessor with its beautiful flowers.
PLATE XXII.

CATTLEYA REGNELLII.

A compact-growing and very beautiful orchid epiphyte, with olive-green and purple flowers on short erect scapes. The stems are short, clavate, bearing two or sometimes three short, oblong, blunt leaves, which are slightly bristled at the apex. The flowers are from three to five in number, and are comparatively large, measuring from three to four inches in breadth, and somewhat more in depth. The sepals are light-brown, widening into a spatulate form at the apex; wavy, rich brown or olive-green, freely marked with oblong spots of a brownish-purple hue laid on in a transverse direction. The petals are narrower and more undulated, but otherwise similar in form, colour, and marking. The lip is large and prominent, nearly flat, three-lobed; the two basal lobes large, and arching over the column, white streaked and flushed with rose-purple, beautifully striated with the same colours; within, the middle lobe has a narrowed claw or base, which is yellow and five-flowered, with some margined purple bars, and expands into a broad rhomboid lamina, which is of a rich bright magenta-purple, breaking out into fine lines towards the toothed white edge. The reverse of the sepals and petals is a deep brownish green. The column, which fits close down on the base of the lip, is remarkably broad and thick, white, with a purple spot at the tip.

CATTLEYA REGNELLII, of gardens.

The subject of our present illustration is a native of Brazil, and takes rank as one of the most beautiful of the smaller members of a genus which is specially remarkable on account of the numerous magnificent species and varieties which it comprises, and which furnishes some of the brightest ornaments of our Orchid collections. It is by some Orchid cultivators considered as a mere variety of Cattleya Schilleriana, and Professor Reichenbach, one of the most learned investigators of the Orchid family, who has seen specimens of the plant, coincides in this view. A reference to the published figures of that plant will show that it is, at least, a well-marked variety.

Into the vexed question as to what constitutes a species and what a variety, it is not our purpose to enter, nor is it, indeed, of the slightest importance to the cultivator, so long as the plant itself is distinct and ornamental. All that is necessary in such cases is that the particular plant should bear a recognized name as a means to ensure its identification. Wherever dissimilar plants thus bear authenticated names, and are sufficiently different in their habits or their blossoms to warrant such a distinction, the cultivator may very safely put aside the botanical question as being to him of no vital importance.

This Cattleya Regnellii, which is faithfully represented in our plate, bloomed in the collection of Edward Wright, Esq., of Gravelly Hill, Birmingham, under the care of his gardener, Mr. James Hodges. It is evidently nearly allied to Cattleya Actiniae. The pseudobulbs attain a height of four or five inches, and support two or sometimes three bluntly oblong, thick, fleshy, dark green leaves. The flowers are about three inches and a half in diameter, and from three to five upon the scape. The sepals and petals are oblong, spatulate, green banded, tinted with olive in front, and marked by deep purple transverse spots. The lip has a great chocolate front lobe, which is amethyst purple, toothed, and edged with white; this lobe is yellow, with purple bars; and there are two large side lobes, which are amethyst margined with white, and bent over the column. We learn from Mr. Hodges that when the plants are in a vigorous and healthy condition, they flower twice in the season, namely, in July, and again in September or October.

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This is a dwarf, compact-growing plant, which must be attached to a block of wood, having a little sphagnum moss placed about its roots, and the block being suspended near the roof, so that it may receive the greatest possible amount of light without being exposed to the direct rays of a scorching sun. When placed in such a situation and properly supplied with moisture, it is very easily grown into a good plant; but if these conditions are not provided, it refuses to grow, and presents only a sickly and uninviting appearance.

The warmest end of the Cattleya-house is the most fitting place for it during the growing season. After this is past, we advise its removal to a slightly cooler and rather drier position, but it should never be exposed to a very low temperature, nor be allowed to suffer much for want of water.

White scale is the greatest insect enemy this plant has, and unless great care be taken, these pests will secrete themselves beneath the old sheaths of the pseudobulbs, and increase very rapidly at the expense of the life of the plant. To prevent such an occurrence, frequent examination must be made; and if the least trace of white scale should occur, the plant must be washed carefully with soft soap and water, the operation being repeated at frequent intervals until the pest is exterminated.

Propagation can be effected by division when the plant has more than one growing point; but the attempt should never be made unless this is the case, as the probability is that the portion removed will never start into growth, if not furnished with a leading shoot.
A grand variety of one of the finest species of Odontoglossum yet introduced to our gardens. It has oblong ovate, compressed pseudobulbs, lanceolate ligulate leaves, and close racemes of very large flowers, which are beautifully suffused with rose, and spotted with cinnamon-brown. The oblong ovate sepals are fleshy on the posterior half, and marked with some six or eight large, oblong, transverse spots of cinnamon-brown. The petals are roundish ovate, undulated, toothed at the edge, and stained with creamy yellow towards the base. The lip is obovate at the base, nearly oblong in outline, but much undulated, yellow at the base and white at the tip, and having a large cinnamon-brown blotch dividing the yellow from the white. It has also a few crimson brown spots down each side, and a few red streaks near the base.


The magnificent species of Odontoglossum, of which a remarkably fine variety is here represented, is found in great profusion in New Granada, at elevations of from 7000 to 8000 feet, growing upon the branches of the forest trees. The pseudobulbs are smooth, and about three inches in length, somewhat compressed, usually tapering from the base upwards, but sometimes, though more rarely, ovate; dark green in colour, occasionally tinged with reddish-brown, as also are the leaves. The leaves are usually two in number, linear-lanceolate, tapering to a point, from twelve to eighteen inches in length, and bright green on both sides; the raceme of flowers is produced from the base of the pseudobulb, and is from a foot to eighteen inches long, branched or unbranched, and bearing many large white, rasiunally-spotted flowers of great beauty. A more fitting plant could not have been found to commemorate our amiable and lovely Princess than this Odontogloss from New Granada.

There is an almost endless profusion of varieties of the Odontoglossum Alexandra, all of them being plants of exceeding beauty. Some amongst the finest we have yet seen have been flowered by Mr. Pecher, who has charge of the rich collection of Sigismund Ecker, Esq., of Wandsworth. The superb variety which has been so beautifully rendered in the accompanying illustration, flowered in our own collection at Borensfield in the early part of 1869; and when exhibited at the Gardens of the Royal Horticultural Society in the month of April in that year, it received both a First-class Certificate and its present name. The flowers are upwards of three inches in diameter, and closely set upon the scape. The sepals are white, tinged with carmine, and adorned with several spots of reddish-brown. The petals are much broader than the sepals, beautifully frilled at the margins, and of the purest white. The lip is white towards the apex, yellow towards the base, and blotted on the disc with reddish-brown, the edges being frilled in the same manner as are those of the petals.

Odontoglossum Alexandrae Warneri is a plant very easily cultivated, if not placed in a strong heat. The temperature we find to suit this genus, with but few exceptions, and especially the present species, is as nearly as possibly 50° in winter and 65° or 70° in summer. The house must be cautiously shaded, so that the direct rays of the sun do not fall upon the plants; otherwise they enjoy plenty of light. An abundant supply of water should also be given; indeed, this species will never bear drying. Ventilation is another matter of the highest importance to these plants; for, if a proper circulation of pure air is not supplied, they soon assume a sickly appearance.
There is nothing we have found better than sphagnum moss and fibrous peat in which to grow these plants, and these should be used in the proportion of two parts of the moss to one of the peat, to which may be added with great advantage a small portion of silver sand and some moderate-sized pieces of charcoal.

We have found the yellow-fly (aphis) to be extremely partial to this plant. When it makes its appearance, careful and frequent applications of weak soap and water with a sponge will be found the safest method of exterminating these depredators; but particularly and especially tobacco-smoke must be avoided, for although most Orchids withstand its effects with impunity, it is vastly different with the plants now under consideration.

The best method of increasing Odontoglossum is by division. This is best and most surely effected just as the plants show signs of starting into growth.
A very superior variety of the Handsome Lady's Slipper. The leaves are beautifully tessellated with different shades of green. The flowers are of medium size, and very handsome; the dorsal sepal is ovate, acuminate, elegantly striped with green on a pale ground; the lateral sepals are narrower and paler; the petals are oblong, apiculate, somewhat wavy, white lined with green, and having the apex of a bright rosy red, while along the margins and the median line are scattered towards the base a few large, unequal, dark purple spots; the lip has a blunt pouch or sac, with an open mouth, yellowish green, veined with darker green, and slightly suffused with rose.

Cypripedium venustum spectabile, Hort. Williams.

This genus, which derives its name from Cypria, one of the names of Venus, and pedalis, a slipper, on account of the labellum more or less resembling a slipper, and which has led to their being familiarly known as Lady's Slippers, contains many interesting species of an extremely ornamental character. The type of the present plant is a very old inhabitant of our hothouses, having been introduced from Nepal in the year 1815, and was indeed the first of the Indian species brought to Europe. For many years this plant remained a great favourite with Orchid growers, but eventually lost its popularity, owing to the discovery and introduction of the many larger-flowered and more showy species from the Indian Archipelago and South America which now adorn our plant-stoves. Nevertheless, although not amongst the most attractive kinds, it is still very handsome, and when a variety like the subject of our illustration is obtained, and which flowered in our own collection during the past winter, it lacks but little of the beauty displayed by many of the rarer kinds.

Cypripedium venustum spectabile, like the original type of the species, is a native of Northern India, and during the flowering season will stand unharmed in an ordinary warm conservatory, or as an ornament to the drawing-room, in which it will produce a charming effect, with its curious mottled leaves and poached or slippertike labellum. When, moreover, it is remembered that its period of flowering is mid-winter, a season when flowers of almost any kind are heartily welcome, it will be evident that such very attractive and lasting ones as these must be specially valuable.

It is a plant of a dwarf, compact habit of growth, and, like the rest of the genus, is destitute of pseudobulbs. The leaves are arranged in a distinct manner, and are of an oblong form, bluish, about six inches in length and two in breadth, the upper side being of a light and lively green colour, mottled with blotches of darker olive-green, and the under side light green, prettily mottled with dull purple. From the centre of these leaves is produced a spike bearing a single flower, in which the dorsal sepal, which is largest, is ovate, acuminate in shape, and white, marked all over with broad parallel streaks of green, extending from the base to the apex. The petals are greenish-white, streaked with deeper green and tipped with rosy red, and these are also more or less blended with blackish-purple. The lip is callous, or poached; its ground colour is yellowish-green, prettily veined with darker green, and suffused with rose. These flowers retain their full beauty for many weeks, which is an additional recommendation of them to all plant-lovers.

The plant new under consideration succeeds best under pot-culture. The material best adapted for potting is a compost of good fibrous peat and chopped sphagnum moss, to which a little clean leaf-mould and second series.
some silver sand may be added. The drainage should be as perfect as possible, and the base of the plants must not be elevated above the rim of the pots in which they are to be grown. During the growing season the plant enjoys the temperature of the East India House, and an ample supply of water; but after the growths are complete it may without injury be removed to a cool house, where it must be kept comparatively dry. *Cyprisidium*, however, have no pseudobulbs, and consequently cannot with impunity withstand the total deprivation of water for any lengthened period; therefore, although they should be kept somewhat drier during their resting season than during the time of growth, their leaves should by no means be allowed to shrivel.

These plants are not subject to ravages from insects to any great extent, scale and thrips being their principal enemies. These must be kept away by careful washing and by maintaining a proper amount of moisture in the atmosphere.
ODONTOGLOSSUM INSLEAYI.

A charming epiphytic orchid, with ovate compressed pseudobulbs, from the top of which grow a pair of oblong-ovate, somwhat undulated, coriaceous leaves, the latter recurved at the end, and shorter than the crest rigid flower scape. The racemes are from six-flowered to ten-flowered, and the flowers measure from two and a half inches to three inches across. The sepals and petals are similar in size and form, oblong, very at the margin, the lower sepals connate at the base, all pale yellow, spotted and barred with rich brown. The lip is narrow obvolute, not so, marked at the base, of a brighter yellow, spotted around the margins with red, and bearing on the disk a crest which has two teeth on either side; the column is furnished with red subulate horns or cirrhi.

ODONTOGLOSSUM INSLEAYI, Lindley, Poli Orchidaceae, art. Odontogloss. 1. 8: Walpers' Annales Botanici Systematicae, vi. 828; Botanica, Monograph of Odontoglossum, t. 4.

ODONTOGLOSSUM INSLEAYI, Baker, Botanical Register, 1840, misc. 21: Botanica, Orchidaceae of Mexico, t. 21: Von Horke,

This handsome species of Odontogloss has very much the general aspect of Odontoglossum grandis, but it is distinguished from that species by its narrower lip, and especially by its cirrhoste column. These two species are indeed the connecting link between the sections Eoondoto~llosum and Xanthoglossum, the former of which, represented by O. Insleayi, has the column wings elongated and acuminate, while in the latter, represented by O. grandis, the corresponding parts either bear rounded auricles, or are altogether wingless.

Odontoglossum Insleayi is native of Mexico and Oaxaca, and has been for some years an inmate of our orchid houses. A very fine variety named macroanthum, by Dr. Lindley, and which has paler and larger flowers, but without the rich red spotting on the lip, has borne in gardens the name of O. Lawrencei. The typical form of the plant is very faithfully represented in the accompanying plate. Its near relationship to O. grandis will be apparent from the figure; indeed, it resembles that plant so closely, that it is not always easily recognized when destitute of flowers. The pseudobulbs which are ovate, and somewhat narrowed, bear upon the apex a pair of oblong, pointed leaves, which are about ten inches long, leathery in texture, and of a deep glaucous green. The flower spike is erect, produced from the base of the pseudobulb, and usually bears from six to ten flowers, which individually measure about three inches in diameter. The sepals and petals are oblong, nearly equal in size, and waved at the edges; the ground colour is a pale yellow, marked throughout with transverse bars of reddish brown. The lip is somewhat obvolute, and of a bright yellow, having a border of red spots, and furnished with a few tubercles on the disc. It blooms at various times during the year, but may be easily made to bloom constantly in January and February. Being a native of Mexico, where it is found growing at elevations of from 5000 to 6000 feet above the level of the sea, the species now under consideration, like the majority of the plants belonging to this extensive and magnificent genus, requires to be grown in a cool house; indeed, very few of the Odontoglossums live long if subjected to much heat. We have found this species thrive admirably in a temperature ranging from 60° to 70° in winter, and from 60° to 65° during summer, though, of course, it is impossible to maintain this temperature exactly within a few degrees during the hot days of summer. The soil should be a rich fibrous peat, with which may be mixed some few pieces of charcoal; at the same time, the drainage must be ample, and

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in good condition, so as to prevent any stagnant moisture from remaining in the soil, or hanging about the delicate and tender roots.

*Odentoglossum* are not very subject to the ravages of insects, but should they be attacked by either green-fly or scale, it is much safer to carefully wash the leaves and pseudobulbs with tepid water, than to attempt to exterminate these pests with the fumes of tobacco, which frequently prove very injurious to the leaves and flowers of members of this genus.

*Odentoglossum Luxuriae* may be increased by dividing the plants, an operation which is best effected in early spring before active growth commences.
PLATE XXVI.

ONCIDIUM CRISPUM.

A remarkably showy evergreen epiphyte, having lovely flowered orange pseudobulbs, bearing at the summit a pair of lanceolate, leathery, erect, green leaves, sometimes marked with purple at the base. The flowers-scape proceeds from the base of the bulb, and is simple or occasionally branched, elongated, bearing a spreading raceme or panicle of large handsome flowers, which are about three inches across, and are sometimes borne as many as fifty in one scape. The sepals are oblong, obtuse, waxy, the lateral ones half united; the petals are broader and much enfolded, obtuse obtuse, and as well as the sepals of a rich brown, becoming yellow transversely barred with brown at the claw. The lip is very large, three-lobed, the lateral ones short and rounded, the central one large, roundish-cordate, and very much enfolded like the petals. The front portion red-brown like the other parts of the flower, with a lighter or dull auburn patch of bloom form near the margin, which is yellow, more or less spotted with red; the crest broadened, three-lobed, ovate acuminate, bearing a double row of teeth; the column is yellow, with rounded, toothed, fleshy wings.


This strikingly handsome Orchid was introduced in 1832 by the Messrs. Loddiges, of Hackney, and was beautifully figured by them in the Botanical Cabinet on its first producing flowers. It is of Brazilian origin, and is a native of the Organ Mountains, where it was found growing upon the trunks of dead trees. Amongst the Orchids it is remarkably distinct, both as regards its habit of growth and the colour of its flowers. The prevalent hue in the blossoms of this very extensive genus is yellow of various shades, and more or less mottled with red or brown. This prevailing yellow colour, together with the robust growth and free-blooming habit of the majority of the species, renders them exceedingly desirable plants for general cultivation, as they serve to brighten up the groups of which they form part, and contrast finely with other kinds possessing less brilliant and decided coloured flowers. The plant which forms our present subject is, however, an exception to the general rule in respect to colour, and though yellow is not entirely wanting in its blossoms, it is but very slightly developed. The form we figure is a very richly-coloured one, not at all commonly met with in collections.

A few years since the number of individuals of this species in cultivation was very limited. This was owing to the fact that but small importations of it had been received in this country, and its proper treatment not being then understood, many of the originally imported plants soon dwindled away. Now, however, cultivationists have applied themselves to overcome this difficulty, and, having studied its peculiar wants and requirements, are enabled to grow it successfully, and to bloom it regularly with the greatest ease. Moreover, plant collectors in Brazil have latterly sent over large quantities in excellent order, so that all Orchid lovers will now be enabled to possess themselves of so charming a plant.

Oncidium crispum may be described as a brilliant and beautiful pseudobulbous evergreen epiphyte. The pseudobulbs are about four inches in length, and are usually of an oblong shape, stout, furrowed, and of a dark brown-green colour. The leaves, which are two or three in number, attain the height of twelve or eighteen inches, and are lanceolate-ligulate in shape; they partake somewhat, though in a less degree, of the second series.
bronzy colour of the pseudobulbs. The flower spike is produced from the base of the growth, when it has nearly reached maturity, and varies from one to nearly three feet in length, bearing a simple or branched raceme of its lovely blossoms, which measure nearly three inches in diameter. The sepals and petals are usually of a rich bronzy-yellow colour, and beautifully curled or waved on the edges; the lip is also of the same hue, but the centre is marked with a more decided yellow blotch, while the margin is more delicately frilled. The plant blooms at various times during the year, and continues in perfection for several weeks if ordinary care is bestowed upon its preservation.

This fine Oncid thrives well in the Colleague house. It requires a liberal supply of water to the roots all the year round, less being required through the dull winter months than is necessary in the summer; if allowed to shrivel through drought at any season, or death will certainly ensue. It may be grown either in a pot, or in a basket, or on a block of wood, the two latter modes being preferable. If grown on a block of wood, live sphagnum moss should be fastened to it in sufficient quantity to retain a considerable amount of moisture about the roots of the plant. We have, however, seen it growing most luxuriantly planted in a small quantity of fibrous peat and sphagnum moss, with the addition of a considerable quantity of charcoal, and suspended in an earthenware basket from the roof of the house at two or three feet from the glass.

The plant is increased by divisions of the pseudobulbs in the spring. The divided portions should each consist of a young growth or prominent bud having several old growths behind it, and they of course require a little extra care until they get established.

Insects are very injurious to the plant, and their ravages soon become painfully visible. Extreme vigilance is therefore necessary in order to keep the leaves clear of these pests, and this is most easily effected by frequently washing them with a sponge and tepid water, and by slight fumigations.
Plate XXVII.
CATTLEYA DOWIANA.

A magnificent epiphyte, with remarkably showy mankeen and purple flowers. The pseudobulbs are stout, club-shaped, fleshy, and bear at the top a single, broadly oblong, obtuse leaf, of thick texture, and from a span to a foot long. The peduncle, which issues from a blunt spathe, bears from two to six large and very handsome flowers, which measure from six to seven inches across. The sepals are lanceolate, acute, sessile, smooth and even at the edge, of a clear mankeen colour. The petals are ovate, lanceolate, much waved at the margin, and of the same peculiar mankeen colour as the sepals. The lip is very large, obscurely three-lobed, oblong, and acute, and very much crisped at the edge; the whole of the expanded front lobes being of a rich velvety purple, beautifully lined over with golden veins, while the lateral lobes are small, entire, and incurved over the column, which latter is somewhat arched, and about one-third as long as the lip.

Cattleya Dowiana, Bulleama, Gardeners’ Chronicle, 1865, 922; H. Botanical Magazine, t. 5018.

This is probably the most beautiful of the many gorgeous forms which the genus Cattleya has produced, magnificent and lovely as many of them are. It is a native of Costa Rica, and was first discovered by the traveller Warszewicz, but he failed to introduce it in a living state. That honour was reserved for M. Arce, a zealous naturalist, who met with it in 1864, and sent it to the collection of the Messrs. Yeitch and Sons, of Chelsea, with whom it flowered for the first time in 1865. The native specimens bear as many as five or six flowers on a scape, in which state it must be exceedingly grand. The name is given in compliment to Captain Dow, an officer in the American Packet service, “as some slight acknowledgment of the many kindnesses shown and the frequent assistance rendered to English naturalists and men of science who have been so fortunate as to come in his way in their passage along the coasts of the Pacific.”

In its general appearance this fine species somewhat resembles C. labiata, although the colour of its flowers is very different; indeed, in this respect its beauty is peculiarly its own, as will be more readily imagined by a glance at our illustration, which is a faithful representation of a plant which bloomed in the greenhouse collection.

The plant now under consideration is compact yet robust in its habit of growth, usually attaining a height of twelve or eighteen inches. The pseudobulbs are stout and fleshy, and bear a single oblong, obtuse, thick, dark-green leaf. The flowers, which are very large, and three to six in number, are borne upon an erect spike, which proceeds from a large oblong dark-green spathe. The sepals are strap-shaped, and tapering to a point; the petals are much broader than the sepals, finely serrated and undulated at the edges, and like the sepals of a bright mankeen colour; while the lip is large, the middle lobe spreading, undulated and crisped at the edges, its ground colour a rich deep purple, which is beautifully pencilled with rich golden lines, thus forming a splendid contrast with the colour of the sepals and petals.

Cattleya Dowiana blooms usually at the latter end of the summer or the beginning of autumn, and retains its full beauty for a considerable time. It is easily grown, but requires a little more heat than some of the other species, C. Triana and its allies, for example; in fact, it should be placed in the warmest part of the Brazilian house. It requires ample drainage, and should be potted in good fibrous peat, to which may be added sand.
be added with advantage a little live sphagnum moss. During the growing season it enjoys a liberal
amount of water at the roots, and a general moist atmosphere, but anything like excess must be carefully
avoided, for *Catillega* frequently suffer through over-abundant watering. Great care is also necessary to pre-
vent water lodging in the heart, amongst the young leaves, for when this occurs serious damage often ensues:
indeed in some instances the young growth rots away, and thus a whole year is sacrificed, in addition to the
risk of the life of the plant.

Like all other members of the genus, this plant requires to be kept clean, and perfectly free from insects.
The white scale is perhaps the worst enemy to contend with, but a little vigilance on the part of the culti-
vator will prevent it from working any serious mischief; should, however, this pest by any chance gain a
settlement, the plants affected must be frequently washed with tepid water, until the insects are exterminated.

Propagation, as in similar cases, is effected by division of the plants, taking care to have an eye or
young prominent growth to each of the divided portions.
DENDROBIUM JENKINSI.

A very pretty epiphytal orchid, of dwarf stature and tufted habit. The pseudobulbs are densely aggregated on a creeping rhizome, so as often to form broad dense masses; they are indivisibly oblong, four-sided, and furnished with a solitary oblong leafy sheath or sometimes renate leaf. The scape springs from the base of the pseudobulb, or is either one-flowered or supports a few-flowered raceme, the flowers themselves being large comparatively with the size of the plant, rich golden yellow, with a deeper or orange-yellow eye; they are inconstant. The sepals are ovate, considerably smaller than the petals which, however, are of the same form, both sepals and petals being obtuse, and of a deep yellow colour. The lip is rosy-lilaciform, undivided, emarginate, dentate, of large size, being nearly an inch across, slightly pellucid on the surface, and ciliate at the margin.

Amongst the many beautiful and varied species of this extensive genus which have from time to time flowered in our gardens, that which we now figure, through the kindness of Lord Londoeborough, is by no means the least attractive. It was originally sent to this country by Dr. Wallich, about 1837, and appears to have been first flowered in September, 1838, by the Messrs. Lodgins, of Hackney, from whose plant the figure published in the Botanical Register was prepared. Dr. Wallich, who had received it at the Calcutta Botanic Gardens, in November, 1838, from Captain Jenkins—by whom it had been collected at Galipara (Goolpura), near the Assam frontier—named it in honour of its discoverer, to whom, he says, “this garden, the cause of botany, and science generally, are deeply indebted.”

It will thus be seen that Dendrobium Jenkinsii has long been an inmate of our orchid houses. Nevertheless, by some means or other, it has been pushed on one side by many orchid cultivators, to make room for plants of more recent introduction. Now, although we are always glad to receive new and distinct species or varieties, if they are of a really ornamental character, we would fain impress upon the minds of the growers of these charming plants the necessity of conserving in our collections any good and distinct species, like the present, when once they are obtained; and after the superior condition in which this Dendrobe has been exhibited by Lord Londoeborough, through the skilful treatment given to it by his gardener, Mr. Denning, it must be admitted by all, that we have here a plant which is uncommonly worthy of being permanently retained in our orchid houses.

Dendrobium Jenkinsii is a close creeping species, of compact-growing habit. The pseudobulbs are usually about an inch long and bluntly four-sided, and they each bear a solitary thick, leathery, deep bluish-green oblong leaf, of about the same length as themselves; these leaves are very persistent, and remain on the plant for several years. As already mentioned, this is a plant of creeping habit, and therefore it succeeds best grown upon a stout block of wood, and suspended from the roof of the orchid-house. This, indeed, was the method adopted by Mr. Denning, in the cultivation of the very fine specimens above alluded to, as may be seen by a glance at the figure which forms our illustration.
Although a native of Assam, we have always found that *D. loddonii* enjoyed the full heat of the East Indian house during the growing season, as well as frequent applications of water from the syringe, and an atmosphere well charged with moisture. As the season advances, and the pseudobulbs attain maturity, less moisture should be given to it, and the full light of the sun (when not too fierce) should be allowed to fall upon it, in order to concentrate the sap, or in other words, to ripen the pseudobulbs thoroughly. During winter the plant may be maintained in a healthy state in a cool temperature, but very little water must be given while it is kept under these conditions.

The flowers are produced from the sides of the previous years' pseudobulbs, sometimes singly, but more frequently two together on the same stalk. They are very large compared with the size of the other parts of the plant, are of a soft clear yellow colour, and last from a week to a fortnight in perfection if they are placed under conditions suitable to their preservation.

The species is not very liable to attacks of insects, but sometimes the scale affects a lodgment upon it, and should this occur, it must be carefully but promptly removed by washing with tepid water, repeating the operation until the plant is found to be quite clean. When it is required to effect propagation, it may be easily carried out by division.
Plate XXIX.

Lælia Elegans Wolstenholmei.

A magnificent epiphyllous orchid, with the general characteristics of Lælia elegans, from which it is distinguished by its larger size, and its peculiar colouring. The stems are erect and elongated, thickened upwards so as to become barrel-shaped. The leaves, two in number, are oblong and confluent. The flowers are upwards of seven inches across, five or six of them being produced in the raceme, which is terminal. The sepals are lance-shaped, spreading, white, with a pale purplish-rose margin. The petals are ovate-oblong, twice the breadth of the sepals, also white with a broad border of pale purplish-rose, which runs outwards where they narrow to the base. The lip is large, pendent at the base, where it is fold over the column, erect, wavy, and dentate; in front, marked with a broad blotch, which is continued down the disk towards the base, and has on each side a broad patch of white, while the interior and marginal portion is of a pale rose-purple, and marked with numerous deep purple veins.


"As Dr. Hooker," remarks Reichenbach, "when first describing this fine variety, "during his Himalayan expedition, from time to time discovered what he believed to be the most splendid Læholdendron of all—till he met with a much finer one, so in our Deyan correspondence we from time to time make out the most splendid Lælia elegans. Just now, we regard this one, the very best of all." We have not heard that this lovely flower has since then been noticed, unless, indeed, it be in the case of a variety to which the name of Marschallic has been given, and which is remarkable for the intense rich purple of its lip, and the pretty-veined purple petals. The present variety is named in compliment to Mr. Wolstenholme, the sister of John Day, Esq., who was the first to introduce and to flower it.

This lovely form of Lælia elegans ranks amongst the rarest and most beautiful of the many imported varieties of that fine but rareable species. The specimen which our artist has rendered so faithfully, we are enabled to figure through the kindness of W. Marshall, Esq., of Enfield, in whose rich collection it flowered under the care of Mr. Wilson. The plant is in no way different from the original species, as regards its growth and general habit, but in the colour of its flowers it differs totally from those of the usual form, as will at once be seen by a glance at our illustration. The individual flowers are very large and spreading, measuring upwards of seven inches in diameter. The sepals and petals are pure white, the former being tinted round the edges with purple, while the latter have a broad uninterrupted border of deep rose-lilac. The lip is large, white at the base, and deep rose-purple towards the front. The flowers are produced at various times during the year, but usually during the autumn months.

The Lælias comprise some of the most handsome plants which are to be found amongst the now numerous and varied species and varieties of cultivated orchids; and they well deserve the attention of all lovers of this highly interesting order of plants. They resemble the Cattleyas in many respects, and have been found to hybridise with them. The chief distinctive character between the two so-called genera consists in the number of their pollen-masses—a difference which is of so slight a character as to be a matter of little importance to the amateur.

Second Series.
The plant now under notice should be potted in a mixture of good fibrous peat and sphagnum moss. The drainage must be perfect, and the plants should be elevated above the rim of the pot. During the growing season it requires to be watered liberally, and the atmosphere kept well charged with moisture; but spraying must be avoided, because, when water is applied in this manner, it is very liable to lodge in the young sheathes, and if suffered to do so, it causes the stem-like pseudobulbs to rot. After the growth is completed, a season of rest will be found advantageous, but care must be taken that this is not carried to such an extent as to cause the newly matured growths to shrivel.

The principal insect enemy which this plant has to contend with is the white scale, which, however, may easily be kept in check by the frequent washing of the plants whenever these pests put in an appearance. Propagation is effected by division; but it will be found best to cut partially through the rhizome some time before the operation is consummated by the separation of the nearly divided portions.
PLATE XXX.

CYPRIPEDIUM VILLOSUM.

A handsome terrestrial orchid, of tufted habit, stemless, and producing numerous leaves, which are longer than the flower-scapes. Ligulate, acute, sharply keeled, leathery in texture, and everywhere green except near the base on the under side, where they are spotted with dull purple dots. The flowers, which emerge from eelate scapose, are abundant, each borne singly on a scape which is villous with purple hairs. The dorsal sepal is broadly-ovate, incurved, emarginate, with a blunt, villous keel, green, stained from the base upwards with lines and reticulations of dark brown purple; the antepetalum is smaller, epipetalous, of a pale watery green. The petals are spatulate, undulated, unequal-sided, notched at the apex, with a brown-purple median line, the lower portion greenish, the upper and larger portion rich warm brown with purple lines, the whole shining as if varnished. The lip is oblong, with two erect oblong basal lobei, pale dull yellow suffused with brownish purple. The staminal column is oblong, succulent, papillose, and bears near the centre a prominent smooth blunt horn-like tubercle. The column, as well as the petals, is suffused at the base. The ovary is shaggy with purple hairs.

Cypripedium villosum. Lindley, Gardners Chronica, 1854, 155; Edgeworth and Lodd, Penatarce, t. 48; Loddiges, D'Uillaitis Horticultura, t. 130; Sir Home, Flora of Serco, siv. t. 1475.

The native country of this fine species of Lady's Slipper is Mountein, where it was found by Mr. Thomas Lobb, at an elevation of 5000 feet above the sea, and by him it was sent to the Messrs. Veitch, who exhibited it for the first time at a meeting of the Royal Horticultural Society in 1854, and obtained for it the award of a Silver Knighten Medal.

Cypripedium villosum is a grand species of a remarkably interesting genus, and is worthy the attention of all lovers of orchidaceous plants, for not only is it extremely handsome and distinct, but it may be grown into a good specimen with very little trouble, and its flowers retain their full beauty for eight or ten weeks. In general appearance this plant most nearly resembles C. ensifolium, but nevertheless it is thoroughly distinct. The leaves are light green, flecked towards the base on the under side with dark spots, and measuring about twelve inches in length. The sepals are slightly shorter than the leaves, and bear each a single flower, which is about five inches in diameter, and has a glossy appearance, as if the surface had been varnished. The sepals and petals are of a rich brownish-brown, intermixed with light green and dark purple. The lip, purple-stained, is of that peculiar saccate, calcarate, or slipper-like formation which has gained for the genus the popular name of Lady's Slipper. The plant from which our illustration was taken, is in our own collection at Brownfield.

Cypripediums are invaluable as objects of ornament in the plant-stove, or orridium house, and no collection which at all aims at completeness should lack some few of the species. When grown in a house, the present plant forms a splendid specimen for exhibition purposes, blooming as it does through the months of April, May, and June. It requires to be grown in the East India house, but after the growth is completed, it may be removed to a cooler house if required.

The soil which from experience has been found best adapted for it is a mixture of rough fibrous peat, sphagnum moss, and a little silver sand. In potting, it should not be elevated above the rim of the smooth series.
pot, as is the custom with plants of this order which possess pseudobulbs. During the growing season
the plant requires a liberal supply of water; and as it requires but little rest, even during the winter
months, it must never be allowed to get very dry at the roots. *Cypripedium*, it must be remembered,
have no fleshy pseudobulbs to supply them with nourishment, and therefore they cannot bear up against
excessive drought without injury.

This plant is liable to be sometimes attacked by the scale insect, and also by a kind of red thrips
which speedily disfigures it. The former may be removed and kept in check by frequent washings of
soft-soap and water, and the latter by light fumigations of tobacco. When propagation is required, it
is effected by division of the roots.
Oncidium Verrucosum Var. Rogeri
ONCIDIUM VARICOSON ROGERSII.

A splendid new epiphyte, remarkable for the size and number of its large yellow flowers. The pseudobulbs are oblong-obovate, somewhat compressed, furrowed, and bearing from their apex a pair of lanceolate acuminate leaves, which are of a dark green colour, one foot long, and terminate in a mucron. The flowers grow in a large many-branched nodding panicle, which sometimes consists of as many as 170 flowers, and is supported on a stout scape, which issues from the base of the pseudobulbs. The flowers are very large, the lip being the prominent portion, and of a clear bright yellow colour; the sepals are small, the lateral ones connate (whence this plant comes into the group Tetrapetalae), yellow, with brownish-red bars; the petals are also small, and of a similar colour to the sepals; the lip is very large, with two smaller ear-like basal lobes, erect in front, and a very large reniform anterior lobe, which is notched along the front margin into four blunt segments; the colour is a pure bright yellow, with a few transverse bars of red-brown on the constricted base of the middle lobe. The everts of the lip are smaller in this variety than in the type. The column has oblong connate white-coloured wings.

ONCIDIUM VARICOSON R. ROGERSII, Reichenbach, fl., Gardeners' Chronicle, 1870, 277, fig. 48; Van Houtte, Flora das Serras, xvii., 119, with fig.; Moore, Florid and Ponsiologia, 1870, 25, with coloured plates.

ONCIDIUM ROGERSII, of gardens.

This noble species of Oncidium, which was introduced to this country by Dr. Rogers, of East Grinstead, Sussex (after whom the name Rogersii is applied to it), certainly proves to be one of the finest and most ornamental of the whole genus, as the accompanying figure abundantly testifies. From the hands of Dr. Rogers it passed into those of Messrs. Veitch and Sons, of Chelsea, by whom it has been several times exhibited in very fine condition.

The glorious flower-scenes of O. varicosum Rogersii, which, like O. varicosum itself, is a native of Brazil, are frequently three feet long and upwards. Hence, though there are many fine members of this genus now adorning our plant-houses, this will always take high rank amongst the most showy and beautiful. More especially will it be valued by those who love winter-blooming Orchids, for it is in the dull days of November and December that it puts forth its much-branched and many-flowered panicle of pure and brilliant flowers.

In regard to its general habit of growth, this plant resembles O. bifolium major, but it is much larger than that variety in all its parts. Its branched spike has been known to bear as many as a hundred and seventy flowers, each measuring nearly two and a half inches in diameter, so that it may readily be conceived what a gorgeous spectacle a well-grown specimen of it must present. The sepals and petals are small, the lip being the most conspicuous part of the flower; this is broad, flat, and spreading, with three deep notches in front. Though the plant in question is considered by Professor Reichenbach to be a variety of Oncidium varicosum, yet it is vastly superior to that species in every respect; indeed, nothing can be more effective when well grown than the magnificent spreading panicles which it produces so freely.
The genus *Oecidium* is one of the most extensive amongst cultivated Orchidaceous plants, its species being confined entirely to the Western Hemisphere, over which, both on the mainland and on the numerous islands, they are profusely distributed. The variety of which our illustration is a very faithful representation, flowered for the first time in Europe in the garden of its introducer, Dr. Rogers, in 1868, and subsequently, in the autumn of 1870, in the establishment of Messrs. Veitch and Sons, of Chelsea, who obtained Dr. Rogers' plant. We regret to know it is still extremely rare, though it thrives admirably, grown in rough fibrous pot, and suspended in a basket from the roof of the Cattleya House, that is to say, in a temperature during winter of from 65° to 70° by day, and 60° by night. During the summer season it will be benefited by a higher temperature, say from 70° to 85° by day, and 65° to 70° by night. Great attention should be paid to the state of the atmosphere, for, during the growing season, it enjoys abundance of moisture, while in winter very little will suffice.

Like all *Oecidium*, this variety is liable to become infested with the white scale insect, which, if allowed to increase, will soon reduce the plant to bad health. A strict surveillance should therefore be kept to prevent their effecting a lodgment. An occasional washing with warm water and soft soap will, however, be found a safe preventive against these pests. Increase is effected by division.
Cattleya Marginata.
- Laelia pumila.
LAELIA PUMILA.

A charming dwarf-flowered store epiphyte, of great beauty, remarkable for its richly-coloured and distinctly-margined lip. The stems or pseudobulbs are short, oblong, and slightly narrowed, each bearing a solitary leaf. The leaves are oblong, lanceolate, acute, of a deep green colour, and very thick texture. The flowers are solitary, rarely two together, from the top of the stem, and are large for the size of the plant. The sepals are oblong, acute, the upper one recurved, the petals broader, oval-oblong, bluish and somewhat wavy, both sepals and petals being of a deep purplish blue or maroon colour; the lip is oblong, with the sides rolled in over the column, whitish with a rich purple crimson blotch near the front, while the middle lobe is flat, rounded, emarginate, of a rich purplie crimson, with a narrow regular border of white. The column is two-curved at the apex.

Laelia pumila, Beekenbach fil., Van Houtte's Flora des Serres, p. 102.
Cattleya pumila, Hooker, Botanical Magazine, t. 3436; Lindley, Botanical Register, 1844, t. 5.
Cattleya marginata, of gardens.
Bella pumila, Beekenbach fil., Welters' Annals Botanices Systematics, vi. 421.

The Cattleya marginata of gardens, according to a statement of Dr. Lindley, made thirty years since, in the Botanical Register, is a Brazilian plant, which had been about that time imported from that country, and which had appeared under that name in the French gardens. The name was unexceptionable, since it indicated at once the chief peculiarity of the flower, namely, the well-defined and conspicuous border to the lip. It had, however, been previously named Cattleya pumila by Sir W. Hooker, and according to botanical law, this name must be adopted on the score of priority. Modern botanists have unanimously transferred the plant to the genus Laelia, a genus which includes within its limits species which produce some of the largest and most beautiful flowers found amongst cultivated Orchids, and though the species here represented cannot lay claim to rank amongst the largest-flowered of the Laelias, it will certainly hold its own when beauty is made the ground of comparison.

The plant is of a remarkable dwarf, close, and compact habit, seldom exceeding six or seven inches in height, so that it is never likely to become too large even for those who have the most limited space for the accommodation of their floral pets. It should always be grown upon a block of wood, surrounded with sphagnum, or in a small wooden basket, and be suspended from the roof. It is a Brazilian plant, and requires a considerable amount of heat and moisture during the growing season, but in winter a moderate supply of both will suffice. The winter treatment is, however, as we think, the rock upon which many Orchid growers founder. We have already indicated that it is a small and slender plant, and in consequence of this peculiarity of its constitution it cannot withstand the drying off to which many of its relatives should be subjected, simply because its stems or pseudobulbs, have so little substance. Hence the necessity that it should be carefully nursed through the resting season, so that when again excited into growth it may produce flowering shoots, which cannot be the case, if the pseudobulbs are allowed to shrivel in the least degree during the winter.
*Lelia pumila* usually produces its flowers during September and October, though sometimes a little earlier, but always just before the growth is completed; and it lasts a considerable time in full perfection, if kept from damp.

The plant from which our illustration was taken bloomed in our own collection at Broomfield, and presented a beautiful appearance for several weeks. The species is grown under several different names in European gardens. We have ourselves met with it in various collections, bearing the names of *Lelia pumila*, *Cattleya pumila*, *Cattleya margiata*, and *Cattleya viscida*, these many names perhaps arising from the fact that it varies considerably in the intensity of its markings, though in all its forms it is exceedingly beautiful.

We have found this little gem to be very liable to the attacks of white scale, a pest which speedily works sad havoc amongst it. We therefore advise that a continual watch should be kept upon the plants, so that the removal of the insects by the aid of soft soap and warm water may be effected as soon as they make their appearance. If these conditions are followed, *Lelia pumila* will not be found more difficult to manage than its congeners, although from having been neglected, it has obtained, from some orchidologists, the character of a shy grower. It is increased by division, but there should always be a prominent eye to every piece, or the mere cutting the plant asunder will be simply destructive to the specimen.
PLATE XXXIII.

MASDEVALLIA VEITCHIANA.

A dwarf-growing cool-climate plant of extraordinary beauty, remarkable not only for the singular form of its flowers, but for their brilliant and almost indescribable coloring. The plant forms a tufted mass, with short stems, which support the fleshy bright-green leaves; these are linear-oblong, bluish, six inches long or more, and about an inch and a half wide, tridentate at the apex, and often attenuated towards the base. The flowers are numerous, from the base of the stem, solitary on slender erect stalks, which are bracteate at the upper part, the complection portion of the flower consisting almost entirely of the epicalyx divisions of the perianth, the petals and lip minute being enclosed in the mouth of the perianth tube. The sepals are connate below into a cylindrical tube, the upper or dorsal one broadly acute with a long lanceolate point, and the lateral ones larger, oblanceolate, and suddenly narrowed to a point. The colour is very brilliant and remarkable, described as a splendid sulphurine red, a portion of the surface being flushed with a rich velvety purple hue, attributable to the presence of innumerable coloured papillae in these parts in which the flesh of purple appears; the petals are small, liguliform, white; the lip also is small, violet, with a blackish-violet labellum at its apex; the column is three-toothed, winged, white with a few violet blotches.

MASDEVALLIA VEITCHIANA, Brotcherb. fl., Gardeners Chronicle, 1858, S14; Hooker fl., Botanical Magazine, t. 3739; Moore, Florist and Pomologist, 1870, 149, with coloured plate.

It is a curious fact that, in many instances, the first species of a genus which is introduced to our gardens, ultimately proves to be the most worthless from a decorative point of view. The genus to which the species which forms the subject of the annexed plate belongs, is certainly no exception to this rule, for we have long had such kinds as Masdevallia fensentrata, M. infrafolia, and M. civulia, in our collections; but their small flowers, and sombre colours, offered no great inducement to plant growers to add them to their collections, and consequently Masdevallia was not a popular genus; although for scientific study these were species equally valuable with their more gaudy and attractive relatives. As, however, it is to amateurs, who make selections from among the most charming species its study, that we chiefly address ourselves in these pages, we have much pleasure in now bringing under their notice this superb plant, the singular beauty of which, coupled with its extraordinary colours, baffle the skill of the most accomplished artist to reproduce them on paper.

Masdevallia are natives of the humid mountain forests of the Western Hemisphere. The fact that they have to be sent through the hot regions in their homeward journey, coupled with another fact, that they have no pseudobulbs to support them during their transit, has led to the loss of many fine new forms, which would now, otherwise, have enriched our Orchid houses. M. Veitchiana has been successfully introduced, and thoroughly established, and the only other wish we have respecting it, is to see it more generally distributed throughout the country. It has been said that the species now under consideration is the most beautiful of the whole genus; but lately we have had several dangerous rivals introduced, so that we must perforce be content to say it is one of the most beautiful, and certainly one of the largest-flowered of which as yet we have any knowledge.

The stem-like pseudobulbs are upwards of six inches in height, bearing each a large dark-green shining
coriaceous leaf, which is from four to six inches in length by about an inch in breadth. The scape, which is produced from the base of the leaf, is slender, erect, and about a foot high, bearing a solitary flower, which measures upwards of three inches in diameter, and the peculiar contour of which will be best understood by a reference to the accompanying illustration, which was taken from the original plant in the establishment of Messrs. Veitch and Sons, of Chelsea.

Meesotattia when first introduced, were placed in strong heat, a mistake which arose entirely from a want of knowledge of the peculiar conditions under which they luxuriate in a state of nature. The consequence was that they soon perished. But now that we have, happily, become better acquainted with their requirements, the various species and varieties of this genus have been found amongst the easiest of plants to cultivate. One thing, however, must be borne in mind, and that is, that they must not be allowed to suffer from dryness. They do not require a season of rest like many Orchids, but on the contrary will continue to grow all the year round, if a genial moist atmosphere is provided for them. This moisture should be produced by condensation, and not by deluging them with water from the syringe. The drainage must be kept in perfect working order, for the plants cannot suffer stagnant water or sour-soil to remain about them. They should be potted in a mixture of rough fibrous peat, and chopped sphagnum moss, which should be pressed moderately firm about their roots; whilst to keep the roots moist, and to present a pleasing surface to the eye, the soil in the pots should be covered with living sphagnum.

The insect enemies of Meesotattia are principally green and yellow aphis. These should be washed off carefully with tepid water. On no account should the plants be fumigated, as from experience we have found that the fumes of tobacco have a deleterious effect upon the majority of cool-house orchids. Slugs and small-shelled snails are, moreover, very troublesome enemies, and should be carefully searched for, caught and destroyed.

The usual blooming season of this plant is in the autumn, and if it be kept free from damp, the flowers last a considerable time in full perfection; but we have also seen it flowering in the months of April and May, when it forms a splendid object for exhibition purposes. It is a native of the Cordilleras of Peru.

Meesotattia are increased by division of their stem-like pseudobulbs, but a young shoot or leading growth should be left to each division, or little will be gained by the operation.
Lélia anceps Dawsoni.

A charming store epiphyte remarkable, as a variety, for its white flowers with a very richly-marked lip. It has oblong-cuneate pseudobulbs, like those of L. anceps, but somewhat more cylindrical in outline. The leaves are dark green, oblong-lanceolate, coriaceous, resembling those of L. anceps. The flower stem is from two to three feet long, and bears two to more than two large showy flowers, resembling in form those of the type. The lanceolate sepals and broad ovate petals are white, also the lateral lobes which envelope the column. The lip on the inner surface of the side lobes is yellowish, marked with rich crimson lines radiating from the disk, and has the usual yellow callus on the disk, the front portion being undulated and recurved, purple towards the extremity, but with a distinct margin of white.

Plates XXXIV.

Lélia anceps Dawsoni.

This Lélia, which is one of the most beautiful introductions of modern times, bloomed for the first time in Europe in the magnificent collection of the late Thomas Dawson, Esq., of Meadow Bank, near Glasgow, to whom it was therupon dedicated, and whose memory, as a most enthusiastic and munificent orchidophilist, the publication of this figure may help to perpetuate. The plant is native of Mexico, and was found in 1865 by Mr. Low’s collectors near Inguila, at a high elevation, about 150 miles from Oaxaca, in a barranca sheltered on all sides by mountains, on rocks by the side of a running stream, a locality which was remarkable for the extremes of temperature, being very warm during the day, and very cold at night. Very few plants of it were discovered.

The specimen from which our illustration is taken, bloomed in our own collection at Broomfield, and was much admired by all who saw it. The variety differs in no respect from the normal state of the species, saving in the colour of its flowers, and these, it will be seen at a glance, are totally distinct. Like its prototype, the plant blooms during the dull months of December, January, and February, and is on this account invaluable to those who love chaste winter flowers. The blossoms last some three or four weeks in full beauty, if they are not sprinkled with water from the syringe; on the other hand, we do not advise that orchids when in flower should be kept in too dry an atmosphere, because they are apt to shrivel up, while the moisture which falls upon the flowers through condensation does not injure, but appears rather to benefit them.

The flowers are produced several together on long stems, and are thick and waxy in texture. The sepals and petals are pure white. The lip is white externally, but within the white ground is streaked with radiating lines of purple, the centre or disk being ornamented with ridges (calli) of bright yellow, while towards the front it is stained with rich purple, as well as margined with white.
*Laelia Drucei* may be either grown in a pot, or upon a block of wood. We, however, prefer the former. The soil should consist of sphagnum moss, and rough fibrous peat, from which the finer particles have been removed, and to which a little sharp silvver sand has been added. The pots require to be well drained, and the specimens firmly potted. The plant succeeds admirably in the Cattleya House, and should receive similar treatment to that which we have before recommended for its various members, saving that it enjoys more than others a greater amount of exposure to the sun, during summer, and it may be removed into a cooler house when at rest, if it is desirable to retard its flowers.

If neglected, the plants will become infested with both white and brown scale, but occasional washings with soft soap and tepid water will keep them free from such pests.
A strikingly distinct and effective stover epiphyte, forming a distichous tuft of leaves, among which appear the large and remarkable brown and yellow flowers. The plant is subcaulescent. The leaves are oblong ligulate acute; distichous, a foot long or more, with roots protruding from between the lowermost. The flowers are three inches across, and grow singly from the base of the peduncles about half the length of the leaves. The sepals and petals are nearly uniform in size, form, and colour; they are triangular-oblong, acute, the thumb yellow with some brownish markings; the two petals having in addition a large dark-brown radiating blotch at the base. The lip is clawed, trowel-shaped, white in the lower half, dark dull brown with darker spots in front, the claw bearing a transverse semilunar two-lobed white margin, cut into incurved setiform dark purple teeth. The column is white tipped with green, hooded, with a dorsal keel, the margins and narrow wings jagged.

Batemannia Burth, Endres and Reichenbach fl., Gardener's Chronicle, 1872, 1091; Hooker fl., Botanical Magazine, p. 495.

This very remarkable plant, belonging to a genus which we have not previously had the opportunity to illustrate, is a native of Costa Rica, where it was discovered so long since as June, 1867, by Mr. Endres. At first Professor Reichenbach, to whom specimens were sent for examination, regarded it as a variety of Batemannia versteegii, but the materials subsequently obtained led him to adopt the opinion of its discoverer that it had full claim to rank as a species. As a garden plant, its great beauty and thorough distinctness of aspect and character will render it welcome to all.

The plant from which our figure was taken, flowered in 1872, in the choice and valuable collection of W. Burnley Hume, Esq., Winterton, to whom we are indebted for the opportunity of introducing it amongst our illustrations of selected orchids. Hitherto the plant would seem to have formed no pseudobulbs or stems. The leaves are arranged in a distichous manner, and vary from twelve to fifteen inches in length, and from one to two inches in breadth. The flowers are produced singly, upon erect peduncles, and measure about three inches in diameter; they are thick and fleshy in texture, attractive in colouring, and last for a considerable time in full beauty.

The species which constitute this genus have from time to time been placed in other genera, such as Urticaceae, Agrostophyllum, etc., and from which indeed they do not differ materially in general appearance. The majority of them succeed best under cool treatment; but the species now before us, which is a native of
Costa Rica, thrives best when placed at the warmer end of the Cattleya House. The soil should be good fibrous peat; and although it is a plant which delights in an abundant supply of water, none should be allowed to remain stagnant about the roots; the drainage must consequently be kept at all times in a thoroughly efficient condition.

*Batesiana* is not peculiarly liable to the attacks of insects, but like all orchidaceous plants it is rare to become infested with scale, unless due and careful attention is given to washing it with tepid water and soft soap.

It is at present a very rare plant in collections, but where thought desirable it may be increased by division, the best plan being to allow the eyes to swell up after the stem has been cut through, before the plant is further disturbed.
CATTLEYA EXONIENSIS.

A magnificent epiphyte, of hybrid origin, remarkable for the rich colouring of its lip. The stems or pseudobulbs are terete and somewhat club-shaped, terminating in a solitary oblong ligulate and fleshy leaf. The inflorescence consists of an erect raceme of four or five large and strikingly beautiful flowers. The sepals are ligulate-lanceolate, plane, recurved at the tip, and the petals are broad, ovate-oblong, attenuated at the point, elegantly undulate and frilled at the edge, both being of a delicate blush tint. The lip is ovate at the base, the lower indented part deeply streaked with yellow and lined with crimson, the orange-yellow being continued as far as the mouth of the folded portion, the large front lobe expanded, and charmingly fringed and waved, its apical half a rich purple-blood crimson, with a distinct border of white, while between the crimson and the yellow is a transverse band of white; the silky-coloured front portion of the lip is moreover distinctly marked with darker lines, and has a velvet-like surface.

This is one of the most beautiful of orchids, a hybrid variety of garden origin, having been raised by Mr. Dominy, in the establishment of Messrs. Veitch and Sons. It was obtained by crossing Cattleya Musae with Ladie preparata, the latter being the pollen parent; and charming as these two fine orchids are known to be, it is not too much to say that the progeny fully equals, if it does not excel, them, while it is abundantly distinct from either.

The genus Cattleya has of late years become one of the most popular amongst cultivators of orchidaceous plants, and deservedly so, since it contains a vast number of species and varieties the greater portion of which produce large and richly-coloured flowers. Another consideration which has, no doubt, been influential in their favour, is the fact that many of them are amenable to cool treatment, and may be successfully grown under the shade of vines, so that amateurs, who have a vineyard at their command, may, with a little care, not only enjoy the beauties of these showy flowers, but in addition secure overhead a fine crop of the most luxuriant grapes.

The plant, of which our illustration affords an excellent picture, flowered in the establishment of Messrs. Veitch and Sons, of Chelsea, to whom indeed, as above stated, we are virtually indebted for its introduction, since it is a garden hybrid, raised in their nursery. Certainly it yields to none of the imported species or varieties in the richness and delicacy of its markings. The flowers are freely produced, and are very large; the sepals and petals are broad and of a soft rose-line colour; the lip is much enlarged in front, and of an intense rich velvety purple-crimson, whilst the throat is streaked with soft golden yellow. It blooms at various seasons, but mostly during the autumn and winter months. We saw a magnificent example of this plant in the fine collection of the late Thomas Dawson, Esq., of Meadow Bank, near Glasgow, where, under the care of Mr. Anderson, it was flourishing in robust health, and had upwards of sixty of its superb flowers expanded at one time.
Cattleyas, with but few exceptions, thrive best under pot-culture, and require abundance of drainage. The soil should consist of good fibrous peat, from which all the loose material has been shaken out; to this should be added a small portion of chopped sphagnum moss; the whole should be pressed together firmly, and the plant elevated upon a little cone of soil, an inch or two above the rim of the pot. During the growing season Cattleyas enjoy a nice moist atmosphere, and with a moderate supply of water to the roots the use of the syringe may be dispensed with, except that on hot summer evenings slight syringings may be advantageously given with a syringe having much smaller apertures than those usually employed—so small indeed that the fine spray may fall on the leaves in the form of heavy mist rather than as fine rain. When the growth is complete, the plants should be subjected to a season of rest, by withholding water and lowering the temperature, but this treatment should not be carried to an extreme, or their constitution will be greatly injured, and instead of starting vigorously into growth, they will be found to push out weakly shoots. This drying off should not be continued if the slightest appearance of shrivelling, either in the pseudobulbs or leaves, sets in.

Cattleyas are subject to the attacks of white scale and red thrips, which, if allowed to accumulate, will speedily disfigure their foliage. The former may be kept away by frequent washings or spongings with tepid water and a little soft-soap; whilst upon the first appearance of the latter the infected places should be dusted with tobacco-powder, and the plants should be carefully examined and washed daily until the last thrips is exterminated, for nothing so thoroughly disfigures the plants as this last-named pest.

Increase is effected in the usual way by division, care being taken that the dividing process is not carried to excess.
RENANTHERA COCCINEA.

A splendid stem epiphyte, of the Vanden group of Orchids, remarkable for its root-bearing and distichously-leafy stems, and its panicles of rich blood-red flowers, of a savour orange on the outer surface. The stems is nearly as thick as one's little finger, tall and slender, adhering by its thick whitish silky roots to any supporting body. The leaves are lanceolate or linear-oblong, narrow, oblique and emarginate at the apex, and having a keeled midrib. The flowers grow in panicles of which each from the sides of the stem amongst the leaves—not from their axils, the scape supporting it being glabrous, and the panicles themselves more or less branched, and bearing many large showy flowers. The lateral sepals are broader than the dorsal one, clawed, subacute and bluntly base-shaped, of a much deep, but dull orange-red, marked with maroon-violaceous; the upper sepal, with the petals in narrower, of a lance-ovate form, slender, marked with yellow bands; while the lip, which is much smaller and sessile, has a conical crimson erect spur near the base, the anterior portion being three-lobed, with the lateral lobes truncate, yellow, streaked with scarlet, and the middle lobe linguaform and reflexed, scarlet, with a patch of yellow at the base. The column is subliminiate, not winged, orange-red, marked with yellow, with sub-terete red anthers, and two sub-globular pollen masses, which are two-lobed behind.


This plant is now an old inhabitant of our Orchid-houses, having been introduced to this country about 1816. It is familiarly known amongst orchid growers as the Chinese Air-plant, which name has led many amateurs to regard it as a native of the Colonial Empire, instead of which it is really indigenous to Cochinchina, a country which any enterprising collector would find it worth his while to explore, as it contains many fine plants which would prove extremely ornamental in our European hothouses. The Renanthera is, however, no doubt cultivated by the Chinese, as Sir W. Hooker mentions having himself received fine specimens from Canton, and adds that a very faithful representative of the plant occurs amongst a set of Chinese drawings received from another correspondent at the same place. In this country it was first flowered at Clarendon, in 1827.

Renanthera is a genus very nearly allied to Vanda, its chief distinction consisting in its having a jointed lip, with the spur in the middle, instead of the lip being adherent with a succate base. There is also greater inequality in the size of the sepals and petals.

The species now under consideration is a plant of rapid growth, and, it must be confessed, of a somewhat straggling habit; but as it produces great quantities of aerial roots from its stems, it may be cut down without the slightest injury whenever it becomes either too tall or unsightly from the loss of its bottom leaves, and thus treated it may be easily kept within the limits of even a small house. The stem is terete. The leaves are arranged in a distichous or two-ranked manner, and are about five inches in length by an inch in breadth, linear-oblong, emarginate at the apex, and coriaceous in texture. The flowers-spike, which is produced from amongst the leaves, becomes a much-branched and many-flowered panicle. The individual flowers measure upwards of two inches in diameter; the dorsal sepal and the petals are somewhat narrow, with a ground colour of deep red, slightly marked with yellow, while the sepals are broader than the petals, and spathulate, deep scarlet; the lip is small, the side lobes and front of its middle lobe deep crimson, and the basal portion of the middle lobe white. The specimen which Mr. Hitch has here so faithfully repre-
Muled, flowered in the Victoria Nursery, Upper Holloway, during the past season; its first flowers opened in the month of February, and it continued in full beauty for upwards of three months.

Although extremely beautiful when in flower, and lasting in perfection for such a length of time, it is a plant not looked upon with much favour by the majority of orchid growers. This is probably to be accounted for by its having gained the character of being a shy bloomer—a character the truth of which we are bound in some degree to admit. Nevertheless, it takes up such a small space in the Orchid-house, and is so beautiful withal, that the patience of those who cultivate it is amply repaid for any length of time which may elapse before the desired aim is attained.

Moreover, there are conditions under which it flowers freely, for a splendid example growing in the great conservatory at Chatsworth has, we are informed, not been out of blossom for the last four years. There it seems to exhibit a preference to grow on birch stems. Probably, like some well-known climbers, it requires age and development to enable it to flower freely.

The general treatment required by this plant differs but little from that laid down by us previously for the cultivation of Vanda tricolor or V. laevispin. It should be potted in good living sphagnum moss, the pots having been previously well drained; and during the summer season it must be treated liberally to water, both from the watering-can and syringe. It revels in strong heat, and on account of the leathery texture of its leaves, it can withstand with impunity more exposure to the sun’s rays than the Vandas previously named. During winter little or no water should be given to it, unless it show signs of distress by the shrivelling of its leaves; a condition to which, in our opinion, no orchidaceous plant should ever be brought, for when such symptoms set in there can be no doubt that the plants are losing vigour daily, and weakly growth, at the very least, must follow. Our maxim, therefore, is always to give this plant a thorough rest, but not to carry the drying off to such an excess as to exhaust the system and bring about the shrivelling of the foliage.

We have found this plant peculiarly free from the attacks of insect enemies, but occasionally the red thrips and the scale will seize upon it, and speedily render it an eyesore. Upon the first appearance of either of these pests the affected parts should be washed with a weak solution of Giburet compound. This material, though very strong, may be applied to this plant without risk, on account of the leathery texture of its foliage, but there are very few members of this order to which we would advise its application.

Bromelia coccinea may be increased by division of the plant, and also by cutting the stems into pieces, whilst if a prominent eye or young shoot accompany each piece, the process is rendered both quicker and more certain.
PLATE XXXVIII.

ODONTOGLOSSUM VEXILLARIUM.

A neat ever epiphyte of remarkable beauty, belonging to the Vandenhoff group of Orchids, and especially notable for the large size of its charming soft rose-colored flowers. The plant belongs to the pseudobulbs class, the pseudobulbs being narrowly oblong and compressed, and from an inch and a half to two inches high. The leaves are about a foot long, narrowly elliptic-lanceolate, keeled at the back, cuneate at the base, and with an acuminate apex. The scape is slender, longer than the leaves, several being produced from the axils of the leaves which surround the young pseudobulbs: they support racemes of three or four very large blossoms, four inches long, with the petals spread out quite flat. The sepals are nearly equal, obvolute, coloring sooner or later, somewhat recurved, of a deliicate rose-color, paler at the edge. The petals, which are sometimes larger sometimes smaller, are of nearly the same form as the sepals, but more acute, and of a deeper rose, but also with a pale margin. The lip is very large, flat, rounded in outline, deeply two-lobed in front, narrowed to a claw at the base, where it is extended into a pair of ovate acute ascending lobes; it is suffused with deep soft rose, paler at the edge, the base being white and pale yellow streaked with red; it bears a small two-lobed calex at the very base, close to the short wingless column.

ODONTOGLOSSUM VEXILLARIUM, Reichertich flor., Ortofrezii Chron. 1887, 501; 1872, 607, with woodcut: 113. 1873; 500, 644, fig. 1873; Becker fl., Botanical Magazine, t. 6087; L'Illustration Horticole, third series, t. 115; Flore des Serres, t. 2058.

Numerous as have been the additions during the past few years to this now popular and very extensive genus, the fact that such a splendid species as the one now under consideration should have remained unknown to the horticultural world until last year is a sufficient proof that we have by no means exhausted the store which nature has provided for our enjoyment.

Odontoglossum vexillarium has been called the queen amongst Orchids, and certainly its beauty places it in the highest rank amongst those regal plants. It is a native of New Grenada, whence so many fine ornamental plants have been derived, and appears to have been first found by the late Mr. Bowmann; it was subsequently sent to Europe alive, but in a dying condition, by Mr. Wallis when collecting for Mr. Lindley; and next, also in a moribund state, by Mr. Reed; finally, the Messrs. Veitch and Sons, of Chelsea, received a supply of living plants through their collector, Mr. H. Chesterton; and it is from the plants so obtained that the first flowering specimens were exhibited. It has also bloomed splendidly in the fine collection of T. Brunton, Esq., The Fens, Beckenham, under the skilful treatment of Mr. Henley, with whom this species together with the whole of its confiror thrive admirably. The pseudobulbs are somewhat oblong and compressed, attaining a length of from one to two inches, or even more in vigorous examples. They bear narrowly lanceolate leaves, which vary from six to twelve inches in length, and are pale green in colour. It will thus be seen that the plant now under notice is a somewhat vigorous grower. The flower-scape is longer than the leaves, and bears several flowers, which are white, suffused with soft deep rose both in the sepals and petals, as well as in the large two-lobed lip. In general appearance the flowers very much resemble those of some Miltonia, and they are assuredly the largest of any known species of Odontoglossum.

Our Illustration represents the best variety of this charming plant as it was flowered, in 1873, by S. Becker, Esq., of Wandsworth.

Like all the rest of the genus, it is a mountain plant, for as far as we are aware, none of the numerous Odontoglossum have been found at a low elevation. The species now under consideration luxuriates in various places on the western slopes of the Andes of New Grenada. Nevertheless, we have
found that in cultivation the plant thrives better when treated to a slightly warmer atmosphere than is usually given to such kinds as *O. Alexandra*, *O. Penatoloe*, etc., in which respect it resembles *O. Phalenopsis*, to which latter it is also without doubt very closely related.

The soil for its cultivation should consist of good fibrous peat and sphagnum moss in equal parts. We always surface our *Odontoglossum* with living sphagnum, which not only presents a neat, clean, and pleasing appearance, but the moss, if kept in a growing condition, always maintains a nice genial moisture to the roots, which are sure to be found spreading through it. One of the close-growing compact species of sphagnum, which holds water like a sponge, is the most suitable if it can be obtained.

*Odontoglossum vexillarum* does not appear to have any peculiarity in the way of disease or in regard to the attacks of insects, but, like all others of this genus, it is liable to the intrusion of yellow fly, and these must be carefully washed off with clear water, which should always be of about the same temperature as the house. Above all things it should be borne in mind that tobacco smoke is highly injurious to all the members of this genus.

It may be propagated by division, but care should be taken to have a prominent eye upon each piece, or the result of dividing the old tufts may be a decrease rather than an increase.
A magnificent epyphyte of the Vandaous group of Orchids, forming a well-marked variety of one of the most striking species of its genus. In the type the stem is stouish and root-bearing, and possesses its linear-terete channelled leaves in a dark-brown or two-ranked manner. In this variety the leaves are strongly ribbed, and condensed and obliquely closed at the apex. The comparatively large, numerous, and handsome flowers grow in drooping racemes, and are supported on long elevate ciliated columns, which resemble flower-stalks. The sepals are obvate, narrowed to the base, undulated at the margin, white at the back, rich yellow on the face, with blood-coloured spots and streaks. The petals are somewhat smaller, with nearly the same form, and of a similar colour to the sepals. The lip, which, like the other parts of the flower, is thick and leathery, is about as long as or longer than the sepals, oblong-elliptic, occasionally linear, being three-lobed, with the side lobes rounded, and the middle one oblong, convex, and somewhat dilated and crumpled at the apex; it is of a purplish rose, paler and becoming white at the base, the disk marked with elevated lines and streaks. The column is short and stout.

**VANDA TRICOLOR WARNERI.**

This is a very beautiful variety of a well-known and charming species of _Vanda_, the varieties of which are somewhat numerous. They all, however, have their admirers, for whilst it is the peculiar colouring in one form that captivates the eye, in another it is the broad petals and bold individual flowers; and thus it happens that between them the peculiar tastes and fancies of each and all are gratified.

The variety which we now have the pleasure of figuring, and which is a native of Java, is from our own collection at Brownfield, where it is a great favourite, since it may not only lay claim to the possession of great beauty, but also flowers most profusely, while its blossoms are not spotted with sprinklings, from the foliage it remains many weeks in full beauty. This latter peculiarity not only enhances its value as a home decorative plant, but at the same time renders it extremely valuable for exhibition purposes. It may be distinguished from all its congeners by its peculiar ribbed leaves, and by the distinct markings of its flowers, which are admirably depicted in the accompanying illustration.

The great influx of American Orchids during the past few years has had somewhat the effect of pushing out of notice the delicious East Indian kinds. We are, however, able to observe that the excitement is now in some measure abated, and Orchid growers are again returning to their old loves. Indeed, without wishing for a moment to depreciate any of the lovely plants of the Orchid family, or to set up one class in rivalry to another, we cannot but understand why this truly ornamental section of Orchids should ever have fallen into disrepute. Independent altogether of their lovely flowers, the long arching deep green leaves of the _Vandas_, render them splendid ornaments to the plant stew, and the same remark will apply to most of the species of _Sceololidiuas_ and _Ardena_.

We have already remarked that the variety now under consideration is a profuse bloomer. It will, moreover, recommend itself the more surely to all lovers of these noble plants from its succeeding for better under a cooler treatment than is usually considered necessary to the well-being of East Indian Orchids in general, and those from the Indian Archipelago in particular.
In the cultivation of this, as indeed of all other orchidaceous plants which have no pseudobulbs to support them during the season of drought, care must be taken that the plants do not suffer from want of water. Less of this element is certainly necessary during the winter months, and the atmosphere should then be kept drier; nevertheless water must not be withheld until the leaves become flaccid, for when this takes place the bottom foliage is sure to fall off, to the disfigurement of the plant. It therefore behoves the cultivator of Vandas, whilst allowing them just to feel the influence of the dry season, to watch them very closely, in order to prevent any damage from this source to the symmetry of the specimens.

This plant may either be grown in a basket and suspended from the roof, or in a pot, in the usual style adopted for the various members of this order. We prefer the latter system, because it displays the graceful habit of the plant to the greatest advantage, whilst less care in nursing and less trouble are incurred, the plants being at the same time less liable to sudden changes.

The red thrips and the scale, more especially the former, if allowed to establish themselves, soon commit havoc upon the foliage of Vandas. Upon the slightest sign of the attacks of these insects, the thrips in particular, the plants should be taken out and carefully washed with soft soap and tepid water, and then the axils of the leaves should be dusted with tobacco powder; this operation must be repeated about every second or third day, until the pest is exterminated. We have seen fumigation recommended, but this when done in moderation we have never found to be successful, whilst when the house has been heavily charged with smoke, we have found it led to the loss of the bottom foliage, so that the remedy proved as bad as the disease; therefore it is that we think the washing and dusting with tobacco powder preferable. Should the scale attack these plants, they may be got rid of easily by washing the leaves with a sponge and soft soap, as before mentioned, taking care to dislodge all that can be seen.

If young plants are required, the offsets which spring from the base may be separated when they have made a few roots, the spring being the best season of the year in which to perform the operation.