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ODONTOGLOSSUM GRANDE.

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SCHREIB.

## THE ORCHIDACEÆ OF THE WESTERN HEMISPHERE.

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THE great natural order referred to in the heading of the present paper is one of the most striking and best defined of the various groups into which the vegetable kingdom is separated by systematists; it is interesting alike to the botanist, the cultivator, and the common observer, a combination of tastes rarely centred in a single family; and the more we know of the order, the greater becomes our admiration. It is easy to imagine the ecstasy of astonishment which must fill the mind of one who, for the first time, views a collection of these plants redolent of rich colours, singular forms, and fragrance; nor is the interest of the botanist altogether beyond conception, who, anxious to reduce the specimen to its proper station, overlooks its other beauties, and is wrapped in profound wonder at the extraordinary departure from prevailing rules which pervades the organs of his subject; but to see them in their native wilds, in unrestrained luxuriance and freedom, flinging their tortuous roots from the point of a jutting rock, overhanging the rapid cataract, with whose spray the flexile flower-branch appears to keep a constant play of sportive greeting; or snugly nestling in the forked branches of an old denizen of the tropic forest, the pendent flowers assume the form of some strange animal, alarmed by unwonted noises, from out its stronghold thrusts its misshapen head to eye the intruder; when thus seen, how deep the impression on an imaginative mind! the startled fancy forms associations betwixt animate and inanimate matter, the connecting link of which is furnished by these mingled forms, till absorbed in the amazing

vastness of such a study, the admiration of the creature is turned to adoration of the creative power.

In a cultural sense the order may be separated into two classes, founded on their geographical distribution, or those which inhabit the regions of the East, and those from America or the Western hemisphere; experience shows that to cultivate a general collection well, this division is absolutely necessary, for the difference in the leading features of the two climates is so great as to prevent the plants of the one thriving in that of the other. The regions whence Indian Orchidaceæ are obtained are remarkable for three distinct seasons in which the plants grow, rest, and produce their flowers; the first is distinguished by its great heat and excessive moisture, the next by a considerable reduction of both, and the third by an increased temperature over the last, but devoid of the aqueous character of the first. The climate of the western world, it is well known, is on the whole far more temperate, the seasons are alternately warm and moist, or cool and dry; the third period is unknown, and it is not a little remarkable, so admirably harmonious are the operations of Nature, that the Orchids of these regions, or the greater part of them, instead of growing, resting, and then flowering, produce their blossoms simultaneously with the new growths, and they are displayed either at the commencement of the seasonal action, or immediately it is complete; this renders their management far easier, as if a vigorous movement of the foliated parts can be secured, it follows, as a matter of course, that the flowering shall also be fine; while with the Indian species it is not only necessary to attain the utmost vigour in the plant itself, but through the long period of dormancy which follows, are all the chances of a premature excitement so certainly fatal to the development of flowers, and inimical to the plant's future progress.

It would be difficult to settle accurately which of the divisions may claim to rank as the most beautiful; a considerable difference exists in the general aspect of the plants, but each has its peculiar beauties; those from the Eastern hemisphere partake more fully of the arborescent character, many of them have woody stems, either erect or pendent, their leaves are more coriaceous, and the presence of pseudo-bulbs is less frequent than among those from the other quarter of the globe, but to say which have the

most beautiful flowers is more than we shall attempt, nor is it our province; the *Dendrobiums* and *Vandas* of the one are equalled by the *Cattleyas* and *Oncidiums* of the other, and so on through the list an equipoise may be found. As our illustration belongs to the western section, we propose to confine the following remarks to the culture of that portion of the order, and having premised that each should be kept separate and treated distinctly, we shall reserve the other class till some future opportunity. The average temperature of Mexico, Guatemala, and other regions whence American *Orchidaceæ* are obtained, may we believe be stated at  $60^{\circ}$ , and this we have found to be a very safe mean from which to work in their management; the variations on either side should not frequently exceed  $10^{\circ}$ ;  $50^{\circ}$  being regarded as the minimum for the plants in winter, or when at rest, and  $70^{\circ}$  or at most  $75^{\circ}$  for their most active growth; beyond this we would never allow the heat of the western house to ascend, without throwing it open on all sides to the exterior air. It may be well in this place to say something of the structures devoted to the culture of this tribe; it was at first supposed, from the frequency with which they were met in the depths of forests and other secluded places, that an obscured light was necessary to them; in cultivation, however, experience shows that the erections for these as for all other plants cannot be made too easily accessible in every part to the life-giving rays of the sun, that an abundance of this primary agent of vitality may ever be present through our dull winters, ample command being secured over it, that the excess of summer may not be prejudicial; span-roofed houses are on this account to be preferred, and the glazing should invariably be done with the best glass, for irregularities in its surface by concentrating the rays in the manner of a lens, not unfrequently disfigures the foliage of the plant beneath, at a time when only a comparative small amount of sunlight is observable.

In the apparatus for heating the atmosphere of orchideous houses, provision should always be made for a supply of vapour, that a dry or moist heat may prevail as occasion requires, a gradual and continued escape of vapour among the plants when in an active state is every way preferable to the scalding effects of the rush of steam, obtained by syringing on the pipes in the usual manner, that it ought always to be thought of when the fitting-up is in hand.

Two exterior blinds are also essential—a thin one to exclude the strong sunlight in summer, and a stouter one, which should be waterproof, to cover the roof and prevent evaporation in the cold nights of winter. These are easily made to roll up or down on the outside, and will greatly assist in the management: in fact, the summer blind is indispensable, and it is false economy to do without the other. With these appurtenances and the means of free ventilation, any house will grow Orchidaceæ.

One of the principal things to be attained, in order to simplify the management of these plants and render success more certain, is to adapt their seasonal action to the changes of our own climate; that is, to arrange their growing periods so as to have them in a dormant state through the worst of the winter, for recent growths at this part of the year are extremely troublesome to preserve at all, and never arrive at a vigorous condition. Every endeavour should consequently be made to induce the desired state of rest; for, unlike most other vegetation, the loss of a terminal bud, or “start,” as it is technically called, instead of inducing an increase of shoots, is in these plants a positive loss, for it is seldom they make another attempt to grow from the same pseudo-bulb, and thus those shoots, which, from any cause, are stopped in their progress, are as so many actually lost. An excess of damp in winter is a prolific source of this evil, nor will the utmost attention at all times preserve them; and hence the advantage of keeping the plants dormant till the increase of genial weather will assist their development. In the case of fresh importations, which arrive towards the close of the season, it would be judicious to allow them to remain in a quiescent state till the following spring, rather than hurry them into a futile attempt at growth, which neither their condition nor the season will warrant the hope of completing, unless, indeed, danger to their existence is to be apprehended from such long continued drought. As a general rule, it is greatly preferable to begin in a very cautious manner with plants of this kind; they may be trimmed and laid on a shelf at a cool end of the house, without earth or moisture, until signs of returning action are seen, when it will be quite soon enough to pot or otherwise dispose of them.

February is a good time to commence the active season among this tribe; they will readily respond to any increase in the

supply of moisture, and through it therefore are easily managed. About the middle or end of the month it will be well to look over the collection, and repot or basket such as may require the change. Those which grow and produce roots freely succeed in a mixture of turfy peat and white water moss, thoroughly mixed, but not broken fine, while others, more tardy in either respect, or of delicate aspect, are benefited by the addition of a third part of rotten wood. Charcoal, broken into pieces proportionate to the size of the specimens, is also to be recommended, either as drainage, or mixed with the body of the soil. The escape of superfluous water from the roots of the plants is a matter of the first consequence, and must always be amply provided for. The common practice is to fill two thirds of the depth of the pot with broken sherds, covering them with moss or the most fibrous portion of the peat, building the greater part of the soil required by the plant in a conical manner above the rim of the pot, and this is necessary where pots are used; but we have found it preferable to employ wide pans, which obviate the necessity of such a weight of drainage, and allow the roots more room for lateral extension.

Plants grown in baskets which are suspended are certain to be effectively drained, and therefore nothing need be said on that head; but those on billets of wood will require some protection at times to guard them from the opposite extreme. This is easily done by enveloping their roots with a thin layer of moss, to be removed when they are resting, and frequently examined, lest it encourage the accumulation of insects.

The spring management may be summed up in a few words. A gradually increasing supply of both heat and moisture are its leading features: from the minimum of  $50^{\circ}$  in February it should be cautiously advanced to the maximum of  $75^{\circ}$  in June, proportioning the supply of moisture in a corresponding manner from a gentle watering of the soil twice a week, or less, to a liberal allowance every day to each pot, syringing or dipping the blocks and baskets every morning, and the escape of steam sufficient to fill the house for three or four hours every evening.

In April will commence the principal display of flowers, when, for the sake of preserving their beauty, such plants as are blossoming may be removed to a cooler and drier situation, the greenhouse or sitting-room may receive them while the flowers

last, particular care being had that they are not placed where draughts of cold air may affect them, and that they do not suffer from want of water.

The above may be regarded as the outlines of the management through the most particular period of the year, and will bring the plants through the first stage of their advance; there are, however, a few which will require some little difference in their treatment from the body of the collection, which may be accounted for by peculiarities in their general character, the force of habit as induced by long-continued management, or if recent introductions by variations in the altitude of their native positions and other causes; but a little experience will soon show that it amounts to little more than a slight change in temperature, which may be provided by removal to the warm or cooler end of the house. Thus, for instance, the very splendid species from which our illustration is taken, *Odontoglossum Grande*, refuses to display its flowers if continued in the elevated temperature that would be beneficial to the majority of the collection, but requires to be taken to a cooler place soon after it has begun to grow, that it may have the opportunity of forming the flower buds which appear. When the pseudo-bulbs are about half grown, a fortnight or three weeks in the greenhouse at this period will invariably ensure their production upon healthy vigorous specimens, and as soon as they are discoverable in the sheathing leaves, the plant may be taken back to the stove, when the blossoms will advance with the new growths, and expand about the time the latter are completed. Some *Oncidiums* and their allies, the *Brassias*, are very apt to protrude a second shoot even before they have completely matured the first, to the certain prevention of their blooming. A low temperature, with little or no water, is the best remedy, and where the plants are known to be shy bloomers, should always be adopted about the period the embryo buds are or ought to be forming.

From April to July the major part of the collection will be in bloom, and the summer treatment should prevail; air may be freely admitted nearly every day, and if in quantity sufficient to agitate the plants, so much the better, providing the maximum temperature is maintained, and an extra supply of moisture at night is made available to the plants, in order to counteract the



drying influences of so much fresh air. Many of the flowering plants, from elevated or cool districts, as some of the *Lælias*, *Cattleyas*, &c., are positively benefited by being placed in the open air through the day, removing them back to the house at night; but in whatever situation they may stand, the whole must be carefully guarded from the scorching sun, or they are speedily disfigured beyond recovery. Through August and the two following months a considerable number will form a second growth, and where it is desired to increase the size of the plant, or the autumn is found to be the natural season for this development, every encouragement should be given, and the utmost endeavour made to get all the new parts perfected before the arrival of the dull weather of winter. In the case of established specimens, sufficiently large, and that have already made one additional growth in the beginning of the year, it is far better by withholding moisture to keep them dormant, than to risk the flowering of the next season by the immaturity of a late growth. Through the winter, the rule to be observed will be to keep those which have completed their accessions in a satisfactory manner quite dormant; and those which are still active, a state to be regretted, but not always prevented, gently growing, that they may not retrograde in the vigour of their shoots. It is necessary to remark that when once the excitability of a plant is aroused, it is very injudicious, or positively injurious, to attempt to check it; in such a case it is only left to determine whether the action shall be carried on quickly, or deferred by extending it very gradually, till a more promising season; the state of the plant and affecting circumstances must settle the point.

The propagation of orchidaceous plants is effected by the separation of the pseudo-bulbs; some kinds bear it to any extent, while others refuse it altogether. It is best, if possible, to have a terminal pseudo-bulb or recent growth to each piece, for there are some which never break again from the old bulbs. In any case each portion should be provided with active roots at the time of separation, especially if they belong to the arborescent class; they require no particular difference in treatment when divided beyond what will suggest itself on account of the reduction in the number of roots, or rather less water, till again well established. Propagation is best done when the plants are resting.

## A CENTURY OF WESTERN ORCHIDS.

The following species, if not positively the best known, are deserving a place in every collection :

Acineta <i>Barkeri</i> *	<i>Epidendrum aurantiacum</i>
<i>Humboldtii</i> *	<i>bicornutum</i> †
<i>Aspasia lunata</i>	<i>cochleatum major</i>
<i>Barkeria spectabilis</i> †	<i>crassifolium</i>
<i>Brassavola glauca</i> †	<i>macrochilum roseum</i>
<i>grandiflora</i>	<i>Schomburgkii</i>
<i>Brassia Lanceana</i>	<i>Skinnerii</i>
<i>Lawrenceana</i>	<i>Stamfordianum</i>
<i>maculata</i>	<i>Galeandra Bauerii</i>
<i>Wrayæ</i>	<i>Devonianum</i>
<i>Broughtonia sanguinea</i> †	<i>Gongora maculatum</i> *
<i>Catasetum barbatum</i>	<i>Govenia superba</i> *
<i>cernuum</i>	<i>Houlletia Brocklehurstiana</i>
<i>maculatum</i>	<i>Huntleya meleagris</i>
<i>tridentatum</i>	<i>violacea</i>
<i>Cattleya Aclandii</i> †	<i>Lælia acuminata</i> †
<i>candida</i>	<i>anceps</i>
<i>citrina</i> †	<i>autumnalis</i> †
<i>crispa</i>	<i>cinnabarina</i> †
<i>guttata</i>	<i>majalis</i> †
<i>Harrisoniæ</i>	<i>superbiens</i>
<i>intermedia</i>	<i>Leptotes bicolor</i>
<i>labiata</i>	<i>Lycaste aromatica</i>
<i>Mossiæ</i>	<i>eruenta</i>
<i>Skinnerii</i>	<i>Skinnerii</i>
<i>superba</i> †	<i>Miltonia candida</i>
<i>Chysis lævis</i> *	<i>Clowesii</i>
<i>Cirrhea viridi-purpurea</i>	<i>spectabilis</i>
<i>Warreana</i>	<i>Odontoglossum Cervantesii</i>
<i>Coryanthes macranthum</i> *	<i>grande</i>
<i>Cychnoches chlorochilum</i>	<i>Insleyi</i>
<i>Loddigesii</i>	<i>pulchellum</i>
<i>Cyrtochilum maculatum</i>	<i>Oncidium ampliatum major</i>
<i>Cyrtopodium Andersonii</i>	<i>crispum</i> †
<i>punctatum</i>	<i>divaricatum</i>

Oncidium flexuosum	Rodriguezia secunda
Lanceanum	Scutecaria Steelii
leucochilum	Sobralia macrantha
luridum	Sophronites cernua†
ornithorhynchum	grandiflora†
Papilio	Stanhopia grandiflora*
pulvinatum	insignis guttata*
pulchellum†	Martiana bicolor*
triquetrum†	oculata vars*
Phajus albus	tigrina*
bicolor	Wardii*
Wallichii	Trichopilia tortilis
Promenæa Rollisonii	Zygotetulum crinitum
Stapeliodes	Mackayi
Rodriguezia planifolia	rostratum

Those marked \* should be grown in baskets suspended from the roof of the house; and those † will be found to succeed best on billets of wood also suspended; the remainder may be potted.

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#### WEST KENT PHILANTHROPIC SOCIETY OF GARDENERS.

THE usual monthly meeting was held at the society's room, Lewisham, when the following paper was read—on the Cultivation and Management of the Verbena—by Mr. Fry.

Few plants deserve more attention as a truly useful ornamental summer-flowering plant than the one on which I am about to treat; the variety of pleasing colours in the flowers, their profusion, and the length of time they continue to bloom, combined with their easy management, render them deservedly popular. In fact no garden, however limited its pleasure-ground department, can be considered complete where they are not seen to luxuriate. Within the space of a few years some rapid strides have been made with reference to their improvement in point of colour, size of the truss, and form of the individual flowers; yet, nevertheless, it requires some judgment in selecting those most worthy cultivation from the vast number thrust before us by the raisers. It will not do in the present day to purchase

everything we see advertised in the horticultural journals, for if we do we may most assuredly expect to meet with disappointment, having myself given five shillings for plants not worth the room they have occupied. Thus it proves to one the wise policy of having, as it were, ocular demonstration previous to making a purchase.

The varieties we have in cultivation differ materially as to their habit and mode of growth, where there is one that is well adapted for grouping in geometrical flower-gardens, we have ten of the opposite; so that as a matter of course our object should be to select those the most suitable to the purpose for which they are intended.

It so happens that the more delicate growing sorts are amongst the very best for systematical arrangement, both as regards colour and habit; in a collection this ought to be particularly attended to, for unless they are judiciously arranged, the desired object is not obtained, but completely lost, the whole assuming an unsightly appearance rather than a pleasing effect. Such as the following, in my opinion, may be classed with the very best for bedding.

Atrosanguinea, rich blood red; Ignea, very bright scarlet; Duchess of Sutherland, blush, deep rose spot; Favourite (Miller's) bright rose (good); Emperor, crimson, clear white eye; Emma, rich purple; Merry Monarch, scarlet, rose margin; Giant, lavender, strong grower; Boule de Feu, brilliant orange scarlet; Tricolor Alba, rather a strong grower; Amethystina, blue lavender, rather delicate; Avalanche, Princess Royal, and Queen, are all good whites; Ingramii, rose, with dark centre; Rose d'Amour, fine deep rose; Hendersonii, dark; Wonder of Scarlets, perhaps the best of deep scarlets; Josephine Beauharnaise, fine blue.

There are others perhaps equally as good as the above, indeed some of their trusses may be finer (for instance, "Beauté Suprême" when in good condition), but are too rambling in habit to form nice compact beds of bloom in a well-arranged flower-garden. Where they are grown for exhibition, many I have not enumerated will be found indispensably necessary, and which may be grown in the borders singly; I would here observe that where "Verbenas" are shown they ought to be exhibited as single trusses of bloom, and not bunched up like a bouquet, as

is the common practice, and which bespeaks but very little judgment or merit. Indeed, under these circumstances, their bona fide properties cannot be defined by the censors, and thus the system ought to be repudiated.

The propagation of this charming little genus is so simple and so readily performed, that it would seem almost superfluous on my part to offer any remarks relative thereto, but as there are various modes of accomplishing one and the same object, and from the many one invariably proves preferable to the others, I tender the following as the best so far as my experience is concerned. It not unfrequently happens that after Verbenas, especially the free-flowering sorts, have been blooming through the summer, that it is rather difficult to obtain free-rooting cuttings at the season when they are required for a supply for the subsequent spring, for oftimes in the autumn they are subjected to mildew, and again their shoots are, comparatively speaking, dry, and not in a condition to root very freely, and if they are struck after a late growth they are apt to go off through not being able to resist the damps of winter ; thus experience teaches us the best way to avoid these evils is to strike somewhat early whilst the plants are in a free-growing state ; by this practice the plants become established and are wintered with very little difficulty.

But in my opinion in those establishments where early forcing is carried on, or where artificial heat can be commanded at all, it is much the best to propagate in the spring months ; these with due care generally make the best stuff for turning out.

I am not an advocate for gardeners becoming nurserymen, but I think no place ought to be without a convenient structure for propagating, as some thousands of plants are required even in ordinary-sized pleasure-grounds, many gardeners are often puzzled to know what to do for a supply adequate to the space they have to fill, and to perform this operation in those pits, frames, &c., in which permanent crops are growing, frequently subjects them to much inconvenience. But supposing circumstances to be favorable, the cultivator having ample means for propagating in the spring, he only requires a few established plants to winter through for the above purpose, as from one strong plant fifty may be obtained in a very short time ; this is a

consideration, as the plants, houses, pits, and frames need not be so much crowded; consequently it admits of a better circulation of air at the season when it is most required. I would recommend about the month of June or July to turn out in some open border or spare piece of ground a plant or two of those varieties worth cultivating, from two or three feet apart, keeping them well watered in dry weather, and free from weeds; at the end of August layer the shoots into three-inch pots, plunged about the plants and filled with good light loam of free texture, let each shoot be kept in its proper place by inserting a small peg or placing a stone on the same; by adopting this simple mode of treatment anon, you have good plants, as the most delicate will thus root freely and make fine healthy plants, the only attention required being to water and stop the shoots as they grow; these being thoroughly established may be wintered with little difficulty, and may be increased to almost any extent in the spring, giving them a shift into five-inch pots at the time of their transition into a higher temperature. Never let them become soddened at any time, especially when in small pots in the autumn.

In potting off the cuttings in spring, two may be placed in a three-inch pot, to be separated when turned into the beds where they are to bloom. After they are potted off from the cutting pot or pan, and somewhat established, expose them as much as possible to induce a sturdy growth. In the autumn and most part of winter, through the density of the atmosphere, more particularly where free ventilation cannot be given, mildew may probably make its appearance; should such be the case, and the plants be in cold frames or pits, let them all, on a fine drying day, be taken out, the place thoroughly cleaned out, and the plants dusted with sulphur and water sparingly; they are also liable to become infested with the green fly; the progress of these intruders should be stopped on their first appearance by fumi-gating with tobacco, if this is neglected the plants soon assume an unsightly appearance, their growth is impeded, and health impaired, fit companions only for those plants which find their way to the rubbish heap.

Many consider the Verbena to be very impatient of frost. I have proved that they will endure ten degrees when kept tolerably dry without any apparent inconvenience.

## THE ADVANTAGES OF DEEP TRENCHING.

THIS subject is one, the importance of which can never be overrated, and to which I beg to call the attention of all who possess a garden. I may confidently premise that if we bestow extra labour on our land, under all circumstances and in every season, we are well remunerated by an accumulation of fruits. During the past summer I have had the opportunity of observing the difference in the growth of vegetables on ground dug one graft deep, in contrast with another portion on deeply trenched ground; it is in a small garden with soil of uniform medium texture. The difference has been tried, and the result has proved, that though there is a little more trouble in well stirring the land, the consequent returns more than compensate for the additional outlay, for deep trenching brings more produce than what pays for the extra labour bestowed thereon. The subject is neither new nor strange, but it is one which deserves to be brought prominently forward and presented to the notice of those who may not have tried the difference. I will just point out a few particulars in illustration of the benefits derivable from deep culture, which came under my own observation in the course of the experiment mentioned. One part of the ground was planted with potatoes in drills on a piece dug the common way; the produce of these was a moderate crop. Near them another portion was filled with a similar quantity of the same kind, also planted in drills, but here the ground was trenched to the depth of two feet, and without any other difference in the course of their management, the latter proved quite a double crop to the others, and the tubers were in a more healthy condition. The first crop of French beans was sown on deep trenched ground—these produced fruit abundantly of good quality, and the plants grew vigorously, and continued fruiting during the greatest part of the summer, the plants continuing green and healthy, with some beans left on them for seed till the frost came and cut them down; in three weeks after the first sowing a successional crop was sown on ground dug in the common way; these were altogether inferior to the former; there was not near so good a crop—the plants were not so strong or healthy, and they shrivelled and died long

before the frost came. A bed of carrots was sown on the shallow dug ground and nearly all failed, while two beds adjoining them were well trenched and proved an excellent crop. Were it necessary to prove so self-evident a matter I might adduce a number of other things which were similarly improved, the superiority of these over others of precisely the same character cultivated in the ordinary manner was so great that I am at a loss to account for the continued neglect of the excellent means thus offered for renovating old soil and the preservation in good heart of new. If we take the trouble to reflect on the matter at all, it may be easily perceived how much more natural it is for the roots of plants to delight in soil well stirred up—that is, the bottom soil brought to the top and exposed to the action of the air, that it may be well pulverised and sweltered. Vegetables under these circumstances have a better chance for their roots to range about in search of food and moisture, and are better fitted to stand the effects of continued drought or the scorching rays of a sudden sunburst. But, on the other hand, when there is a hard subsoil the land is soon wet and soon dry. The superior equability of soil resting on a loosened sub-strata may be familiarly exemplified in the following manner:—Take two barrowfuls of sand, and spread one on a rock and the other on the earth, both being alike in thickness and *both equally* exposed to the sun, and you will find that on the rock to be dried the soonest, for the rock itself being hard does not absorb the rays of the sun, but they are reflected back among the particles of sand. On the other hand, that on the loose earth has only its surface exposed to the drying influences, while, at the same time, it actually receives moisture out of the earth, and is consequently longer in getting dry; so it is with deep trenched land—there is plenty of loose soil for moisture to work in, the warmth of the sun and the vivifying effects of the air permeate equally throughout to the manifest benefit of the roots with which it is thus brought in contact; and, again, in the opposite case, a thoroughly loosened soil is never subject to excessive moisture, for the same porosity which admits the air enables the water to escape either downwards beyond the reach of ordinary roots, or upwards by evaporation into the air. During the past season we have had an opportunity of seeing the effects of both wet and dry weather on soils of both descriptions.



In the latter part of spring and early part of summer, which was dry and scorching hot, vegetables on the deep trenched ground showed themselves far more able to stand the drought than those on the other land, and in the rainy dull weather, from July to September, they were less injured, as the water had a better chance to drain away, thus the season happened well to observe the difference in both cases. And having seen the very great one which exists between the two operations, I am perfectly satisfied there is a great improvement effected in the growth, fruiting, and durability of vegetables by well stirring the land; and it is my firm belief that if men would be at the trouble of trenching their land they would be well paid for the extra pains; but how often do we see people, particularly farmers, striving to get their ground worked and their seed sown in such a hurry that it matters not how badly it is done so that they get over it in as short a time as possible, though they are incontrovertibly losers by it in the end.

EDWARD GREEN, Warrington.

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### CULTIVATION OF THE GENUS ACHIMENES.

IN speaking of the cultivation of the beautiful genus *Achimenes*, you recommend cultivators to grow and bloom them in pans, being the better way to ensure a profusion of flowers. I am aware that hitherto this has been the practice with not only this plant but all plants that root near the surface, but which is in my opinion objectionable, more especially when they are intended for exhibition, as from the shallowness of the pans they require to be elevated on a pedestal to be shown with the collection advantageously, and even then the effect is not so good as it would be were the plants in pots.

That this little obstacle is at once removed by the introduction of the "West Kent pot," I think, after a moment's consideration, you will readily admit, and which will appear obvious to all on becoming more acquainted with its principles. The cultivator has only to place, a drain cup say, belonging to a twelve-inch pot

into that of an eleven-inch, and so on, and he secures sufficient drainage, a shallow stratum of soil, with all the advantages of a pot combined.

AMICUS.

[The remarks to which our correspondent refers were intended only to embrace the best means of cultivating the genus mentioned. That it is desirable to have the plants composing the exterior row in a collection of about the same height, must be obvious to all. Amicus shows how it may be done and yet retain the advantages of a pan; this is placing the West Kent pot in a new light, and adds another to the many existing reasons why this ingenious invention should be universally adopted. We can only say, when Achimenes are intended to be exhibited with other plants in pots, by all means grow them in the manner described.]

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CASTILLEJA LITHOSPERMOIDES.

OUR second figure, this month, represents a small portion of the very beautiful plant known by the above name; its brilliantly coloured bracts give to the numerous flower-spikes a remarkably gay appearance, which, being continued throughout the summer, or even longer, under favorable circumstances, render the plant very desirable for ornamental purposes, either out of doors in summer or among green-house subjects at a later period. The specimen, from which our drawing was taken, was obligingly furnished by Mr. Cattell, nurseryman, of Westerham, Kent, to whom also we are indebted for the accompanying note on its culture. If it should be found to succeed with the treatment of half-hardy annuals, as suggested by Mr. Cattell, the circumstance will reduce the trouble of its management very considerably, and cause it to be very generally grown among such plants; we presume one of the essentials to its successful culture will be, in any position, most ample drainage; it appears to be a plant which, if preserved from an excess of moisture, requires no other care; its long-continued beauty will certainly ensure this little attention.

Seeds of this beautiful Castilleja were received from Texas in



*Alfred Atwood sc.*

CASTILLEJA LITHOSPERMOIDES .



July, 1845, without any name, but was recommended to be grown as a curious and very beautiful plant. About November some of the plants began to show flower, and in December damped off; the later plants kept better, and were planted in the open ground in May, where they have been in flower ever since. I am not able to say whether the plant is an annual or a perennial. Three plants are now breaking up again from the bottom, but one very strong, twenty inches in height, and which has had upwards of twenty spikes of bloom, is not yet breaking up. I have not found it seed at all without being set, when it seeds in abundance; it may also be increased by cuttings, but is hardly worth the trouble, as one good pod contains four or five hundred seeds. As far as I have been able to judge of its culture, I should recommend seed to be sown about the middle or end of August, and when the plants are large enough to be potted off, kept in a very airy pit or greenhouse during winter. I have reason to believe a few degrees of frost will not be injurious to it. I fear its greatest enemy will be the short dull days of the winter months. If seeds are sown in a gentle heat in February, I think the plants would be in bloom by July. The soil in which I have grown it in pots is sandy peat and loam, but in the open ground it is planted in the common soil, which is light and sandy.

Westerham.

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## DESCRIPTIVE LIST OF NEW PLANTS.

### BRASSICACEÆ.—*Tetradynamia Siliquosa*.

*Heliophila trifida*, (Thunb.) A very pretty, half-hardy annual, requiring to be grown in a mixture of sandy peat and loam, to which should be added a small portion of well-decomposed leaf-mould or rotten dung. The seed should be sown about the end of February, in pots, and raised in a close pit or greenhouse, and treated like other half-hardy annuals. When the plants are sufficiently large, they should be transferred to other pots, not more than three or four plants being placed in each pot. It produces its gay ultramarine blue flowers from June to September, in the greenhouse, and grows about a foot high. In a natural

state it occurs in sandy tracts, on the plain near Cape Town, in the neighbourhood of Doornhoogde, where it flowers in October and November.—*Bot. Reg.* 64-46.

CAMPANULACEÆ.—*Pentandria Monogynia.*

*Campanula nobilis* (Lindley). This very nice herbaceous plant was sent to the Horticultural Society by Mr. Fortune, from China. Its root-leaves are deeply heart-shaped, of a bright pale green, and placed on footstalks from 6 to 9 inches long, forming a large tuft. From among them, and rather more than twice their height, rises the flowering stem, which branches a little at the bottom, and bears upon its divisions several fine nodding flowers, which seem to be the largest yet seen among the genus *Campanula*. They are something like those of *Canarina*, nearly 3 inches long and  $1\frac{1}{2}$  in diameter. The corolla is pale purple on the outside, and nearly smooth, but paler within, abundantly sprinkled with bright purple dots, and closely covered with long delicate horizontal hairs. It is allied to the Canterbury Bell, and like it has a calyx furnished with reflexed appendages; but its stigma is trifid, on which account it more nearly approaches the *Sarmation* and *Dotted Bellworts* (*C. Sarmatica* and *punctata*). It is, however, perfectly distinct, and a grand addition to handsome hardy herbaceous plants. It is easily multiplied by dividing the roots in autumn or winter, when in a dormant condition, and possibly from seeds also.—*Bot. Reg.* 65-46.

FABACEÆ.—*Diadelphia Decandria.*

*Swainsonia Greyana* (Lindley). A gay-flowered, half-herbaceous plant, sent to the Horticultural Society by his Excellency Captain Grey, from the banks of the Murray, in New Holland. It has dull brownish, hoary leaves, from whose axils a profusion of large purple flowers, with a white eye, appear in the summer. This species requires the same kind of treatment as the common *Lotus Jacobea*, growing freely in a mixture of sandy loam and manure, and flowering during the summer and autumn, if kept in the greenhouse.—*Bot. Reg.* 66-46.

BALSAMINACEÆ.—*Pentandria Monogynia.*

*Impatiens platypetala* (Lindley). A lovely species with rich

green leaves, produced in whorls, from the axils of which rises the footstalks of the flowers; these have fine spreading petals and a rather long attenuated spur: their colour is a full rose, with two or three crimson bands proceeding from the eye of the flower. It requires to be kept in a moist atmosphere and strong heat during the growing season, to be treated like such plants as *Gloxinia*, *Achimenes*, &c., and to be afterwards rested by withholding moisture. It is increased freely by cuttings when young, and grows in any light rich soil. It flowers during most part of the summer, and is a great beauty when kept from drying winds, which ruin it. The species is derived from Java, whence it was imported by Messrs. Veitch, of Exeter, with whom it flowered last summer.—*Bot. Reg.* 68-46.

RANUNCULACEÆ.—*Polyandria Polygynia.*

*Clematis tubulosa* (Walp.) A handsome but singular-looking *Clematis*, with an upright, slightly-branched stem, long petioled leaves, and clusters of blue flowers; these are produced in axillary and terminal corymbs, the four sepals are bluish purple, at first forming a tube, then reflexed, the lower half slightly swollen, base only tubular. It is a native of Northern China.—*Bot. Mag.* 4269.

LABIATEÆ.—*Didynamia Gymnospermia.*

*Scutellaria Ventenatii* (Hooker). A fine species with brilliant scarlet flowers; it was detected by Mr. Purdie, in the mountains near Santa Martha, and seeds were sent home by him in 1845, which were reared in the summer and autumn of 1846. It has been treated as a greenhouse plant, but would doubtless flourish and prove highly ornamental to our flower-borders.—*Bot. Mag.* 4271.

ERICACEÆ.—*Decandria Monogynia.*

*Lyonia Jamaicensis* (D. C.) A shrub of moderate size, with spreading, angular, green branches, more or less clothed, as is every part of the plant, even the pedicles, calyx, and corolla, with minute furfuraceous scales, most copious on the very young branches and pedicles, and there giving a ferruginous downy appearance; the leaves are about two inches long, ovate, lanceolate,

alternate, and coriaceous; the flowers are thickly crowded in the axils of the leaves, chiefly from the underside of the spreading branches, but with an inclination upwards. The pedicles appear at first sight to be in fascicles and single flowered; but if closely examined, they will be found to be arranged in short racemes, each with a small bracteal scale at its base; the corolla is ovate, white, semi-pellucid, waxy, slightly tinged with green and blush; the mouth contracted, and the limb of fine, short, spreading teeth. It is from the high mountains of Jamaica. The flowers are copiously produced in June and July in a cool frame, and are fragrant with a honey-like scent. The plant merely requires to be kept from the frost in winter.—*Bot. Mag.* 4273.

ESCALLONIACEÆ.—*Pentandria Monogynia.*

*Escallonia organensis* (Gardner). A lovely shrub, which will probably prove hardy, first detected in the Organ mountains by Mr. Gardner, and about the same time by Mr. William Lobb, whose seeds, sent to Mr. Veitch, produced the plant from which this representation is taken. The stem and branches are of a rich red brown, extending to the calyx; the leaves have their midrib in part, and the serrated margins red, and the petals are deep rose-colour; the flowers are borne on a terminal cymose panicle, and are very beautiful.—*Bot. Mag.* 4274.

ORCHIDACEÆ.—*Gynandria Monandria.*

*Odontoglossum hastilabium* (Lindley). A truly lovely orchideous plant, wholly new to our living collections. Sent to Kew by Mr. Purdie, who gathered it in woods on the route from Santa Martha to the Sierra Nevada. Linden detected it in the province of Pamplona, at an elevation of 2500 feet. The flowers are numerous on the raceme, large, handsome, elegantly varied with pale green, purple, and white, and moreover highly fragrant. The pseudo-bulbs are oblong, compressed, ribbed, pale green, and while young are sheathed by the bases of two leaves; two other leaves spring from the summits of the pseudo-bulbs; these are linear, oblong, obtuse, subcoriaceous, and without striæ; the sepals and petals are lanceolate, pale green, and with copious transverse purple dots or lines; the lip is large, three-lobed, the two lateral lobes forming two horns at the base; the intermediate



lobe very large, contracted, purple, and crested with irregular lamellæ, then expanded, and purely white.—*Bot. Mag.* 4272.

*Cælogyne ochracea* (Lindley). A species with moderately large, pure white flowers, having bright orange-yellow blotches on the lip: they are very pretty, and are moreover extremely sweet scented. We possess the plant from several localities among the late Mr. Griffiths's valuable Indian collection. Darjeeling, Bootan, and the Mishmee hills all produce it. These specimens differ a little among each other in regard to the amount of tothing present at the sinus of the lip, and as to its exact form, but they all belong evidently to the same species.—*Bot. Reg.* 69-46.

THE FOLLOWING ARE DESCRIBED BUT NOT FIGURED.

*Hoya imperialis* (Lindley). This is the most noble climbing plant we have ever seen. Beautiful specimens in flower have for some months been in our possession, sent from Borneo by Mr. Lowe, jun.; but we have refrained from publishing an account of them, under the supposition that no living plant had reached England. We are now, however, able to state that the plant is in the possession of Mr. Lowe, of Clapton, who has already begun to put it into the trade. Imagine, then, a true *Hoya*, with woolly stems, leaves six inches long, and clusters of the most magnificent flowers, forming a diadem of ten rays, each flower fully three inches in diameter, and with the delicate texture of the common *Hoya carnosa*. In Mr. Lowe's letter from Sarawak, dated January 12, 1846, we have the following account of its discovery:—"On the next day, when in the territory of the Gumbaing Dyaks, I found another curious plant, belonging to Asclepiads; it is an epiphytal climber. There was but one individual, growing from the decayed part of a tree, also overhanging the river. The flowers are large and in umbels; the leaves are leathery; and the stem abounds in a white, perhaps acrid juice. The contrast between the purple of the petals and the ivory white of the parts of fructification renders it highly beautiful."—*Bot. Reg.*

*Xiphidium giganteum* (Lindley). This is a large iris-like plant, with leaves more than two feet long and two and a half inches broad. When in flower it is nearly four feet high. The

blossoms are small, white, smooth, and arranged in one-sided racemes, which closely cover the very strong axis of inflorescence. It is not a plant of much beauty. From Caraccas.—*Bot. Reg.*

*Zygopetalum tricolor* (Lindley). This has the smallest flowers of any species yet known. They are pale green, with a white lip, banded with broken lines of crimson. From Guayana.—*Bot. Reg.*

*Epidendrum (Encyclium) subaquilum* (Lindley). A small slender plant, with leaves seven or eight inches long, and barely three lines wide; flowers the size of *E. diffusum*, pale dull brown. From Mexico or Guatemala.—*Bot. Reg.*

*Dendrobium (Onychium) triadenium*.—This is a lovely plant, with the habit of *D. crumenatum*, but with a very close racemose panicle of flowers. They are transparent, about as large as in *D. aduncum*, nearly white, with a tinge of rose, a violet spot on the end of the petals and lip, and a three-lobed tubercle in the middle of the latter. What seems to be a variety, with colourless flowers, has also come under my observation.—*Bot. Reg.*

*Begonia fuchsioides*. Terminally from its branches and most robust branchlets proceed the rich scarlet, very pretty, drooping flowers of this plant, which resemble the blossoms of a Fuchsia as closely as those of a Begonia possibly can do. It has been raised by Messrs. Veitch, of Exeter.—*Mag. Bot.*

*Oncidium unguiculatum*. The pseudo-bulbs of this species are oval, two or three inches long, and its leaves about a foot in length. From the former ascend the flower-scapes several feet, bearing numerous flowers scattered over their branches, that have yellowish, spotted with brown, sepals and petals, and a large, bright, clear yellow three-lobed lip. It is one of the many importations that have been sold of late in London. G. B. Warner, esq., exhibited a fine specimen in flower at a recent meeting of the Horticultural Society.—*Mag. Bot.*

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GLOSSARY OF TERMS USED IN BOTANICAL  
DESCRIPTIONS.

- HIRSUTE.** Covered with a coat of soft hairs.
- HISPID.** Rough with stiff hairs.
- HOARY.** Covered with a pubescens, resembling down.
- HYALINE.** Transparent; semi-pellucid.
- HYBRID.** Derived from, and partaking of the character of two distinct species.
- HYPOCRATERIFORM.** Shaped like a dish or salver.
- HYPOGYNOUS.** Under the seed-vessel.
- HYPOPHYLLOUS.** Under the leaves.
- IMBRICATE.** Laid one over another, so that the upper one covers the joint of two beneath it, in the manner of tiles upon a house.
- INCISED.** Cut at the margin into small irregular teeth like incisions.
- INCURVED.** Applied to flowers whose petals fold inwards, or towards the centre.
- INDIGENOUS.** The natural inhabitants of a country.
- INFLATED.** Swollen, or blown out.
- INFLEXED.** Collapsed, or bent in.
- INFLORESCENCE.** The entire floral organs, or the disposition of the flowers.
- INFUNDIBULIFORM.** Shaped like a funnel.
- INTERNODES.** The spaces occurring between the joints of such plants as have them at regular intervals.
- INVOLUCLES.** The smaller bracts which occur on umbelliferous plants.
- INVOLUCRUM.** Bractæ which surround the flowers of Umbelliferæ.

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CALENDAR OF KITCHEN GARDEN OPERATIONS FOR  
JANUARY.

VACANT ground should receive the first attention, in order to prepare it for the crops which will require to be got in through the succeeding months of spring and early summer. Frosty

weather should be taken advantage of to wheel on manure ; and if not too severe, and the ground is free from snow, a great part of the digging and trenching may be got on with. It is an excellent plan to divide the garden into certain portions for the reception of crops of similar character, that a settled plan of rotation may be worked out—one part at least should annually be trenched at least twice the ordinary depth of common digging ; this will carry the heaviest crops of the succeeding season, and in the following year, they being removed to the next successional-trenched space, will leave the first in excellent condition, after being dug in the ordinary way, for the reception of lighter crops, and thus every part of the garden will receive its due share of attention and bear its proportionate return. Such spaces as are not likely to be wanted for immediate use should be thrown into ridges, that as great a surface as possible may be exposed to the action of the air. Any of the early varieties of peas may be sown on a south border, in rows from three to four feet apart. Mazagan beans should be treated in the same way ; and in addition, small patches of radish, the early cabbage (the York is perhaps the best at this season), lettuce, house carrots, and onions may be got in. Between the rows of peas and beans round spinach may be sown ; or if the weather continues open till the end of the month, early potatoes may occupy the spaces, placing the sets in drills about eight inches deep, and a light covering of half rotten manure on the top of them, returning the mould over the whole. Hotbeds may be got ready for cucumbers, and when in proper condition will be useful for raising several other seeds, to be ultimately planted out, such as lettuce, cauliflowers, peas, and beans, to mend the first crops with ; or if sufficient space can be afforded, the entire quantity may be thus raised and forwarded till three or four inches high, and then removed to the borders. Other beds of less strength may be devoted to the growth of early radishes, potatoes, asparagus, rhubarb, carrots, strawberries, mint, or other herbs ; these are not required to have a greater heat than fifty or fifty-five degrees, but for cucumbers sixty-five degrees should be the mean temperature.





JUANULLOA AURANTIACA.

## JUANULLOA AURANTIACA.

WITH AN ENGRAVING.

THE genus to which our present subject belongs is one founded by those distinguished botanists and travellers, Hipolito Ruiz and José Pavon, to whose labours on the vegetation of Southern America the botanical world are so much indebted. It was originally published in their excellent work, the 'Flora Peruviana,' the name being a compliment to that celebrated Portuguese traveller, Don Juan de Ulloa, who made many valuable discoveries and additions to the early history of the American continent, and was at length canonized by his countrymen.

Two species have been known in our collections for some few years, which were at first referred to the genus *Brugmansia*, and it was only at a comparatively recent date that their correct station was determined by Sir W. J. Hooker, who, in his account of the first known species, *J. parasitica*, tells us that, although propagated and become common in our gardens, "it is in fact one of the rarest of plants, speaking botanically," which we understand to refer to its geographical location in a natural state.

The plant just mentioned was introduced from Peru in 1824, and the subject of our illustration followed it in 1840. Both are now by no means scarce, for, thanks to the untiring exertions of cultivators and the advanced state of the cultural art, productions with a degree of merit at all commensurate with the trouble of growing them, are speedily increased and distributed.

The qualifications of the particular species under notice to a station among the standard plants of a collection, are neither few nor of minor consequence. Like the individuals of the allied genus *Brugmansia*, of which it was at first supposed to form part, this plant is distinguished by a vigorous and rapid development of new parts, a copious habit of blooming, and the ease with which it may be managed. The most valuable characteristic, however, is the free manner in which it bears flowers through the winter, when their large size and brilliant warm colours render them particularly attractive. Wherever flowers are desired in winter, this plant should always be grown.

Its management, as before stated, is of the easiest description, and in a stove its blossoms may be reckoned on with certainty from autumn till the returning spring. Propagation is readily effected by cuttings taken off in May, when the seasonal growth is about two thirds matured, or at any time just previous to its entire completion. Such as are about three inches in length form the most convenient and likely pieces: these should be taken quite from their origin, with a small "heel," as it is termed, or a portion of the bark of the parent stem. After removing about half the leaves from the lower part of the cutting, and squaring the base with a sharp knife, that no part may be bruised, the cuttings should be inserted for about an inch of their length into a pot of very sandy peat, having a layer of pure sand over the top of the mixture, and when all are placed so that each stands just clear of its fellow, the pot should be dipped into a vessel of water, so that the fluid may flow completely over the soil, and then, by suddenly withdrawing the pot, the water, in its passage downwards, draws the sand tightly round the stems of the cuttings. It may not be amiss to explain the use of this layer of sand over the soil in which the cuttings are to root, and the advantages of the peculiar mode of watering them just mentioned. One of the first conditions to a successful "strike" among cuttings of almost every description is the complete exclusion of air from the recently severed parts, at the same time a constantly regular, but moderate, supply of moisture is required, not that any appreciable quantity of this moisture is taken into the system of the cuttings, but its chief use is the prevention of evaporation through the leaves, by surrounding them with an aqueous atmosphere, or to meet the occasional demand which will sometimes unavoidably arise, and on this account, and for the same end, glasses are used to cover the upper portion of the cuttings. Sand, from its texture or the closeness with which its particles lie to each other, offers the best medium through which water may be slowly conducted, without admitting any large quantity of air, and, as it is necessary to exclude the latter as far as possible, it has become a practice to thoroughly water the surface, in order to compress it round the cuttings in the closest manner; but, to apply the water in the usual way, by means of the syringe or water-pot, with the greatest care, neces-



sarily obliges the operator to wet the foliage of the cuttings at the same time, a thing to be avoided by all possible means as a most prolific source of disappointment in the predisposition it induces, to mildew and "fogging," from the lodgment and retention of water among the leaves, while, by immersing the pot, they are kept quite dry, and the object attained far more efficaciously.

After preparing and potting the cuttings in the manner described, they should be covered with a glass and plunged into a moderate hot-bed. In three or four weeks they will have protruded roots, and may then be potted separately into small pots in a mixture of peat, loam, and sand, in equal quantities, and by continuing them through the summer in a temperature of about 65°, will make rapid progress, so much that, by the beginning of September, they may be partially rested by placing them out of doors in the sun and restricting the supply of water. Continuing this course for a month will mature their new wood and assist the formation of the flower buds, and, that these may be perfected and the action of the plant brought on again in a natural and proper manner, it will be advisable to keep them in the greenhouse from the time the plants are removed in doors till the end of November, when the stove should receive them for the development of their blossoms.

With mature plants it will be necessary to repot at the termination of blooming season, which may be taken as the early part of April. At this time the greater part of the old soil should be removed, and, if the plants are healthy, larger pots than the last may be employed, though it is not advisable to over-pot them, lest a rambling growth be induced. The soil should be peat and loam, as the chief components, with the addition of about one third of the whole of leaf-mould and sand. In this mixture, with moderate root room, the plants will grow sufficiently vigorous to ensure a fine display of flowers. All the branches should be shortened at the same time, regulating the pruning by their respective strength and the general appearance of the specimen, on the whole, cutting them rather close, as afterwards the shoots should be allowed to grow on without again stopping. On the judicious management of these two operations much of the beauty of the plants will depend. With respect to the potting, a me-

dium course will prove the best, as, if the pots are too small, the progress of the new shoots will be unsatisfactory and the plants wear a stunted appearance ; and, on the other hand, if an excessive shift is indulged in, the lax habit and coarse foliage will as certainly detract from the merit of the production. As a general rule with healthy young plants, two sizes in advance will be sufficient, and those which are larger must be made to return again to the same size, or at most not more than one larger. So also in the pruning, the youngest may be left with three or four joints of the previous year's wood, while the old ones should be cut still more closely.

When the potting and pruning is done, the plants should be placed in the stove and encouraged to grow freely, by allowing them plenty of water at the roots, and an occasional refreshing shower from the syringe, so that by the end of July they may have attained their full growth, in order that sufficient time may be left to thoroughly ripen the new parts. The importance of this process, as it affects the future production of flowers, cannot be overrated, and with these and all other plants should form a main feature in their cultural management, for unless it is duly attended to, and the requisite measures taken to ensure it, we may rest assured the result will be unsatisfactory ; the plant will either waste its energies in an abortive attempt to grow, or produce a few small, ill-coloured blooms, just as it has been more or less ripened.

That the desired condition may be fully realized, we would advise the plants to be taken from the stove where they have been growing, and removed to a sunny shelf in the greenhouse for a fortnight or three weeks, to prepare them for standing out of doors altogether, which they should do for a month or more, according to the duration of the season, in a place exposed to the full influence of the sun, but protected from the wet or heavy winds. There are very many plants, even at the present day, which bear the character of being difficult to bloom, and are not unfrequently condemned as worthless on this account, which, were they thoroughly matured after their seasonal action would, we are convinced, yield to such treatment, and amply repay the little extra pains taken with them.

We might instance many of the class that have come under

our own observation, but as we desire cultivators to think for themselves, and depend less on mere rule of thumb, let them when an obstinate case of this sort arises in their practice, determine well if they have met all the conditions of the plant's natural habits, and try again if positive maturity has been ensured, for there, we think, will be found the unobservable but very important omission. There is, of course, much variation in the proper means to be employed, and in the extent to which it should be carried, so that nothing short of close attention to natural habits, and a discriminating observance of effects can avail in judging of the length to which the ripening process should be carried with particular individuals; there are no definite rules to be laid down for the encouragement of the idle in this case, but each must observe and judge for himself; only one thing may be received as positively incontrovertible, that every member of the vegetable kingdom requires the opportunity thus to recruit or concentrate its powers of action in a greater or less degree, as certainly as those of the animal portion of created matter require the corresponding period of rest which they derive from sleep.

On the approach of continued wet or cold weather, the plants should be taken into the stove, keeping them rather cool and very moderately watered, till the flowers begin to appear, when a more liberal treatment may be adopted, and the termination of the season's labours will be crowned with a rich display of the brilliant orange-coloured blossoms represented in our plate, produced near the point of every strong shoot on the plants.

*Juanulloa parasitica* is said to grow in the manner of an epiphyte, by attaching itself to the trunks of other larger trees, and there is little doubt that, was it desirable, *J. aurantiaca* might be induced to grow in the same manner, for the freedom with which it produces roots from the internodes of its branches bespeak a tendency to cling, and were sufficient moisture presented to such parts, in all probability this incipient character would be portrayed, as in the case of its congener. The readiest means of accomplishing such an object would be to fasten a young rooted plant on to a block, and envelope the lower part in moss, keeping it damp by constant syringing; however, we do not see that the appearance of the plant would be improved was it grown in such a manner, and in ordinary stoves it would entail much

extra trouble, but where much humidity in the atmosphere is kept up, as in orchidaceous houses, or among rockwork, it might form an interesting addition.

In botanical arrangement the genus is included in the natural order Solanaceæ, and according to the Linnæan system, in Class V, Order 1, Pentandria Monogynia.

EDITOR.

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### THE PROPAGATION OF DAHLIAS.

NOTWITHSTANDING the accusation of plagiarism to which the subject of the following paper may render me liable, and having before me all the terror of a "thrice-told tale," I am inclined to venture once again upon the provoking theme. We must remember, Mr. Editor, there are young gardeners springing up each season, in manner and numbers far surpassing all anticipations, completely exploding the old-fashioned simile having relation to the precocity of a certain edible, the production of our fields and meadows, and belonging to the natural order Fungi. I am indeed pleased that the seed you and others have sown, should be found to yield so good a return, for to the influence and assistance derivable from books, must be attributed much of the growing interest evinced in the cause of horticulture, and, as a matter of course, I entertain the highest sympathetic respect for the man who can thus find pleasure and, it may be, profit, in attending on so fair a portion of the great Creator's work; the habits of order and observance it engenders, cannot always fail of fruitfulness in some shape or other, and must tend to elevate the mind, though the pursuit be stigmatized by the appellation of trivial among the mere money-seeking portion of the world; that some such feeling is growing among men's minds is evident, or what induces so many to adopt the garden as a scene of relaxation and rational pleasure. All, positively all, are becoming gardeners in some shape or other, and the rapidity with which houses in the suburbs, having the indispensable garden, are built and let, argues well for the regular professors of our favorite science. The occupants of these gardens are generally practitioners to

some extent on their own account, and few enjoy the true delight of a garden more fully; they know something of the trouble, and therefore can appreciate the pleasure, for to him who grows a plant up from a cutting or seed, its beauties are as apparent as the sun at noon, while to another they require pointing out; for the advantage of gardeners of this class, it is necessary to go occasionally over our primary lessons, and therefore the following notes are penned. Dahlias forming one of the principal embellishments of such gardens, and the season for their propagation being at hand, I shall proceed with the subject without further circumlocution.

Where there exists the least desire to arrive at something more than the barest mediocrity, the garden is sure to contain at least a two-light box, and this must now be brought into requisition. If not done in the autumn, it should have a good coat of paint, as much for the extirpation of insects which congregate in the crevices, as for the preservation of the wood. By the last week of the month it should be ready, and a load of hot stable dung having been previously turned two or three times to sweeten, as gardeners call it, the bed should be made; but as this is more properly the regular gardener's job, I need not enter into the mode of doing it.

When the heat has subsided to about  $60^{\circ}$ , and become steady, the roots may be brought from their hybernatory and placed in the frame, just covering the points of the tubers with a little light earth, and in about ten days or a fortnight they will evince symptoms of growth; until this time it will be advisable to keep the frame constantly covered with mats, merely tilting the lights at the back sufficiently to prevent an accumulation of steam. Keeping the roots in the dark in this manner accelerates their starting, as they are then in a somewhat more natural position; but when the young shoots begin to show themselves, light must be admitted, and plentifully too, or they soon become etiolated. As they arrive at about three inches in length, they should be taken off close to the tubers, and without other preparation than squaring the end, be placed each one in a small sixty-sized pot filled with sandy leaf-mould, covering them either individually with small glasses, or a number together under an ordinary hand-light, placed on the warmest part of the bed; some attention will be

necessary to wipe away the moisture from the interior of the glass, especially if it is a large one, lest the cuttings receive injury from drips of the condensed steam; this they are very liable to, but as it is the only care requisite, no one fond of his charge will refuse it. They will be rooted in a fortnight more, and then should be gradually inured to a colder atmosphere. Successional cuttings will arise, and will require to be treated in the same manner; sometimes, from want of space, several cuttings will be inserted in the same pot, but on no consideration should more than one sort be thus put together, for some of them root more readily than others, and as they require to be potted separately as soon as they are struck, the remaining portion are injured by disturbing, and not unfrequently destroyed.

The beginning of March will very likely be considered late to commence starting the roots, and doubtless it would be so for a commercial grower, who has his thousands to prepare, but for the amateur is quite early enough, for it is far better to have the plants in an active growing state up to the time of their removal to the open ground in May, than by getting them too forward, be obliged to continue them in pots till the roots become cramped and the plants stunted. Few of us have room to spare for them after they are placed in forty-eight sized pots, and many are troubled to accommodate them even then, and therefore it is not advisable to begin too soon, for it must be remembered that up till the time when danger from frost is past, they must be protected in cold frames.

I have said nothing about keeping the names correct, because every one must be aware of the confusion any neglect in this respect creates; but I may mention, that where the necessary accommodation just mentioned, in the shape of hotbeds and frames, does not exist, dahlias may be managed by placing the roots in a warm place in the house about the beginning of April, and by moderately watering, induce them to start, when by splitting the tubers into pieces, with a shoot attached to each, plants may be had fit for the borders, at about the time it will be safe to place them there.

HORTULANUS.

## WEST KENT PHILANTHROPIC SOCIETY OF GARDENERS.

JAN. 5th. The following paper on the cultivation of *Rodanthe Manglesii* was read by Mr. Cooper :

In my opinion this is one of the most delightful annuals ever introduced to our collections for ornamenting either the greenhouse or flower-garden, and I regret that it is not more generally cultivated. My meaning is this,—in every garden where artificial heat is at command, I think it should be grown. Without this agent it cannot be cultivated to perfection, as it is one of the most essential points. I have noticed in different works various modes adopted in the treatment of this delicate little plant, many differing with regard to the compost the most congenial to its welfare. Some recommend loam and leaf-mould, others loam and well decomposed dung. Either of these in all probability would grow them well, but the soil I use is composed of equal parts of peat and loam, with a mixture of silver sand. The peat I use is produced from decayed moss and other unfermented vegetable matter,—not the poor hungry material from a barren common. As to the time of sowing, some recommend August for early spring flowering, October for May flowering; but to have fine, strong, healthy, bushy flowering plants, I recommend the last week in February, or the first week in March, as I am convinced that the quicker *Rodanthe Manglesii* is grown the finer it will carry the foliage. It may be requisite to sow in August or October for a few early plants, but, for the general sowing, let it be done at the time I have before named, the last week in February or the first week in March. Sow either in pots or pans, using the compost somewhat fine, and let the seeds be covered very lightly; place them in a temperature varying from 60° to 70°, keeping the soil moderately humid, until they make their appearance. As soon as you can conveniently handle them, before they make their third leaf, prepare for potting them off into thumb pots, one plant in each pot, performing the operation if possible in a vinery or stove, it not being advisable to remove them to a lower temperature to perform the operation. In transferring them from the seed pan or pot, take a small dibble, gently rise them, so as to have the roots as entire as possible. When you have potted the whole, place

the pots on an even surface, and give them a good sprinkling with a syringe or fine rose watering-pot. By the weight of water there may be a few of the young seed leaves cling to the surface of the soil: should such be the case, take the point of your dibble, and gently ease them off. Keep them shaded for a few days from the sun, and then place them on a shelf, if possible, about four inches from the glass, in a temperature equal to that recommended for the seed sowing, taking care that they are not neglected in the supply of water. They will soon fill the pots with roots, when they must be shifted into large sixties, and so on in proportion. When you have shifted them into forty-eights or thirty-twos, you may remove them into a lower temperature, such as a frame or greenhouse, but be sparing with ventilation for the first week, particularly cold draughts. The *Rodanthe* delights in a very light part of the house while growing, and therefore will make finer plants if sown in February than those sown in autumn, and have the dull winter months to go through. When you have them sufficiently hardened you can remove them to any place you may require them, or make a clump in the flower-garden, where they will form a very pleasing object throughout the summer months.

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### THE CULTURE OF TORENIAS.

THE late additions to this genus having brought it so prominently forward, and possessing a character sufficiently elevated to maintain it in the estimation of floriculturalists, no doubt exists that, at least, the two new species will soon become very generally grown, some short hints on their habits and management may, therefore, possess an interest great enough to repay the perusal. The species referred to are *T. Asiatica*, and *T. concolor*, both dwarf-growing, soft-wooded, free-flowering plants. For the history of their introduction and native positions, I may refer to pp. 218 and 288 of the last volume of the 'Florist's Journal.' In cultivation they require, like many other Indian productions, a little careful nursing in winter, but through the summer months may be grown almost anywhere. I had small



plants early last summer, and by keeping them in a moist stove temperature, soon had a sufficient number to experiment with; their propagation, from May to September, is one of the simplest and most certain things that ever came under my notice, any little piece having two joints, stuck into a pot of light soil and covered with a glass, will make a plant in about a week, so that next season will surely witness them in nearly all collections. I did not observe much difference in the progress of those continued in the stove, and others grown and flowered in the greenhouse, except the more sturdy short-jointed aspect to be reasonably expected from the lower temperature, the plants grow quite as rapidly with the advantage of being a deeper colour and more compact in habit; some others were placed out of doors, but they were so small, and not being ready till near the end of the season, had not a fair chance, still, from the manner in which they got along, I have little doubt that they may be had to ornament the flower-garden, providing well-established plants are provided to place out by the beginning of June. *T. Asiatica* was a lovely object in the greenhouse for a long period, the blueish purple of its flowers being thrown up, the intense colour of the three dark velvet purple blotches on the lobes of the limb, the blossoms being produced copiously, and in rapid succession, up till a very late period of the season. *T. concolor*, although inferior to the former in point of colouring, is still a beautiful thing, and being on the whole somewhat more hardy, will offer the greatest prospect of success as a bedding plant; each of them possess a rather trailing habit, especially when grown in a warm place, and advantage may be taken of this character in the ornamenting of many peculiar objects; two plants in the stove here placed in baskets suspended from the roof, the branches of which were allowed to grow downwards, or rather as they pleased, were much admired for their graceful appearance, the branches descending by the sides of the baskets, and rooting into the moss which lined them, gained additional strength and formed new branches, blooming all the time in a most delightful manner; *concolor* appeared to far more advantage when treated in this way, than when an attempt was made to train it on sticks, which gave a stiff unnatural figure. The soil they seemed to like best was a mixture of peat or leaf-mould, loam and sand in equal quantities,

they must be most effectively drained and freely supplied with water in dry weather. Syringing every day is also highly beneficial; in a close warm atmosphere their progress is amazingly rapid, and good plants may be formed in a very short time, but I would advise, when they are grown to a moderate size, not to indulge them longer in it, but to remove them to the greenhouse or open air where their action is modulated, a tendency to bloom more fully induced, and an additional lustre imparted to the colours of the blossoms.

When grown under glass, it may be also advisable to slightly shade them from excessive light, especially from the direct rays of the sun, that the duration of their flowers may be lengthened and a deeper green imparted to the leaves.

Through the winter I have found it necessary to keep them rather warmer, than the robust character of the summer's growth led me to think would be required; they entirely refused to stand in the greenhouse even in its warmest part after the end of November, and I then found the stove must be their future habitation; on their removal a marked change in their appearance took place, and since then they have gone on most satisfactorily, and I have been able to increase their number a little, though with a good deal more trouble, as may naturally be supposed than at a more advanced period of the season.

I believe I am right in including three other species in the genus: *Torenia cordifolia*, an old hardy annual from the East Indies, now pretty nearly lost to our gardens; *T. hirsuta*, the *torenia diffusa* of Don and *gratiola alata* of Roxburgh, a plant resembling those spoken of in most respects, but inferior in beauty; these with the new *T. edentula*, which I see by the Journal, was obtained at Kew accidentally from seed which came up on some East Indian mould,—it approaches *T. Asiatica* nearest, but has only two blotches. Whether the plant, so well known as *Torenia scabra*, should be continued in the genus, or if it was correctly separated by Don is, I believe, yet a matter on which some difference of opinion exists; the name he employed is *Artanema fimbriata*, thus constituting through it, an entirely new genus.

H. P.

## DESCRIPTIVE LIST OF NEW PLANTS.

PLUMBAGINACEÆ.—*Pentandria Pentagynia*.

*Statice eximia* (Fischer and Meyer). This is a hardy perennial, growing from one to two feet high, if planted in an equal mixture of sandy loam and peat. It may be increased by dividing the old plant when large enough, and in a dormant state, but the best means of propagation is by seed; seedlings, however, will not blossom before the second season. The flower spike has several small branches towards its base, thickly set with lilac and white blossoms, which are produced from July to September. Raised in the garden of the Horticultural Society, from seeds received from Dr. Fischer in 1844, and said to have been collected by Dr. Schrenk on the Chinese limits in the south of Songaria.—*Bot. Reg.* 2-47.

ERICACEÆ.—*Pentandria Monogynia*.

*Azalea squamata* (Lindley). This fine addition to our Chinese Azaleas, has been sent to the Horticultural Society by Mr. Fortune, who found it on the mountains of Hong Kong.

“With the habit common to all Chinese Azaleas, this presents the following peculiarities:—In its natural state it blooms without leaves, producing at the end of every little shoot, a large solitary flower of a clear, rose colour, distinctly spotted with crimson on one side, and guarded at the base by a large sheath of bright brown scales. Its calyx, unlike that of the neighbouring species, is reduced to a mere five-toothed rim. Its ovary, immediately after the fall of the corolla, projects in the form of an oblong body quite covered with coarse brown hairs. The leaves when young, are somewhat like those of *A. indica*, and have nothing distinctive in their shape or surface; but when old, are oval, sharp at each end, perfectly hairless, and as even on the upper surface as those of *Rhododendron punctatum*.”

The species will probably be found hardy, for it has borne a temperature of 11° Fahr. without apparent damage. In a case containing several plants, Mr. Fortune sent home a portion of the soil, *brown loam*, in which this species was found wild, and

for the purpose of trying its effects, one plant was potted in it; but has by no means the healthy appearance of those potted in rough sandy peat.—*Bot. Reg.* 3-47.

POLEMONIACEÆ.—*Pentandria Monogynia*.

*Cyananthus lobatus* (Wallich). A delicate, hardy, little herbaceous plant, with small fleshy roots, slender stems clothed with alternate hairy, notched, bright green leaves, surmounted with a solitary deep blue flower, having a five-lobed spreading limb. It appears to be a native of the higher ranges of the Himalayas, and was raised in the garden of the Horticultural Society from seed said to have been collected in Chinese Tartary, on the snowy passes at an elevation of 12,000 feet, in October 1844. It is increased freely by cuttings, and flowers in August and September.—*Bot. Reg.* 6-47.

NYMPHÆACEÆ.—*Polyandria Polygynia*.

*Victoria Regia* (Lindley). The 'Botanical Magazine' for January, is entirely taken up with an able and interesting paper from the pen of the Editor, Sir W. J. Hooker, on this pre-eminently beautiful, rare, and celebrated aquatic, from which we extract the following particulars of its history and character.

"Although to our own country belongs the honour of first fully detailing in 1837, the particulars relative to this extraordinary Water-lily, and clearly defining its generic distinctions, yet the earliest mention of it in print, so far as we can find, was in 1832 in Froriep's 'Notizen,' vol. 35, p. 9.

It is there described as a new species of *Euryale*, under the name of *E. Amazonica*, so called by Dr. Poeppig from the circumstance of that distinguished botanist and traveller, having found it in the Amazon River of South America. Afterwards (in 1836) he alludes to it in the 2d vol. of his 'Reise in Chili, Peru, &c.' p. 432; but only says, "In the Igaripes, which are branches of the Amazon river, bearing no peculiar appellation, yet worthy to rank from their size, with rivers of the second magnitude in Europe, grow some aquatic plants, whose almost fabulous dimensions may vie with the celebrated *Rafflesia* of India, while they excel that wonderful production in beauty of inflorescence. Previously, however, to this period, M. D'Orbigny in 1828, sent

specimens of this gigantic Water-lily to the Museum of Natural History in Paris. He had gathered them in the province of Corrientes, in a river tributary to the Rio de la Plata. The evident analogy between the foliage of this plant, and that of *Euryale*, induced the French botanists also to rank it as a species of that genus. Sir Robert Schomburgh also detected the plant in British Guiana when travelling on account of the Royal Geographical Society of London, on the 1st of January 1837 in the river Berbice, (lat. 4° 30' N., long. 52° W.) and published a very interesting account of the discovery in a letter to the Geographical Society, which was made the groundwork of a more full history of the plant, accompanied by a splendid figure in a separate memoir of atlas folio size, by Dr. Lindley. Only twenty-five copies were printed for private distribution in 1837, and shortly after, this gentleman published the same account with important additions, in the miscellaneous notices of the Botanical Register, whence copious extracts appeared in numerous Papers and Journals." Seeds were brought home last year from Bolivia by Mr. Bridges, who thus describes his meeting with the plant :

"During my stay at the Indian town of Santa Anna, in the province of Moxos, republic of Bolivia, during the months of June and July, 1845, I made daily shooting excursions in the vicinity. In one of these I had the good fortune (whilst riding along the woody banks of the river Yacuma, one of the tributaries of the Mamoré), to come suddenly on a beautiful pond, or rather small lake, embosomed in the forest, where, to my delight and astonishment, I discovered, for the first time, the 'Queen of Aquatics,' the *Victoria regia* ! There were at least fifty flowers in view, and Belzoni could not have felt more rapture at his Egyptian discoveries than I did in beholding the beautiful and novel sight before me, such as it had fallen to the lot of few Englishmen to witness. Fain would I have plunged into the lake to procure specimens of the magnificent flowers and leaves, but knowing that these waters abounded in alligators, I was deterred from doing so by the advice of my guide and my own experience of such places. I now turned over in my thoughts how and in what way flowers and leaves might be obtained, and I clearly saw that a canoe was necessary, and therefore promptly returned to the town, and communicated my discovery and wants to the Correjidor

or Governor, Don Jose Maria Zarate, who, with much kindness, immediately ordered the Cacique to send Indians with a yoke of oxen for the purpose of drawing a canoe from the river Yacuma to the lake. Being apprized that the canoe was in readiness, I returned in the afternoon with several Indians to assist in carrying home the expected prize of leaves and flowers. The canoe being very small, only three persons could embark; myself in the middle, and an Indian in the bows and stern. In this tottering little bark we rowed amongst magnificent leaves and flowers, crushing unavoidably some, and selecting only such as pleased me. The leaves being so enormous I could find room in the canoe for but two, one before me and the other behind; owing to their being very fragile, even in a green state, care was necessary to transport them, and thus we had to make several trips before I could obtain the number required. Having loaded myself with leaves, flowers, and ripe seed-vessels, I next mused how they were to be conveyed in safety, and determined at length upon suspending them on long poles with small cord, tied to the stalks of the leaves and flowers. Two Indians, each taking on his shoulder an end of the pole, carried them into the town, the poor creatures wondering all the while what could induce me to be at so much trouble to get at flowers, and for what purpose I destined them now they were in my possession."

This splendid plant has undoubtedly a very extensive geographical range; the town of Santa Anna is situated between the 13th and 14th parallels of south latitude, which I consider about its most southern limit, because I sought it in vain further south in the department of Santa Cruz de la Sierra. May we not justly suppose that it is also found as far north as the equator? thus occupying about 28° of northern and southern latitude. Dr. Weddel, the botanist of the French expedition across the American continent, informed me that he had found it about the same latitude in Brazil. It occupies without doubt many of those immense lakes lying between the rivers Mamoré, Beni, and the Amazons, that central part of the continent yet but little known.

"The leaves are round, varying considerably in size, the largest about four feet in diameter (Schomburgh says from five to six feet); they float on the surface of the water, the colour is a very light green, in age inclining to yellow, some of them

even when young possess a yellow hue. The margins of the leaf are turned upwards, giving the singular appearance somewhat like a floating dish; this margin and the under surface of the leaf are of a dark brown colour, while the part under water often assumes a purple tinge. The costæ are of the same colour. The spines incline to the interior of the leaf, and in some leaves are nearly white.

“The *Victoria* grows in four to six feet water, producing leaves and flowers, which rapidly decay and give place to others. From each plant there are seldom more than four or five leaves on the surface, but even these, in parts of the lake where the plants are numerous, almost cover the water, one leaf touching another. I observed a beautiful aquatic bird (*Parra sp.?*) walk with much ease from leaf to leaf, and many of the *Muscicapidæ* find food and a resting-place on them.

“The blossoms rise six and eight inches above the surface, expanding first in the evening, when they are pure white, changing finally (and by exposure to the sun) to a most beautiful pink or rose colour; flowers may be seen at the same time partaking of every tinge between the two hues, the recently expanded being pure white, and the adult rosy, almost sinking under water to ripen its seed, and produce a new race of plants when required. The largest flowers I saw measured from ten inches to one foot in diameter.”

The sepals are deciduous, the petals very numerous in several series, the inner gradually narrower, acuminate and indurated, passing into the stamens, and united with them into an elevated ring, forming a prolongation of the torus.

“I had an opportunity of experiencing the fragrance of the flowers. Those I collected for preserving in spirits were unexpanded, but on the point of opening; on arriving at the Government House in the town I deposited them in my room, and, returning after dark, I found to my surprise that all had blown and were exhaling a most delightful odour, which at first I compared to a rich pine-apple, afterwards to a melon, and then to the *Cherimoya*; but, indeed, it resembled none of these fruits, and I at length came to the decision that it was a most delicious scent, unlike every other, and peculiar to the noble flowers that produced it.

“From what I observed of the nature and habits of this most interesting plant, I conclude that it cannot and does not exist in any of the rivers, where the immense rise and fall of twenty feet would leave it dry during many months of the year, especially in the season when there is no rain. The lagoons being subject to little variation in the height of their waters, are the places where it grows in all its beauty and grandeur. The *Victoria* appears to delight in parts of the lake fully exposed to the sun, and I observed that it did not exist where the trees overshadowed the margins.”

The high interest attached to the species has led us into this rather lengthy extract, and we are obliged to pass much other scientific matter, which, together with four excellent plates, illustrate the subject, forming a complete monograph of the genus. There are now two living specimens at the Royal Botanical Gardens at Kew, resulting from Mr. Bridge's seed, which we trust may reward the management by the production of flowers in the ensuing season.

ORCHIDACEÆ.—*Gynandria Monandria*.

*Dendrobium (Onychium) triadenium* (Lindley). A lovely plant, with the habit of *D. crumenatum*, but with a very close racemose panicle of flowers, transparent, about as large as in *D. aduncum*, nearly white, with a tinge of rose, a violet spot on the end of the petals and lips, and a three-lobed yellow tubercle in the middle of the latter. From what part of the East Indies it has been procured is uncertain, but, as the focus of the *Dendrobiums* with a thickened base to their stems is the Indian Archipelago, it is probable that this has been derived from that quarter. The three yellow knobs of the lip, the close inflorescence, and the deeply-lobed, almost quadrangular petals, distinctly mark the species.—*Bot. Reg.* 1-47.

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## PREPARATION OF FLOWER BORDERS.

IN the ordinary course of gardening operations there is usually a good deal of work to be done in the flower garden through this and the succeeding month, in the way of preparatory measures, and, unless well attended to in this respect, the garden through the next summer will wear but a meagre appearance; so that, where a really anxious desire is entertained to secure a fine display, no amount of pains should be spared or time lost in making the necessary provision.

It is not only required to have abundance of plants of the suitable kinds in the best health at the proper season, but also that the beds and borders they are destined to fill be in equally good condition. It is a very prevalent and erroneous idea that the earth in which flowers are to grow need not be rich. Oh, it is said, poor soil suits them best, as then they do not get leafy. Never was a greater mistake adopted for a rule under any circumstances, as though it was not necessary to have healthy leaves in connexion with the blossoms, that no drawback may be presented to the eye in its search for beauty. Plants in a flower garden should be each one perfect in itself, whether viewed separately or in masses. There can be no real beauty where a deficiency of vigour is apparent in any part, nor can fine flowers be expected to proceed from sickly, starved plants; in fact, the very principles of a gardener's art should teach him the necessity of imparting sufficient strength into the primary portion of the subject, which is its leaves, ere it will be reasonable that blossoms in their greatest beauty can be produced. There ought to be no doubt on the matter, and yet we find, in practice, the contrary notion obtains the greatest number of followers.

That an error of almost equal magnitude may be fallen into through the opposite extreme must be allowed, though, as it occasions so much more trouble to raise the condition of the borders to a point beyond which it would be dangerous to go, without incurring an over-luxuriance, equally destructive to the

production of flowers, it may be left to work its own remedy, and, as in all probability there are ninety-nine of those cases in which the starving system is followed to one of its opposite, we may regard the latter as not requiring especial reference.

But, that flower borders require at least an annual renewal, I think no one who has taken the pains to observe for himself will for a moment deny. Generally, these places are filled through the summer as thickly as it is possible to place the plants, and not one crop alone, but three or four are grown upon the same ground in the course of the season. How, then, can it be reasonably expected to continue the reproduction under such an exhausting system, if not assisted with manure in a liberal manner?

If we compare it with the kitchen garden how different we find the treatment; true, there is a difference in the crops, though perhaps not so much in their exhausting qualities as may at first sight be supposed, if the plants in the culinary department are on the whole larger in their several parts, those in the other part of the garden are placed more closely together, and where the flower garden is cultivated as it should be, there is not even so much rest allowed it as falls to the share of its neighbour. So forcibly has this mode of viewing the case impressed itself on my attention, that for some years past I have been in the habit of renovating the earth of my flower beds at every opportunity afforded by their becoming vacant. I apply manure in about the same state and quantity as for vegetables, through the autumn and winter, and in summer, on the removal of any set of plants, the ground receives a heavy dressing of leaf-mould before the next occupants are placed in it; no part is allowed to go undrained that requires it, and in many places they are rather thickly placed, yet have I far less trouble in the after-management of the plants than was the case previous to the adoption of the present mode: even through the past trying summer, watering was but little wanted, and except among recently transplanted subjects was very seldom applied; the roots of established individuals were able to extend themselves among the rich moist earth beneath them, and consequently had always an abundant supply.

The varieties of the ten-week stock are great favorites here, and

for several years had occasioned me much trouble, inasmuch as it seemed next to impossible to get them thoroughly fine, either as regards the doubleness of the flowers, or the quantity of bloom ; great pains were taken to procure the best of seed, the most of which was certified to be imported, still the number of single-blossomed plants greatly preponderated, until their introduction to the light rich earth, provided by the dressings before mentioned, when a most remarkable change occurred, instead of mean, shabby-looking things, with a few particoloured single blossoms, they became furnished with robust lateral branches, spreading nine inches on either side of the principal stem, and clothed with flowers from the ground upwards ; the colours were pure and well defined, the individual blossoms as large, in many instances, as a penny-piece, and more than two thirds of the number were that year double. Ever since that period, I have continued to grow them in very rich soil, and have always a much greater proportion of double than single flowers, though I now save my own seed, and feel convinced that were the proper pains taken in the preparation of the soil, and providing strong plants to turn out at an early season, we might make ourselves quite independent of the continental growers for our future supply of this and other seed of like nature.

Asters, larkspurs, zinnias, and many other similar plants, all gave the same decided preference to the rich soil, growing in it much larger, producing more flowers, and those of infinitely superior character, nor does any apparent deterioration take place under this management, or, at least, with me no difference is observable in the quality of the seed through four seasons ; and therefore I conclude we have only to furnish the plants with a full supply of nutriment, which, it appears, should be really much greater than is generally supposed, that we may preserve any degree of perfection among them. But it is quite natural, if we allow the strength of the seed-bearing individual to decline, that its progeny should partake of such weakness.

Let me advise all who love their gardens, and desire to see its occupants in the best possible condition, to thoroughly manure it at the present time. Every vacant piece should have a heavy coat turned in at once, and again in the summer let an applica-

tion of rotten leaves be made at every opportunity, or, if they are not procurable, the same kind of manure used at this season will, if kept till that time, be in fit condition for the purpose. The result will fully repay the little extra trouble.

SENEX.

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### GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

- JULIFORM.** Resembling the inflorescence of the willow ; shaped like a catkin.
- KEEL.** The projecting midrib of a leaf or petal. An example is found in the under petal of all papilionaceous flowers, as the sweet pea, &c.
- LABELLUM.** The lip, or lower segment of orchidaceous or labiate flowers.
- LACINIATE.** Divided into several small segments.
- LACTESCENT.** Containing a viscid, milky juice.
- LACUNOSE.** Indented with small depressions.
- LEVIGATE.** Having a very smooth, even surface.
- LAMELLATE.** Composed of thin layers, or plates.
- LANCEOLATE.** Having a parallel outline, terminating in a sharp point, like a spear.
- LATERAL.** Proceeding from the side ; on one side.
- LAX.** Loose, a term used in contradistinction from compact.
- LEGUME.** The seed-vessel of leguminous plants. An example is presented in the pod of a pea.
- LEGUMINOUS.** Bearing pods. A very useful class of plants, which in the economy of man reckon second only to the cereal plants. It contains, among others, the pea, bean, vetch, liquorice, indigo, &c.
- LENTICULAR, LENTIFORM.** Shaped like a lens.
- LIGULATE.** Having a long narrow form ; strap-shaped.
- LINEAR.** Having straight, parallel sides.
- LINGUIFORM, LINGULATE.** Tongue-shaped.

**LOCULÆ.** The cells of a fruit containing the seed—a unilocular fruit has one cell, bilocular two, and so on.

**LORATE.** Synonymous with Ligulate.

**LUNATE.** Partaking of the form of a crescent, or half-moon.

**LURID.** A mixed colour, partaking of red, yellow, and gray.

**LYMPH.** A name for the sap.

**LYRATE.** Formed like the ancient lyre.

**MATRIX.** The interior of a seed.

**MEDULLA.** The pith of a plant.

**MEDULLARY.** Relating to or proceeding from the pith.

## CALENDAR OF KITCHEN GARDEN OPERATIONS FOR FEBRUARY.

ATTEND to the directions given last month as long as any ground is untrenched or undug, clearing away all winter crops as they are used, and preparing for the next. At least two good sowings of peas and beans should be made during the month, and the round-seeded or Flanders spinach may be sown between the rows; the latter is to be preferred. On sheltered borders horn carrots and any of the early turnips may be sown, and the salmon and turnip radishes should be sown with them; the latter are of course off before the main crops attain any size. A sowing or two of onions should also be made to keep up a supply of young and tender plants for salads, and towards the end of the month the main crops may be sown, keeping in mind that the deeper the ground has been stirred, so that the roots may run deep, so much the finer will be the crop. Leeks may also be sown, or, if a very early crop of them is wanted, by examining any old plants which have stood the winter, a quantity of white bulbs will be found at the base of the old stems, and these planted in deep holes at once will quickly produce a crop fit for use. Shalots, garlic, chives, and similar bulbs, should also be planted. A good plan with shalots, especially in stiff ground, is to well-pulverize the soil, and, levelling the portion to be planted with a

rake, to cover it with about an inch of leaf-mould and sand, or any light compost; on this set the roots, and cover them with similar compost. The size of the bulbs will greatly exceed those inserted into stiff soil. Where they are grown, this is also the time to plant the underground or potato-onion; it is an excellent prolific variety, and a better keeper than is generally supposed, as it is far from being useless in the kitchen yet, if it has been kept thoroughly dry and in a cold place. Plant the middling-sized bulbs; they will be ready to pull by Midsummer, when the seedling sorts will very likely be suffering from drought.

Forward potatoes in pots in the frames or vinery, for turning out either in pits or out of doors when the weather is milder; also plant out of doors in sheltered spots, and get in the main crops by the end of the month, if the season is sufficiently open.

Sow the seed of any of the early cabbages once or twice in the month, under protection as well as out of doors. A little cauliflower and Cape brocoli should also be sown in pits for succession. In similar situations, also, the sowings of small salading should be continued at regular intervals, and the forcing of asparagus, sea-kale, rhubarb, and others, should be maintained according to the demand. Lettuce-seed should also be sown two or three times during the month, both on a sheltered border and also in frames, taking great care not to draw up the plants.

Dress up, manure, and dig the strawberry beds as quickly as weather permits, and, if necessary, make new plantations. The same with the herb border, where the plants, if old, may be renewed, or gaps filled up by using healthy-rooted slips from the old plants. New plantations of horseradish and Jerusalem artichokes may also be formed.

If not already done, finish off all pruning as quick as possible before the buds advance too far, as, if left too late in the season, a backward and often comparatively poor crop is the result of having to shorten shoots where the uppermost and strongest buds are always the first to be excited.

D. M.





1. CUPHEA PLATYCENTRA 2. HYDROLEA SPINOSA



## THE GENERA CUPHEA AND HYDROLEA.

WITH AN ENGRAVING.

THE genus *Cuphea* is composed of a rather limited number of South American plants, a portion of which are only of annual duration, which with us are found sufficiently hardy to bear the ordinary treatment of the most robust of the class; the other portion is comprised of more persistent and, at the same time, rather more tender forms. The individuals contained in the annual section of the genus are by no means remarkable for their beauty, and have consequently fallen out of cultivation, giving place to the many more specious members of the same class introduced to our gardens from the same quarter of the world. This being their position, we need not enlarge on the little management necessary to grow them, merely remarking, where it is desired to continue their culture, no further trouble is required than to sow the seed where the plants are wished to bloom, and afterwards to thin them to about a foot from each other.

The perennial section in our climate is to be included among the most tender of greenhouse plants, at least through the dull months of our prolonged winters, when their succulent branches continually being extended, render them extremely liable to the destructive visitations of damp and mildew, and unless a temperature congenial to their development can be kept around them, some trouble will be experienced in their preservation. It seems necessary to successful management that they should be kept constantly in an active state, for as soon as this ceases the health of the plants appears to decline, and they will not long exist in a dormant condition.

It is only in the winter season, however, that any difficulty is likely to arise, for in spring and summer their progress is most rapid, and the profusion with which well-grown plants will bloom very well repays the attention required. Treated as bedding-plants, or aids in the embellishment of the greenhouse through the vernal season, and stationed among conservatory plants where a temperature of about  $50^{\circ}$  is maintained in winter, most of the species of *Cuphea* are not only ever-growing, but also ever-bloom-

ing plants. From this habit of continued activity it will be readily imagined that their propagation is not a difficult matter. Cuttings of the young branches taken off any time between March and September root with facility if potted in sandy peat, and protected from exhaustion by covering with a glass. In the early spring it may be necessary to increase the heat for cuttings a little above that the parent plant has been accustomed to, as is usual with most plants at the same season, but after May they may be readily struck in a cold frame, and in either case will protrude roots and be fit for potting in about a fortnight. The additional warmth applied in the early striking should be given in the way of bottom heat, as it is thus most beneficial, and the young plants, when first potted, are equally benefited by a continuance of the course, and a good deal of time is saved by hastening their progress in this manner. Supposing cuttings to be struck in the early part of March, we would continue them in a temperature of about  $65^{\circ}$  till the end of the month, when they will require to be repotted and arrive at another stage of their existence. Up to this time the object in their management is merely a quick development of foliated parts and roots, and to further this a high moist atmosphere is kept about them, with light porous soil to encourage the multiplication of roots; but after this repotting an additional object must be sought: it will then be necessary to solidify the previous formations, and induce through the succeeding developments a sturdy, close-jointed, robust character as the most likely to result in a copious production of flowers. To this end the strength of the soil should be increased by adding to the light, sandy, peat soil previously used a portion of turfy loam, and at the same time that the extra food thus supplied may be properly elaborated, an increase of light and air must be given the plant. The latter implies a diminution of temperature, which in itself is sufficient to check any undue extension of the head, which under such circumstances can only increase in proportion to the spread of the roots and the supply of nutriment derived through their means. This is just the condition of a healthy, vigorous plant, and such a course of treatment cannot fail to ensure thriving specimens fit for removal to their final positions by the end of May. If they are intended to continue in doors as ornaments to the greenhouse or

sitting-room, they should receive another shifting, placing them at once into the largest pots they are intended to occupy, that no future removing may interrupt their course of blooming ; and if grown for the flower-beds they may be placed out without further preparation, and in either position will furnish a succession of their pretty blossoms through the entire summer.

Perhaps the best of this class are the following : *Melvilla*, with scarlet and green flowers ; *lanceolata*, having purple blossoms ; *Simsii*, lilac ; *strigillosa*, red and green ; and last, our present subject, *platycentra*, which, if not the most beautiful of the genus, is at least inferior to none. This plant was obtained from South American seed in the spring of last year, by Mr. Smith, gardener to H. Anderson, Esq., of the Holme, Regent's Park, and by him has been successfully cultivated through the succeeding season in various ways. As a conservatory plant it stands equal to any. Its neat, yet sufficiently free habit of growth, and the long continued succession of its lovely blossoms, render it highly interesting in such a station ; and as an occupant of the open garden it has claims to attention of a peculiar character. That there are other more showy plants ordinarily grown among bedding plants cannot be denied, but what this specimen may want to constitute an immediately striking object is made up by the happy medium style of growth enjoyed by the plant itself, and the constancy with which its pretty little flowers are produced. Its beauty is of that enduring, unobtrusive nature that wins on our attention the more we notice it, and for situations constantly in view we think few plants are better constituted to please.

Perhaps two plants more thoroughly distinct in general appearance, and yet identical in constitutional character, and consequently in management, could not be brought together, than are those represented in our plate. The *Hydrolea spinosa* is a plant that has long been known in our collections, having been originally introduced from South America so far back as 1791 ; but, from some chance or other, seems to have fallen out of notice for a considerable period, until recently it has again been brought forward, and now engrosses much attention.

In habit the plant varies a great deal, according to the treatment it may receive. In an elevated temperature it assumes a

long-jointed, almost scandent character, with medium-sized leaves, and scarcely any thorns ; while in a cool dry atmosphere it becomes almost rigid, its branches ramifying in a decumbent manner, the leaves small, and the older portion of the stem and its branches set with sharp spines. Treated either way, however, it flowers equally profuse, and the lovely bright blue tint which distinguishes its blossoms must be universally admired.

The management of this plant and that proper for the *Cuphea* is so precisely similar that we need not occupy further space in its repetition ; only it may be well to mention that a few rough stones placed so as to cover the ground beneath the spreading branches of the *Hydrolea*, when placed in the open borders, has been found highly beneficial, on account of the constant regular supply of moisture thus afforded the roots, without the risk of excess in any shape, and by the refraction of the sun's rays from the surfaces of the stones inducing a somewhat higher temperature among the branches of the plant.

The genus *Cuphea* was founded by Jacquin ; the name is derived from *kuphos*, curved, in allusion to the bent capsule. It is included in the natural order *Lythraceæ* and *Dodecandria Monogynia* of Linnæus. It contains sixteen or seventeen species, the earliest introduction occurring in 1776. *Hydrolea* is a Linnæan genus, and the type of a small but beautiful order, *Hydroleaceæ*. It contains but two species, and in the sexual arrangement occupies a place in *Pentandria Digynia*.

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## HYDRANGEA.

COMMON as are these plants, it is strange that so many cases of failure should be observable every season to those who, feeling an interest in the plant, are led to make particular inquiries respecting it. That the non-production of flowers is traceable to any inherent disqualification of the plant cannot be admitted, for no plant possesses greater vital powers or a stronger propensity to bloom than does the *Hydrangea*, as witness its appearance when placed in good soil in the open air and left to itself. The artificial conditions under which the plant is placed in the ordi-

nary course of its management must then be looked to for an explanation of the grievous disappointment so often felt in the absence of flower-heads. But that I may not be in the position of those who find fault without offering a remedy, allow me to give the outlines of a method that has proved eminently successful.

Generally speaking, Hydrangeas, like Cockscombs, are esteemed according to the size of the head borne on a single stem, and the more dwarf they can be had, the greater the credit attached to their production. It is of such plants I intend to speak; for, when allowed to bear numerous heads of flowers, the management becomes of far less consequence, the plants being left without other attention than a repotting once a year, but little skill being required in their culture and less merit attached to the ultimate result. The first point of consequence is the selection of cuttings, and on it a great deal of the future success must depend. Unless they are strong shoots, but little chance will exist of their forming fine plants; no cutting, when taken from the plant, should be less in circumference than a good-sized quill, or about three fourths of an inch, with a vigorous plump bud at the point. They should be taken early in August, that plenty of time may be left for their establishment before the winter. The best mode of striking is to insert each cutting in a sixty-sized pot filled with loam and leaf-mould in equal quantities, with sufficient sand about the top to assist the protruding of the roots. A cold frame, kept close and shaded, is perhaps the best position for them till they are thoroughly furnished with roots; after which a sheltered part of the garden should receive the plants till the beginning of October, when it becomes necessary to remove them to a pit or the greenhouse.

According to the time they are desired to bloom, so their future management must be regulated. If intended to be forced so as to begin flowering in March, they should be repotted into thirty-twos in January, and placed in a heat not exceeding  $50^{\circ}$ , near to the light; and, as they advance, should be liberally supplied with water. By deferring the repotting and subsequent treatment the flowering may be removed on in a regularly progressive manner, till in April they will not require artificial heat at all, the power of the sun then being sufficient.

The soil at the final shifting is a matter of much consequence. The staple should be sound, rich loam, with sufficient leaf-mould to keep it porous. Any earth containing oxide of iron, or the introduction of alum with it, will have the effect of changing the colour of the flowers to blue. Liquid manure must be given to the plants just as the flowers appear, and, if they are kept near to the glass without being subject to a higher temperature than 55°, every cutting of the strength described will form a short plant, surmounted with a splendid head of flowers.

HORTULANUS.

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### LIST OF BEDDING PLANTS.

THE system of grouping plants in masses of a single colour, in separate beds of the flower-garden, appears to be increasing in estimation, and we are much pleased to see the public taste extending in this direction, for the superiority of such an arrangement over the chance-medley mixture of colours and plants which used to prevail is so very great in every respect, that we are led to wonder how the latter could have been tolerated so long. Some forethought and a thorough knowledge of the subjects to be employed, together with a judicious selection of such as combine the required habits along with the most desirable tints, is necessary to a successful development of this method of ornamenting the parterre. Generally speaking, the flower-garden is of such limited extent, as to preclude the admission of the more robust-growing plants, and being a spot dedicated expressly to neatness and beauty, any appearance of disorder or decay is not to be endured; it becomes then necessary to admit only such plants as are distinguished for their compact growth, long continued free habit of flowering, and that possess the requisite shades of colouring; the first two characteristics are essential to bedding plants in every position, the third will of course vary with every location. In compiling the following list, we have been directed by a desire to unite all these requisites as far as the nature of the subject will allow, and, with the aid of the attached descriptions, trust to furnish ample materials from which a selection suitable for all sorts of gardens may be readily made;

it will be seen that summer flowering plants alone are mentioned, to select for the whole year being foreign to our present purpose, and they are all of more than annual duration, the latter class being open to a very serious objection, on account of the short time they remain in perfection; in thus circumscribing the list we follow what may be called the popular meaning of the term "bedding plants."

*Alonsoa grandiflora*. The plant attains the height of about a foot and a half, branching abundantly, amply covered with light green foliage; the flowers are rather small, bright scarlet, and freely produced. It requires the protection of a greenhouse or pit through the winter, and may be increased to any extent either by seed or cuttings.

*Alstræmeria*. Any of the species or their varieties are desirable, they vary from one foot to two and a half in their heights, and partake of a number of colours in the flowers, the greater portion are variegated with white, yellow, red, and green; all are free flowerers. The tuberous roots should be taken up in the autumn, dried, and preserved till the following spring, when it is best to pot and start them in a gentle heat, hardening them afterwards, so as to be fit to turn out in May.

*Anagallis, Brewerii, Phillipsii, and Carnea grandiflora*. These are all seminal varieties: the first two are bright blue, and the last, as its name implies, flesh colour; they grow to about a foot in height, but are usually kept as trailers by pegging the branches down to the earth; they are free bloomers, but are open to an objection, inasmuch as that in the absence of sunshine their flowers do not expand. Preserved and propagated in the manner of the first mentioned in the list.

*Anemone coronaria*, both double and single varieties, and the *A. hortensis*. All these are very showy free-flowering subjects, rising but a few inches from the ground; nearly every shade of red and blue is found in their flowers, frequently enlivened with stripes or portions of a pure white. The double varieties should be planted in February, March, and April, and will bloom through June, July, and August, according as they are planted. The single ones may be had at any time or always, by varying the season of sowing or planting. As seed is produced plentifully, and for flower-garden purposes the single kinds are as good as

any, it seems hardly worth the trouble of preserving the roots. It should be sown in beds of light rich earth through any of the spring months, to flower in summer and autumn, and for early blooming, in September or October.

The new species *A. japonicum* promises to be a useful plant in the flower-garden; it has purple blossoms, and grows to near two feet in height.

*Antirrhinum*. Of all the plants employed to decorate the garden, there are few to equal, and perhaps none to excel, the numerous varieties now cultivated of the Snapdragon; they are little or no trouble, and present a mass of floral beauty from July till cut off by frosts; the average height is two feet, and from among the many now grown there can be no difficulty to select suitable colours for any position; white, yellow, crimson and scarlet, with an endless mixing of two or more of these colours, together with spots, stripes, or blotches, prevail among them. The seed should be sown early in March, on a warm border, and the plants may be finally stationed in May; young plants struck in the autumn from lateral slips of the old specimens, will bloom a fortnight earlier than seedlings of the same year. *Brightii*, scarlet; *Fowlia*, scarlet and white; *Gigantea*, crimson; *Delicata*, yellow and white; *Lutea*, bright yellow; *Albiflora*, white; *Ibrahim Pacha*, yellow, pink, and crimson stripes; *Youngii*, white and crimson stripes; *Fulgida*, scarlet and yellow; and *Luridum*, reddish purple, are all good, and thoroughly distinct.

*Armeria cephalotes* forms a very pretty bed, gay with rosy lilac flowers, produced in capitate heads on long slender foot-stalks, elevated above the foliage about six inches, the latter covering the ground. It should be preserved in pits through the winter, and is propagated by cuttings struck in the summer and autumn.

*Bouvardia triphylla* and *splendens* are well known and justly esteemed; their neat appearance and pretty scarlet flowers entitle them to a place in every garden; they require to be planted in a peat bed. The greenhouse or cold pit must receive them while dormant in the winter, and in the spring they should be started in heat, and increased by division or cuttings.

*Calceolaria integrifolia*, and its varieties, *rugosa*, *angustifolia*,



and *viscosissima*, are extremely beautiful, their dense corymbs of bright yellow flowers being produced so profusely, and in such long succession. *C. petiolaris* also forms a fine object treated in the same manner; it, however, requires a little additional care in supporting its slender panicle of blossoms, these are lemon-coloured and produced in the greatest abundance. The first mentioned varieties are of the shrubby class, the latter is herbaceous, the flower-stem only rising from the ground, attaining nearly two feet in stature, and loaded with its pretty globular flowers; at present it is, we believe, rather scarce. *C. floribunda* is another desirable species, with straw-coloured flowers, not equal, however, either in colour or habit of blooming to *integrifolia*, which it resembles in growth. The varieties of *C. corymbosa* are also very pretty when treated as bedding plants, and as they embrace a wider range of colour, assist in making a pleasing diversity; seedling plants of the herbaceous varieties are to be preferred, because they are usually more robust. A light soil in a warm position is essential to the welfare of all the Calceolarias when planted out, and thus must not suffer from want of water. They are propagated either by seeds or slips, struck and preserved in the usual way.

*Campanula*. There are a few species which deserve to be adopted for massing in large beds, such as the double Canterbury bells (*C. medium*); *C. nobilis*, when sufficiently common, will also make a fine object for this purpose; the old *C. pyramidalis* has a beautiful appearance planted in quantity at the back of more low growing subjects of some opposite colour; and *C. carpatica* is an extremely useful plant, being that desirable colour, a bright blue, and at the same time of dwarf habit; the same may be said of *garganica* and *stricta*. The three first mentioned attain a height of from two to four feet; they are half-hardy biennials, propagated by seeds or slips from the root-stock; the remainder are low growing perennials, rather more tender, and therefore only safe in the greenhouse through the winter; they are readily increased in spring by cuttings struck in a gentle heat. The pretty little *C. pumilum* and *P. album* are well deserving a place, as also is our indigenous *C. rotundifolium*.

*Castilleja coccinea* and *lithospermoides* are both showy plants, on account of the bright scarlet of their bracts; they should be

planted in a rather dry situation. For an extended account of their culture, see a late number of the 'Florist's Journal.'

*Chenostoma polyanthum*, although strictly an annual, is introduced here because it will be found to partake very largely of a more persistent character; it is a trailing plant, becoming completely covered with its pretty, rosy, lilac blossoms, young plants are readily procured from cuttings, which will be found the best mode of propagating, as it does not seed freely, these should be planted about a foot asunder, and will then completely fill the space allotted them; it requires the protection of the greenhouse through the winter, where, however, it will yield a return for the attention it may require, by continuing to bloom almost uninterruptedly.

*Cuphea*. We mention this genus most particularly, for the purpose of pointing to two recent species, which promise to be of great assistance, not only to the flower garden, but as ever-blooming plants highly valuable for the conservatory at all seasons; they are *C. miniata*, a free-growing plant, with bright green medium-sized foliage, and pretty bright crimson flowers, about an inch long, produced on all parts of the plant; with this is the *C. strigillosa*, resembling the former in habit, and having rather smaller red and green flowers; it would be quite easy to have them in flower all the year round. They delight, when in pots, in a mixture of loam, leaf-mould, and peat, and are readily increased by cuttings. Another new species may be mentioned as being perhaps preferable to even these, for the same purpose is the *C. platycentra* figured in the present number.

*Delphinium*. Every member of this genus possesses sufficient beauty to render it an object of interest to the flower gardener; they vary very much in stature, between a single foot and from five to six feet. Blue is the prevailing colour, and it is generally of the most intense shade. The following are among the best: *Barlowii*, *Elegans pleno*, *grandiflorum* and its varieties, *album*, *pleno*, and *Iverana*; they should be guarded from severe weather by potting in the autumn, and a place in the cold-pit through the winter.

*Fuchsia*. This genus is so well known as to need no remark, further than the suggestion to employ only the hardier old kinds for bedding, the more tender modern varieties being, from their

highbred condition, constitutionally unsuited to bear the vicissitudes of our seasons out of doors.

*Gaillardia picta* and a variety of it called *grandiflora* are very showy, and though somewhat straggling in habit, cannot well be spared where there is occasion for much variety; their flowers are large, deep red, with a yellow centre, and freely produced for a long time; they require to be protected in winter, and are increased either by seed or cuttings.

*Gazania ringens* and *uniflora* are both strikingly brilliant objects, the first has large yellow flowers, with a black centre, and the second is entirely yellow; they do not exceed a foot in height, and continue to produce a profusion of flowers through the entire summer. Propagation is effected by cuttings, which should be taken off and struck in the autumn; they are easily kept in a pit secure from frost.

*Hydrangea*. Both the common *hortensis* and *japonica* form good bedding plants, and for vases perhaps it would be difficult to select anything more appropriate. In the autumn strong cuttings should be chosen and struck, keeping them in small pots in a dormant state through the winter; in March they should be repotted and encouraged to grow, when the bloom buds will soon develop themselves; plenty of water and liquid manure will be wanted at this time, that the flowers may be encouraged as much as possible, and when they are well expanded the plants may be removed to any desirable position.

*Hydrolea spinosa*. A lovely, little, slender-stemmed plant, with beautiful bright blue flowers, which it produces very freely when treated with a warm position in the garden. It should be planted in light soil, and if intermixed with a few large stones, to secure drainage and reflect the sun's rays, the plant will be found to thrive in proportion. Through the winter it requires to be nursed in the stove or at the warmest part of the greenhouse; cuttings strike readily in March and April, forming nice plants for the borders by May.

*Lantana Selovii*. An old plant, much neglected, but deserving to be grown for its neatly-compact style of growth and pretty blue-lilac blossoms, freely produced through the whole of the summer. In winter it requires the usual accommodation, and in spring may be propagated with facility.

*Leschenaultia formosa* and *biloba* may both be grown as bedding plants in situations where the air is pure and soil composed of peat; young free growing plants that have stood the winter in six-inch pots are most suitable for turning out, they make very handsome specimens by the autumn, and if desired, may be taken up to grow onwards in pots; when this is intended, they should be surrounded with pieces of turfy soil, that the roots may be got whole on their removal from the bed.

*Lilium*. For the larger beds and boundaries of the flower garden all the tall Lilies are well suited, particularly the varieties of *speciosum*; the dwarf kinds, such as *longiflorum*, have a beautiful appearance when planted in the clumps of Rhododendron's and other similar shrubs, their white flowers seeming to gain intensity from the deep green of the foliage by which they are surrounded.

*Linaria*. As a hardy, free-flowering genus, this may occasionally be admitted among bedding plants. The annuals should be sown in March rather thickly, as the object is to have a mass of bloom, and the plants are so accommodating as to bear crowding; the same may be said of the perennial species, which will succeed, with but few exceptions, when but little else could be had. We have even employed the common *L. vulgaris*, and with excellent effect, for it is covered with its pretty, bright yellow flowers all the summer and autumn.

*Linum flavum* is an excellent plant for bedding, its large yellow flowers being very conspicuous; there is no trouble in increasing or preserving this if it is allowed the protection of a cold pit in winter.

*Lobelia*. This genus is extensively adopted for flower-garden purposes, all its members being grown in some situation or other. Of the tall-growing kinds we prefer *ignea*, bright red; *atrosanguinea*, a variety of *splendens*, very deep crimson; *grandiflora*, of similar origin and colour; *splendens*, scarlet; *syphilitica*, blue; *speciosa*, purple; and *caelestis*, blue: these when bedded should stand in very rich soil, composed of fibrous loam and rotten hot-bed dung in nearly equal parts; they should have plenty of water when the flower-stems are rising, and must be carefully tied as they advance, or they are liable to become damaged by wind.

Their propagation is managed by separating the root-stocks, either when they are taken up in the autumn or in March, when they are repotted to prepare them for the following season ; through the winter they should be kept rather dry, or at least, in a dormant state.

Perhaps no other genus presents such a meeting of opposite characters as are observable in the plants just mentioned and those little creeping species equally well known as varieties of *L. erinus* and *L. gracilis*, the difference is so great as to lead to the supposition that a misnomer must exist in one section or the other. For bedding purposes the creeping kinds are much esteemed, as they may be introduced immediately at the front of large mixed beds, or when every small one occurs these little plants can be used without outraging the proportion that should always be observed in the relative size of the bed and the plants it contains ; *erinus*, and the varieties *grandiflora*, *alba*, *compacta*, and *c. alba* are most frequently used ; *compacta* is a particularly close growing plant, very neat in its appearance, but does not bloom so freely as the others, its greatest height does not exceed three inches, while the others often reach twice that stature.

If a few plants of these are preserved in a pit through the winter they may be multiplied to almost any extent in spring, by striking the cuttings in a gentle hotbed.

*Nierembergia*. The whole of the four species included in *Nierembergia* are handsome, little, free-flowering plants, well suited for the smaller beds ; their silvery-white flowers, having a purple centre, are produced so profusely, and in such long succession, as to render at least one of them quite indispensable in every flower garden ; the plants are distinguished by their slender branching stems and neat habit. They are preserved and propagated in the usual manner of greenhouse plants. In the beds they should be planted one foot apart.

*Ænothera macrocarpa*, with very large yellow flowers, *Drummondii*, yellow, and *taraxacifolia*, white, should always be grown, as they are dwarf-spreading plants and excellent bloomers. They require a light airy situation in a good pit through the winter, or they are liable to injury from damp ; propagation is usually effected by cuttings, though seed is sometimes produced in sufficient quantity. Each plant will cover two feet of space.

*Pelargonium.* From this extensive family we should select for bedding only the scarlet and variegated kinds. Of the former the most desirable are those which combine a dwarf, compact style of growth with a free habit of flowering, such as Tom Thumb, Huntsman, Frogmore, and Fireball. The first of these is very generally admitted to be the best for flower-garden purposes, as it possesses the requisite qualifications in an eminent degree. The silver-striped variegated kind is often useful for enlivening the front of beds containing dark masses of evergreen, with which it harmonizes very well. The modern fancy varieties are objectionable, as they do not continue to flower after the middle of July. The management of these plants is so well known that we need not go over it, merely remarking that preference should always be given to the old plants for bedding, as the young produce of cuttings taken in the autumn of the previous, or spring of the current year do not flower so soon or so freely as those which are a year or two older.

*Penstemon gentianoides* and its varieties are universally esteemed. They are of rapid growth, attaining about three feet in height, producing numerous spikes of large tubular red flowers. The plants are nearly hardy, merely requiring to be guarded from severe frost. Propagation is effected either by seed or cuttings, operated on in March.

*Penstemon Cobea*, *Murrayanum*, and *speciosa* are beautiful plants, but do not succeed, except in certain favorable situations, and, being very liable to damp off in winter, cannot be recommended for general adoption.

*Petunia.* The numberless varieties of *P. phœnicia* are among the easiest plants to manage, and the most prolific of flowers that can be introduced, a bed of these continuing an uninterrupted blaze of beauty from June to October. The colours may be selected of any required warm shade between pure white and the richest purple, or they may be promiscuously mixed without offending the scrutinizing eye of taste. The plants should be stationed about two feet from each other, and, if left to themselves, will effectually cover their allotted space without rising more than a foot and a half. Seed sown in March will form excellent plants for turning out at the usual time, but if particular colours are required, it will be necessary to propagate a stock

from cuttings in the autumn, as the seedlings may vary considerably.

*Phlox*. Among hardy herbaceous plants there are few more beautiful than these. The varieties are sufficiently numerous to allow a handsome group being formed. The following twelve, diminishing in height as they are named, from three feet to scarce as many inches, may be recommended as forming a very beautiful mass when planted together: *paniculata*, purple; *pan. alba*, white; *excelsa*, red; *reflexa*, purple; *læta*, white; *Ingramii*, lilac; *decussata alba*, white; *Allcardii*, deep rose; *Lorainii*, crimson lilac; *Murrayana*, rose; *ovata*, deep rose; *nivalis*, white.

*Pimelia decussata* and *mirabilis* form fine objects when turned into the open ground, as they then grow vigorously and flower in profusion. They require to be treated as recommended for *Leschenaultia*.

*Pyrethrum Parthenium pleno*, or double Feverfew, is a very desirable plant for massing among shrubs. The flowers are white, and are copiously produced through the entire summer and autumn; it is quite hardy.

*Salvia*. In this genus there are some especial favorites: *fulgens*, red, *splendens*, scarlet, and *patens*, blue, being very generally grown for large beds. Several of the hardy herbaceous species may also be employed with considerable advantage. Two feet may be regarded as the proper space for these plants. Their general management is of the usual kind, and therefore we need not repeat it.

*Senecio elegans*. The double red and white varieties of this plant form very good beds through the summer and early part of autumn. The requisite stock should be prepared from cuttings taken in September, as seedling plants will be found to vary considerably in colour.

*Silene Schafta* is likely to form a very desirable addition to our hardy herbaceous plants, judging by the character we have with it. It is increased by cuttings or seed in the autumn. The colour of the flowers is a bright, deep rose, and the plant is a trailer.

*Stachys inodora*. In habit resembling the *Salvias*, though rather neater on the whole, blooming profusely all the summer,

quite hardy, and readily propagated by cuttings. The flowers are red.

*Thunbergia alata*, buff, *aurantiaca*, orange, and *alata alba*, white, are very desirable in warm situations. They may be treated either as climbers or as trailing plants. Against a wall or rambling over rockwork they wear a very appropriate appearance. To cover the margins of baskets and vases, or even to fill entire beds, they are equally suited. In the latter position a framework of wire or short spreading sticks should be placed to support the stems from the ground. If seed is sown in heat early in March, and the young plants are encouraged to grow freely, there will be no necessity to keep them through the winter.

*Torenia*. We are led to expect by the statements of several correspondents, that the new species of this genus, *asiatica* and *concolor*, will be found sufficiently hardy through the summer to flower in the open air, and may therefore be included in our list of bedding plants. They are both very free to grow and flower in pots, but require some nursing through the winter; propagation is effected by cuttings, which do best when taken off in spring, and encouraged to grow in a gentle hotbed. They will assume a trailing habit when left to themselves, and produce abundance of lovely blue and purple blossoms.

*Verbena*. The varieties of this popular flower are found in every place where gardening is attempted at all. When required for planting in masses, it is requisite that the kinds selected possess some decided colour, and if more than one is employed, as great a distinction as may be possible should be secured in the colours, especially if they are brought at all near to each other. For entire beds of a moderate size, it is also essential that the kinds adopted are remarkable for a compact habit of growth, the straggling character of some varieties, imparting an untidy appearance, nor do these usually bloom so freely as the more dwarf-growing sorts, or if they do, their flowers are lost among the superabundant foliage. Such kinds as *Fulgida*, *Wonder*, *Boule de Feu*, *Melindres superba*, *Zeuxes* scarlets of different shades, *Avalanche*, *Princess Royal*, white, *Parksi*, *Excelsa*, *Duchess of Sutherland*, *Rose d'Amour*, *Favorite*, rose coloured, and *Atrosanguinea*, *Duke of York*, *Louis Philippe*, deep crimson, together



with the two or three blue ones, such as *Impératrice Josephine*, *Emma*, and *Blue Queen*, will be found to afford all the variety desirable, where they are considered only as ornamental plants without reference to their cultivation as florist's flowers. We prefer young plants in a growing state, obtained by striking early in spring, to the stores which have stood through the winter, as they usually grow away more rapidly, and wear altogether a better appearance. For providing a stock for the following season, cuttings ought to be struck in August (not later), as little dependence can be placed on younger plants or layers, which may live through the dull weather, but more frequently fail. It would amply repay the trouble, could we procure varieties with the habit of the old *Speciosa* or *Sabini*, and we suggest the trial to those interested.

*Veronica speciosa* and *salicifolia* may also be included among bedding plants, the only point necessary to ensure a good display of flowers being to provide well-established plants for the purpose, such as fill an eight-inch pot being most suitable; these in large beds have a noble appearance, and after a season in the open air, may be taken and potted as specimens suitable for exhibition, as they usually grow very rapidly under such treatment. Their height may be stated at two feet, and the deep purple flowers and handsome foliage of the first, with the white flowers and lighter habit of the last, are very desirable.

EDITOR.

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### THE GENUS LILIUM.

I HAVE thought a brief description of some of the most beautiful members of this genus would interest your readers, and afford some assistance in making purchases, and accordingly send it. Few plants equal the Lilies in stately grandeur, and any one may enjoy their loveliness who will be at the pains to plant the roots in a bed of tolerably rich light soil, and *leave them alone*; six inches from the crown of the bulb to the surface of the earth, is about the depth that the larger bulbs should be placed; those which are naturally small, should not be put more than half so deep. In the autumn, a layer of half-decayed leaves should be spread over the bed, to be turned in with a little manure in spring, and this completes their culture as border plants, which every one of them is hardy enough to endure.

*Andinum.* Bright scarlet, erect, campanulate flowers; the plant attains about three feet in height, and blooms in July and August. A native of North America.

*Atrosanguineum.* Dark red, partially reflexed flowers, two feet may be called its average height; the blooms are produced in June and July. From Japan. Syn. *fulgens*.

*Bulbiferum.* Erect, campanulate, orange-coloured flowers, produced in June and July; the plant grows to three feet. A native of Italy. The garden varieties, *florepleno*, *minus*, and *umbellatum*, differ only in the manner their several names imply.

*Canadense.* The flowers are light orange, reflexed, and very handsome; the plant grows to about three feet and a half, and blooms in July and August. A native of North America. The variety *rubrum*, has deep orange-coloured flowers, but does not differ in any other respect.

*Chalcedonicum.* The scarlet Martagon, is a very showy species, with brilliant red reflexed flowers, thickly studded with raised dots; it flowers in July and August, and attains a height of four feet. A native of the Levant.

*Concolor.* Deep red, erect, campanulate flowers, very hairy inside; the plant grows to two feet, and flowers in July. A native of China

*Eximium.* White, pendant, campanulate flowers, very large, produced in July on a plant not more than a foot and a half high. A native of Japan. Syn. *speciosissimum*; but very little if any difference exists between this species and the two known as *japonicum* and *longiflorum*, which I believe to be positively identical.

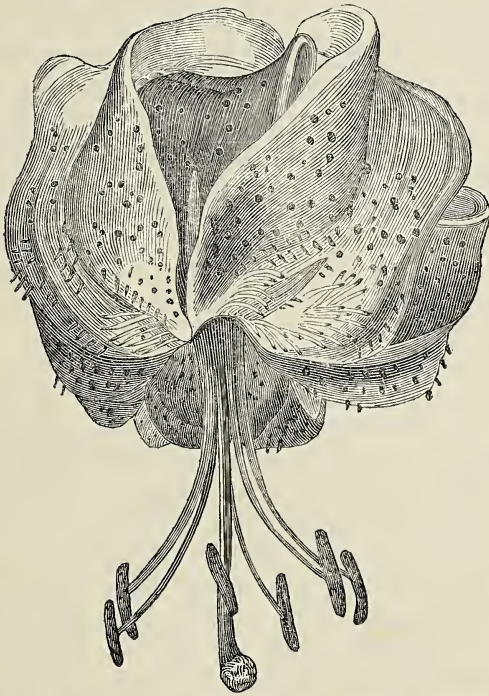
*Martagon.* The Turk's Cap. Flowers reflexed, purple, produced in July and August, on a plant growing three feet high. There are a number of varieties of this species, differing more or less in colour, and much esteemed by the Dutch florists.

*Monadelphum.* Rather small, yellow, reflexed flowers, borne on a plant about two feet in height, through June and July. A native of Caucasus.

*Philadelphicum.* Light orange, erect, campanulate flowers, on a five feet stem, in July and August. A native of North America.

*Pumilum.* An interesting little species, with scarlet reflexed flowers on a stem not exceeding a foot. From Duraia.

*Speciosum*. The true species is perhaps the most magnificent of the whole family; its flowers are large, the petals reflexing, the ground colour white, suffused with a deep rich rose colour, thickly dotted with the richest crimson, they are borne on a stem of four to five feet, in July and August. Syn. *lancifolium rubrum*. The varieties *punctatum* and *album*, differ, the first, in being some shades paler in the rose colour, and the latter in being entirely white, they are commonly known as varieties of *lancifolium*, a complete misnomer, as, I believe, that species has not yet been introduced. All of them are derived from Japan.



*Testaceum*. Yellowish orange, campanulate flowers, borne on a three feet stem, and produced in July and August.

*Tigrinum*. The Tiger Lily is well known, and admired for its deep orange, reflexed blossoms spotted with red, they are produced from July to September, on a stem averaging three feet. The plant is a native of China. AN ADMIRER OF THE TRIBE.

## DESCRIPTIVE LIST OF NEW PLANTS.

MALVACEÆ. *Monadelphia Polyandria*.

*Hibiscus Moscheutos* (Linn.). This noble plant, although one of the oldest inhabitants of our gardens, is seldom seen in cultivation. According to the learned authors of the Flora of North America, it inhabits the borders of marshes, particularly near the salt water in Canada, and throughout the United States, flowering in the months of August and September. They describe it thus : stem three to five feet high, minutely tomentose ; leaves about five inches long and three wide, rather obtuse at the base, with a long acumination, often with three short abruptly-acuminate lobes, velvety tomentose beneath ; peduncles axillary, two inches long, articulated a little below the flower, often coalescing with the petiole to a considerable distance above the base ; flowers as large as in the common hollyhock, rose-colour, or sometimes nearly white, crimson at the centre ; petals obovate, retuse ; staminal column one third the length of the petals ; styles exerted ; capsule as large as in *H. Syriacus*.

This splendid hardy herbaceous plant thrives best in a mixture of sandy loam and peat, to which should be added a small portion of well-decomposed cow-dung. It grows from three to four feet high, and flowers in September and October. Although quite hardy, it is very impatient of wet when in a state of rest, and is best treated as a pot plant in the following way : About the middle of March repot the plant, and place it in a close damp pit where there is a little heat to start it ; and as the plant produces many young shoots, select five or six of the strongest, and remove all the others as they are produced ; afterwards water freely, and keep the plant in a rather moist pit through the summer. It will then flower freely during the autumn, which, if planted out in the open border, it never does. When done flowering, withhold moisture first from the atmosphere of the pit, and afterwards gradually from the roots, until the soil in the pot becomes quite dry, when the pot may be stowed away in a dry cellar, or similar place, until the following March, when it will be ready for starting again.—*Bot. Reg.* 7-47.

LEGUMINOSÆ. *Garden Hybrid.*

*Erythrina Bidwillii.* This plant was sent me at Spofforth by Mr. Bidwill, from Sydney. I am not sure whether it was raised by himself or by Mr. Macleay. It is a hybrid production from *E. herbacea*, impregnated by *E. cristagalli*, and is remarkable as being, I believe, the only certain hybrid papilionaceous plant we have. It is a very beautiful plant, of intermediate habits; its vigorous shoots die down to the root after flowering, and have leaves of an intermediate form, approaching in colour and gloss rather to those of the Carolina *E. herbacea*. The flowers are of intermediate size and colour; but, like those of *E. cristagalli*, borne by threes at the axils of the leaves as well as on a terminal spike, while those of *E. herbacea* are borne on a leafless spike proceeding from the root. I hope to multiply it by cuttings, and consider it to be a great acquisition.—W. H.

For the foregoing memorandum we are indebted to the kindness of the Hon. and Very Rev. the Dean of Manchester.—*Bot. Reg.* 9-47.

IRIDACEÆ. *Triandria Monogynia.*

*Iris setosa* (Pall.) This very pretty plant is said by Dr. Fischer to inhabit the northern part of Eastern Siberia, along the Lena, about Schigansk and Jakutzk, in Kamtschatka, Unalashka, Escholtz's Bay, Chamisso's Island, &c. Its root is said to be poisonous, but we know not on what authority. It is a very hardy herbaceous species, growing from one to two feet in height, if planted in any good garden soil and freely supplied with water during the growing season, but afterwards, the plants should be kept rather dry, as they are very impatient of damp or wet during the winter months. The flowers are of medium size, bright delicate lilac, striped or veined near the base of each petal with crimson, the claws of the petals are yellow, thickly striated with red. It is best increased by seeds treated in the usual way, but the young plants will not flower before the second year. It was raised in the garden of the Horticultural Society, from seeds received from Dr. Fischer, and flowered in May last for the first time.—*Bot. Reg.* 10-47.

FABACEÆ. *Diadelphia Decandria.*

*Lupinus Ehrenbergia* (Bentham). A very pretty, half-hardy

biennial, growing from two to three feet in height if planted in any good rich garden soil. It is well suited for cultivation in the open borders, as a summer annual. The seed should be sown on a little heat in February, and afterwards treated as half-hardy annuals are. The flowers are produced in whorls, the upper portion of each is white, having a blush of yellow on the front of each petal, and the keel is bright blueish purple. It flowers during the latter part of summer and autumn, and was raised in February 1846, from seeds received from Mr. Hartweg, said to have been collected on the mountains near Anganguco, in Mexico.—*Bot. Reg.* 11-47.

CONVOLVULACEÆ. *Pentandria Monogynia.*

*Exogonium purga* (Bentham). Although *Jalap* has been used in European medicine for nearly two centuries and a half, it is only within a few years that its botanical source has been correctly ascertained. The plant long cultivated as yielding the true jalap, in the stoves of Europe, and among the rest in the Botanic Gardens at Edinburgh, is the *Convolvulus Jalapa* of Linnæus and Willdenow, or *Ipomæa machroriza* of Michaux, a native of Vera Cruz. But between the years 1827 and 1830 it was proved by no less than three independent authorities, M. Ledanois, a French druggist, resident at Orizaba, in Mexico; Dr. Coxe, of Philadelphia, through information supplied by Mr. Fontagnes, an American gentleman, who lived at Jalapa; and Schiede, the botanical traveller, from personal examination, that the drug of commerce is obtained, not from the hot plains around Vera Cruz, but from the cooler hill country near Jalapa, about 6000 feet above the level of the sea, where it is exposed to frost in winter time, and that the plant which yields it is an entirely new species. Schiede introduced the plant for the first time into England, and it has been cultivated in various botanic gardens of Germany. In this country it was probably first grown in the Botanic Garden of Edinburgh, from a tuber sent by Dr. Coxe, of Philadelphia, to Dr. Christison, in 1838.

The plant belongs to the genus *Exogonium* of Choisy, as defined in De Candolle's 'Prodromus,' although the author places it under the genus *Ipomæa*, from which it is at once distinguished by its exserted stamens. It grows on the mountains of Mexico.

Schiede found it at a great elevation on the eastern slope of the Mexican Andes, near Chiconquinaco, and also on the eastern slope of Cofre de Perote. Hartweg gathered it in Mexico, and it has been described by Bentham from his specimens. With us the plant requires to be grown in a cool pit; its tubers are roundish, becoming as large as a moderate-sized turnip, brown externally, whitish internally, giving rise to numerous rootlets and stems, which twine from right to left, and are more or less branched, purple-red, extending ten or twelve feet; the leaves are alternate cordate or sagittate-cordate, deeply lobed at the base, glabrous on both sides, slightly rugose, dull green above and pale or subglaucous beneath. Peduncles about two inches long, reddish, axillary, twisted, wiry, two or three-flowered (rarely one-flowered); corolla shining, glabrous, between funnel and salver-shaped, of a purplish-red colour; tube slightly contracted at its juncture with the limb, then widening and ultimately tapering downwards, about two inches long, purplish-red outside, whitish within, limb, expanded, two and a half inches across, somewhat rugose or undulated, of five blunt, slightly-notched lobes, and shallow sinuosities between them; æstivation contorted; stamens five, colourless, exerted beyond the tube, and towards one side of the throat shorter than the limb.—*Bot. Mag.* 4280.

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#### CALENDAR OF KITCHEN GARDEN OPERATIONS FOR MARCH.

DURING this month the greater part of the main kitchen-garden crops require to be sown or planted. Preparation should be made for at least two full sowings of peas, both of marrows and Prussians, as well as of the earlier varieties. Where they are sown in rows, from four to six or more feet apart, in the old-fashioned way, spinach or other dwarf crops may be sown between the rows. But the preferable plan is to leave considerable intervals between the rows of peas or other tall crops, so as to allow of several rows of other vegetables between, as, by this arrangement, the tall crops will afford a grateful shade to the others in hot or dry weather, at the same time that they will grow much stronger from the greater freedom of the atmosphere about them.

Towards the end of the month, if warm and dry, sowings of French beans and scarlet runners may be made in warm situations. If any of the first have been grown in pits to forward them, care should be taken to give them air as often as possible, as they will be of little use if drawn up too long.

Sow a successional crop of cauliflowers, and put out under hand-lights the previously raised plants. Also make at least two sowings of cabbage during the month. Make at least one sowing of savoys, Brussels sprouts, red cabbage, and similar plants, bearing in mind that it is preferable to sow such crops little and often, than the contrary. Also, as soon as the ground is sufficiently dry to work freely, set the hoes at work, and keep the surface rather deeply stirred among the cabbages and all crops which ought to be growing strongly.

Sow full crops of onions and carrots, and sow them in drills. The advantages of drilling all crops are so many and so manifest, that it is hardly bearable either to the eye or mind to see a slovenly broad-cast crop at the present day. Where large onions are an object, transplant on to a well-prepared border some of the previously raised plants, taking care not to bury any part of them but the white fibrous roots, as they never swell well if the stem be covered. If not already done, full crops of leeks, shalots, garlic, chives, &c., should be got in.

Make full plantations of potatoes, and, for succession crops, forward more in pots in vineries or frames, for turning out when the shoots are about three or four inches long. Sow asparagus, seakale, and rhubarb, and, where necessary, make fresh plantations. The same advantages attend the cultivation of these plants in rows at wide intervals, as has been stated in regard to peas.

Get in successions of spinach, lettuce, radishes, and small salads, and protect all seeds as far as possible from the ravages of birds, mice, and other vermin. If necessary, and good runners or established plants are at hand, make up plantations of strawberries: with care they will bear well the same season. Look to last month's directions, and keep all work as much before the set time as weather and opportunity will permit.

D. M.







CLOXINIA FYIANA.

## THE GLOXINIA.

WITH AN ENGRAVING OF G. FYFIANA.

THE recurrence of a noticeable member of this beautiful genus is always a matter of gratulation with us, for, as we have on previous occasions pointed out, there is scarcely a more interesting, ornamental, or easily-managed family of plants to be named. Every improvement or variation of the ordinary character of the genus has hitherto been received by flower-growers in a manner most flattering to their fortunate originators, because of the valuable assistance thus afforded through their means. How cordial the welcome of the present subject, possessing as it does so thoroughly distinct an appearance, may then be readily imagined. To Messrs. Drysdale and Co., Nurserymen, of Glasgow, we are indebted for our knowledge of the plant and for the accompanying communication relative to its history :

“*Gloxinia Fyfiانا* was raised from seed saved in 1844, supposed to have been taken from *G. maxima*, by Mr. John Fyfe, gardener, of Rothsaye, Bute. Nothing certain, however, is known of its parentage ; the resemblance in colour only leading to the supposition that such is its origin. It flowered for the first time in the summer of 1845, and has necessarily been much admired.”

What we have advanced on former occasions respecting the culture of this genus, we again repeat—that in every garden where accommodation exists of a common frame and upwards, Gloxinias may be made to form a prominent feature in the ornamental portion of the collection. It is not mere assumption to say, that a stove or even greenhouse is totally unnecessary, because as fine specimens as need be desired have been produced with no other aid than a slight hot-bed and a single-light frame, which, happening under our immediate cognizance, precludes further doubt, and reduces the subject to a plain matter of fact. The course of management to be pursued under such circumstances, is to provide early in March a sufficient quantity of hot stable-dung, and by turning and shaking it with a fork, to impart an equable warmth of a moderate quality through the entire

mass. If the heap contains no more than a cart-load, it will not be advisable to turn it more than once, lest the heat be driven off; two loads will probably require to be turned twice, at intervals of three or four days, and once more for every additional cartful will most likely be necessary. This, however, must be determined by the state of the mass, for so long as strong, rank-smelling steam is given off, it will require to be turned. Particular attention must be given to this preparation of the material, or when the bed is made and the frame placed on it, the heat will be found so violent that nothing can exist in it, and then, as soon as the violence subsides, it will decline so rapidly as to require renewing in a very short time. Not so, however, with the well-prepared bed, in which the heat will be regular, moderate, and long continued. With the bed at a steady heat of 65 or 70°, the bulbs may be potted and plunged for about half the depth of their pots into the bed. From the circumstance of these plants being natives of the borders of tropical forests, they require to have light vegetable mould to grow in, a humid atmosphere about them, and shade from bright sun-light while in an active state. To supply the first requisite, it is usual to mix peat, leaf-mould, and sand in equal quantities, and it is also essential that a very efficient drainage is secured in the pots, or, from the fleshy nature of the roots, much danger may arise from stagnate moisture in the soil; chopped moss, broken charcoal, or potsherds may be mixed with the earth, to keep it porous and assist the passage of the water through it; not less than a third of the depth of the pot should be filled with sherds, and, to allow its ready escape from the pot, see that the hole at the bottom is large enough and clear of impediment. In potting, the bulb should be surrounded with silver-sand, and its crown kept just level with the surface of the soil. New roots are soon protruded, and though it is highly important to provide for the free emission of superfluous moisture from the soil, it is also of vital consequence to keep them duly supplied with water, for, as before remarked, they delight in a humid atmosphere, and as a matter of course, the soil must be proportionately damp. In hot, dry weather, a thick shade must be thrown over the frame, and, as a further assistance to their development, the whole of the foliage should be slightly sprinkled every evening, and, by

keeping a lively moist heat in the frame, their progress will be rapid and satisfactory. When the flowers begin to open, a drier and cooler air will be necessary, and then the plants may be removed to the sitting-room, placing them near to the light in a position that will secure them from draughts of cold air, the chilling effects of which may cramp the blossoms or injure the leaves. Their peculiar fitness for this position is evident, and, after an introduction, must secure them a preference wherever flowers are admired. The rich texture of the foliage is quite unsurpassed, nor will the flowers suffer by any just comparison. The entire plant is dwarf, compact, and pleasing in its general appearance, and free from the serious objection urged against others remarkable for strong perfume. In short, was a concentration of everything magnificently rich and striking among flowers desired, we could scarcely imagine a more suitable form than that possessed by the Gloxinia, and its beauty may be enjoyed at such a trifling cost of trouble; for, with only three months' attention to its growth in the manner described, fine plants will be obtained that will continue flowering through the remainder of the season, and then in winter they require no further attention than to be put away in some place perfectly dry and secure from frost. This latter character makes them particularly valuable to the amateur grower, as he incurs no risk at all with them. To prepare them for this hybernation, it is only necessary to stand them in the sun for a week or two, when their beauty declines, and by degrees to withhold the supply of water, the effect of which will be to mature the underground parts of the bulb, when the stem and leaves will wither and die; the pot may then be stowed away till the succeeding season.

As occupants of the stove in the more extended establishment, their presence is indispensable, and, by a little management in the starting of the bulbs, flowering plants may be had for a very long period. The earliest should be potted and introduced to heat about mid-winter, to be followed in successive intervals of three weeks or a month by others, till the opposite season of the year.

It is a matter worthy of remark, that these roots seldom keep long in winter, when taken out of the soil in which they have been growing, and it is therefore advisable merely to dry the

earth in the pots thoroughly on the completion of the season's growth, and so preserve them without removal, which seldom fails to carry the bulbs through the dormant season in perfect safety.

The following list of the genus may be useful to those forming collections :

## SPECIES.

*Caulescens.* Purple tube and limb, shaded throat, remarkable for the length of its stems.

*Digitaliflora.* Flowers small, but numerous, shaded purple.

*Discolor.* Flowers blue, the leaves are variegated with pale and deep green.

*Hirsuta.* Flowers pale blue, with white throat; the leaves are covered with a long, soft pubescence.

*Maculata.* A tall-growing species, inferior to most others; the flowers are purple and the leaves striated with deep green.

*Menziesii.* Pale purple flowers, with a white throat, very numerously produced.

*Picta.* Lilac and blue; the leaves are variegated.

*Speciosa.* The most common of the genus; flowers small, blue, with a white throat.

*Tubiflora.* Flowers pure white, produced on a slender erect stem. This and the character of the foliage gives the plant an appearance closely resembling the *Gesneria*.

## VARIETIES.

*Bicolor.* Blueish purple, upper segments of the limb edged with white, light throat.

*Candida.* Rather small flowers, pure white. The plant is very delicate and difficult to keep in winter.

*Cartoni.* Large pink, the margin of the limb and throat white.

*Cerina.* Pale rose; a free flowerer.

*Fyffiana.* The subject of our present plate, most remarkable for its erect flowers; tube and limb white, having a band of blueish purple round the interior of the throat.

*Insignis.* Tube deep pink, limb white, upper segments shaded and veined with rose, blueish throat.

*Magnifica.* Deep pink, pure white throat.

*Maxima.* Large, white tube and limb, blue throat.

*Presleyi.* Very large, deep blue, extremely rich.

*Rosea alba.* Pale rose, shaded with deeper in various parts of the tube and limb, throat white.

*Rubra.* Vermilion-coloured tube and limb, white throat.

*Speciosa alba.* White tube and limb, streaked with blue in the throat.

*Stanleyi.* Large, white, with blue stripe in the throat.

*Superba.* Large, violet, white throat.

*Youngii.* Large, pale violet, and white throat.

### THE MANAGEMENT OF WARDIAN CASES.

It has occurred to me that a few brief hints relative to the management of these interesting miniature plant-houses may be useful to such of your readers who, like myself, delight in flowers, and yet possess but few facilities for their culture. The healthy appearance which plants of all sorts wear when kept in these cases, even in the midst of a densely populated district, is really surprising, and the little attention necessary (which in itself should be a pleasure to those who really love them) is thus amply repaid.

A good deal of your future success depends on having the case properly adapted. If it is a large one, it should always have a door at one end, as it is troublesome and dangerous to be continually lifting the entire covering from off the plants. A moveable panel, however, enables you to give water or dry the plants as the case may seem to require. I think it preferable, for the sake of making an occasional change, to grow the plants in pots, and would advise that they stand on a trellis or some open floor, to allow an easy escape of the water, after having passed through the pots; it should then fall into a zinc trough, which may be withdrawn and emptied each time that fresh water is applied.

I would also recommend that the case be made without feet, so that its base may rest on some flat surface, like that of a table, for, when elevated, so as to leave a space beneath it, I find

that cold draughts of air, the fumes of gas, and other matters, find their way up among the plants to their evident injury. These may appear simple things in themselves, but it must be remembered that much is made of many littles, and our ultimate success in more important things is not unfrequently secured by attention to even more minute particulars than these. In the earliest part of the spring I procure a sufficient number to fill the case of such things as crocus, tulips, narcissus, and other early flowering plants, including the double and single snowdrops, the several varieties of the hepatica, the dog's-tooth violet, the common and double violet, the Chinese primrose, &c., and, having them potted, they are placed in the case, their pots enveloped, and the mould covered with bright green moss, from among which the flowers soon spring, and have a most enchanting appearance. These afford a continuance of flowers, with a few trifling additions, up to the middle of April or even May, when they are succeeded by small, growing plants of Gloxinias and Achimenes, selected so as to have white, blue, scarlet, and their intermediate shades properly mingled throughout. At this season a little shade appears to enrich the colours of the flowers. I therefore include a late plant of *Tropæolum Jarrattii*, or, failing that, the *Ipomœa rubro cœrulea*. These are twined over, or rather under, the roof; and, should any additional shade be necessary, a piece of gauze thrown over the outside answers the purpose effectually.

Water is not required more than once a week, supposing the case to be kept generally closed, but in proportion as the air is admitted by leaving it open, so much more water will be required. When the summer occupants begin to decline in beauty, the season will be so far advanced as to preclude the enjoyment of more flowers. They are consequently taken out, and, being bulbous-rooted, are dried and preserved till wanted in the next season, their places being filled with a group of cactaceous plants. Kept expressly for the winter decoration, they are shut up close prisoners throughout the season, and are no trouble, still presenting the same irregular outlines, and, being enlivened with the green moss, wear a cheerful character, though devoid of floral beauty. Thus, the three sets of plants furnish the case through the entire year, and always present something interesting or beautiful.



It may be well to say how I manage with those which are in reserve, awaiting their turn to be admired, as, for instance, the Cacti, which are only seen in the case in winter. These are every spring repotted and placed in a southern window for the summer. Here they require to be frequently watered and encouraged to grow, and sometimes I am rewarded with a splendid flower. This course of treatment keeps them healthy, and they increase in stature a little—a matter, however, of but little consequence, as it is not desirable to have them large for the purpose. Then the Gesneraceous plants are kept quite dormant in a closet from the time they are taken from the case till the following March, when they assume a peripatetic character, and usually travel to the hot-bed of a friend, where they luxuriate for a month, and return to their old station in the case.

The spring section I do not deem worth growing a second time, and they are therefore taken out as they decline and thrown away, though I doubt not, were they attended to, would form useful additions to the borders of a flower garden.

FLORA.

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### PRIMULA SINENSIS.

THE successful cultivation of this pretty greenhouse plant is a matter of much consequence to most gardeners, and how to ensure it with proportionately little trouble must even be worth consideration; the following method will be found to possess peculiar advantages, and may be confidently recommended especially where they are required in quantity.

Sow the seed in February in the usual manner, and as soon as the young plants can be handled prick them into pans filled with a mixture of well decomposed leaf-mould and sandy peat; keep them under the influence of gentle heat, and by May they will be ready for treating in a manner that may be a novelty to some, but remarkable for its efficacy in forming fine plants with but little trouble through the summer. In a frame of whatever size you may have to devote to the purpose, put a compost of one half friable loam, the other half leaf-mould and rotten dung, thoroughly

mixed and laid in to a depth of about six inches; place the plants in rows fifteen inches asunder, and at a distance of about six inches from each other, which will leave each plant about a square foot of space, affording to the roots an ample supply of food, of which they soon avail themselves to an extent that will surprise those who never practised this mode of management. When first planted, they should be slightly syringed and kept close for a few days, that they may the more readily establish themselves in their new position; and should the weather prove hot through the succeeding season, this application of water must be repeated occasionally, and the plants shaded from the midday influence of the sun.

When they have grown so as to be near touching each other, thin out those with inferior flowers and others that are too thick, and these will form acceptable presents. It will be advisable to cut off all the flowers that are produced till the end of July, but not later, as this practice tends to invigorate the plants, and the after production of blossoms is much improved both in size and number.

By the middle of August they will be large enough to place in eight-inch pots, they should be taken up with a ball of earth that the roots may be retained uninjured, and having the pots well drained, fill up with a compost similar to that in which the plants have been growing; this potting should not be deferred later than the first of September, or there is danger that they will not be sufficiently established before the arrival of winter, when, without doubt, the dull damp weather would carry off all such as have not their roots in an active condition.

When the operation is complete, place them in a shaded place till they get hold of the new soil, and afterwards remove them to a frame where they can receive sunlight and air; in this position they may remain till there is danger to be apprehended from frost, by which time they will be handsome specimens, and may be at once removed to the greenhouse or conservatory, where a shelf near the glass will be best for them, as the light greatly improves the colour of the pink varieties, and keeps the foliage of all in a healthy state. I would urge on all cultivators to avoid the use of feeding-pans where Primulas are kept, for the standing water in them must necessarily cause a damp atmosphere, which

induces canker, and a host of other evils most pernicious in their effects through the winter. Should the plants appear to require a greater supply of food than can be given while in small pots, by flagging soon after they are watered, it is far better to shift them into larger, than to feed them with pans; in fact, they should be so circumstanced as not to require very frequent applications of water, which implies plenty of root room, and when water is given let it be in sufficient quantity to thoroughly moisten all the earth in the pot, rather than by the little-and-often system, which, from its uncertain action, is entirely condemned by all good cultivators; for, by following it strictly, the surface of the soil will present a sodden appearance, from its repeated wettings, while from the inadequate quantity given, the bottom of the pot will remain quite dry, and thus two opposed actions are going on, the collar of the plant is surrounded by moisture while its roots are dry, a more fatal position it would be difficult to suppose; nor is this objection confined to the *Primula*, for it equally affects all other plants grown in pots.

In the foregoing remarks I have abstained from enlargement on the ordinary management of the species, believing it to be so generally understood as to need no mention, and if the difference I have pointed out appears but small, it must be remembered it is of just that nature, applied at the period of the plants' most active progress, to have the greatest possible effect, and should the hint prove serviceable to any one, the object will be obtained for which I wrote.

J. S. BROMLEY.

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## TEMPERATURE IN CONNEXION WITH HORTICULTURE.

THERE is perhaps no agent in the growth of plants of greater power, or that should be more thoroughly under the command of the cultivator, than this; its effects are almost immediate, and according as its presence is more or less proportionate to the requirements of the plants, so will they luxuriate or die. As we are just now arriving at the most active period of vegetable existence, when the influence of temperature is likely to be developed to the fullest extent, and when any mistake in its

management must be attended with disastrous consequences, it may be advisable to give some attention to its mode of operating, and the best means of directing it to our advantage.

The excitability of a plant or its power of growing always commences with a rise of temperature, and is continued through the same means. The amount of heat necessary for its healthy progression varying according to the normal character and native position of each individual. The extremes of temperature between which cultivated plants will flourish may be stated as  $32^{\circ}$  and  $90^{\circ}$ ; below the former no vegetation that we are acquainted with can grow, though some from alpine regions, and even among our own indigenous weeds species may be found, as the common chickweed and groundsel, which certainly extend themselves when the temperature is not a whole degree above the freezing point.

The recorded instances of plants living and growing under the opposite extreme are but few; the highest point at which terrestrial plants have been found in a state of nature is  $140^{\circ}$ , as was observed by Dr. Coulter on the banks of the Rio Colorado, but with such cases we have now nothing to do, that more immediately requiring attention being the more limited range first mentioned.

It is well known that plants naturally adapted to any peculiarity of temperature, will not bear an excessive change and continue to live, nor are instances rare in which comparative slight variations during the period of active existence have, when of frequent recurrence, terminated fatally. The effects of an excessively high temperature bear a close resemblance to the debilitation occasioned by intemperate living on the animal frame; an unsuitably high moist atmosphere causes an extension of the tissue, beyond the power of the vital energies of the plant to solidify; the ducts become gorged with crude sap, which remains unassimilated; its powers of action are deranged, enfeebled, and finally stopped; debility, disease, and death ensue, as a finish and natural end to the immoderate supply of what under proper regulations would have been the source of life, health, and fruitfulness.

The consequences of excess in what may be called minor cases, where it is not carried to so fatal an extent, are also much to be feared; the natural tendency of every superfluous degree of heat

accompanied with moisture, is the formation of extra foliation in the plants, long-jointed weak growths ensue, a yellow sickly appearance is assumed from the plant's inability to decompose its food, and the production of flowers is prevented. A high temperature devoid of moisture affects vegetation in a still more ruinous manner when persisted in for any length of time; from the rapid abstraction of the fluids by perspiration, which the roots are unable to make good, the epidermis is left in the position of a kettle on the fire with no water in it, and must consequently "burn," a term but too well known in the garden. These extremes are then to be avoided as alike dangerous, yet an occasional moderate approach to either may in certain cases be found highly beneficial. It will be seen the effects of a high moist temperature are exhibited in the increase of tissue, or a disposition to grow, and so long as this course is modulated to the natural habits and power of the plant, it may be highly beneficial; on the other hand, an elevated atmosphere devoid of moisture, restrains the action of the plant to the elaboration of its secretions, as is seen by its hardened tissue and the gradual suspension of its growth; under a favorable regulation it may be made the most efficient agent to the inducement of a flowering state in all vegetation, and thus by judicious management the very causes, which in excess are so highly injurious, may be made conducive to the happiest results. It is a singular fact that the effects of cold resemble those already described as resulting from heat, and with the exception that the tissue is not elongated in an unnaturally low temperature, the analogy holds good through each gradation.

The action of cold winds is equally enervating with that of a hot sun, the juices of the plant are extracted in either case by evaporation, and if continued for any length of time, must prove alike the cause of death. Frost is more closely analogous to an excessively high and moist temperature, as in each case the injury, though arising from opposite causes, is inflicted by the disruption of the vessels of the plant, and the consequent derangement of its vital action; the former by congealing the fluids arrests their motion through the system of the plant, and their expansion by bursting or unnaturally distending the sides of the cells, impairs the excitability in exactly the same manner that the plethoric induction arising from the latter has been observed to do.

It may be frequently observed that individuals of precisely the same kinds will, under certain circumstances, bear a much greater reduction of temperature than others differently situated ; so also the same plant sometimes may be exposed without prejudice to influences that at another period would probably kill it ; this arises from the difference in quantity and fluidity of the secretions ; when these are present in abundance and of an aqueous character, the effects of frost or cold are then more severe, and hence the reason of young shoots being killed sooner than old ones, and the greater probability of plants in a low damp situation suffering to a further extent than others of the same kinds on a hilly and exposed position.

In cultivating a general collection of plants, it is necessary that the operator possess a knowledge of the character of the countries from whence his charge is derived, for unless the leading features of each are preserved in the management, but little success can result or the work is conducted on merely empirical rules ; he should know not only the mean temperature of each district, but something of its fluctuations, and the variations in hygrometric pressure which characterize its seasons, together with their periods and duration, and then means must be provided for as close an assimilation as may be effected in the subsequent management, to the native positions of each class of the plants to be grown.

The functions of vegetable life in its progress to maturity are carried on by two processes, the inhalation or absorption of food by the roots in the form of fluid, and by the leaves as gases, and the respiration of such of the latter as are not required in the assimilation of both, which takes place in the system of the plant ; the former is most rapidly performed at night, when, by a beautiful provision of Nature, it is most abundant, and the latter function is exerted only in the day, as the presence of light is necessary to the elaboration of the aliment taken up by the organs of the plant ; the rise of temperature in the day stimulates to an active condition, and after due secretion the superfluous watery matter is withdrawn by the action of the light ; at night the temperature returns to its minimum, when the roots impel fresh matter to the exhausted vessels, and the plant regains its vigour.

When the temperature of the day is excessive, the evaporation

goes on so rapidly as to cause a vacuum in the vessels, and the plant droops or "flags," as it is called, a condition which, if not corrected, either by reducing the light or an extra supply of water, is very injurious and debilitating in its effects. For advancing specimens, furnished with a powerful set of roots, the additional supply of aqueous food is the quickest and simplest mode of removing or meeting the waste occasioned by excessive perspiration, but with younger, unformed subjects it must be useless, because of their inability to take up sufficient to meet the demand. The remedy in the latter case consists in first reducing the power of the light by the intervention of some shade, and then to provide against evaporation by filling the atmosphere with moisture, easily effected by the liberal use of water on the paths or surrounding space. The most natural period for the recovery of the plants from this exhaustion is, however, at night, and that the reviving action may go on uninterruptedly it is essential that the excitability of the plant remain undisturbed, and hence the necessity of a lower temperature at night—a rule of the most vital consequence, as we may be assured of from its occurrence in every region of the universe, and yet more frequently overlooked than perhaps any other law of nature.

In the hot-houses wherein we cultivate the inhabitants of the tropical regions of the earth, it is of the utmost consequence that the rules to be deduced from these observations are closely followed, for the leading features of their native climates are so strongly marked as to render any deviation dangerous. Warmth accompanied by moisture is the principal inducement to growth; warmth without moisture reduces the power of extension, solidifies that already formed, and induces a state of fruitfulness; while the absence or comparative reduction of heat removes the inclination to grow, or rather confines the action of the plant to the secretion of stores against a future active season.

HORTULANUS.

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## DESCRIPTIVE LIST OF NEW PLANTS.

CONVOLVULACEÆ.—*Pentandria Monogynia*.

*Convolvulus italicus* (Gussone). According to Mr. Choisy, this beautiful twiner is a mere variety of *Convolvulus althæoides*; but we agree with Professor Gussone and others in regarding it as truly distinct. Its leaves have no trace of the silkiness so characteristic of that species, but are deep green, and covered with very coarse pubescence; its flowers are much larger (deep rose colour), and its calyx is guarded by long bristle-like hairs. It appears to be very common in the south of Europe and in the north of Africa. We have it from both Egypt and Algiers. In those countries it decorates hedge-rows, vineyards, and waste places with its charming blossoms in April and May; with us, however, it is an ornament of autumn. It is a hardy, climbing perennial, which grows freely in any good garden soil and dry situation. It is best suited for planting among stones, on a rock-work, or at the bottom of a bush or hedge, where it can scramble over the outer twigs, and where its roots are perfectly dry during winter, otherwise it is destroyed by the wet of our cold season. It is a true perennial and easily increased by the roots, but it may be treated as an annual, since it flowers freely the first season from seeds.—*Bot. Reg.* 12-47.

PHILADELPHACEÆ.—*Decandria Di-pentagynia*.

*Deutzia staminea* (R. Brown). A small, hardy, deciduous shrub, which grows freely in any good garden soil, and produces abundance of white, sweet-scented flowers about the end of May or beginning of June. It was raised in the garden of the Horticultural Society in 1841, from seeds presented by Dr. Royle, from the north of India, of the very high mountains of which it is a native. It was originally found in Kamaon by Mr. Blinkworth. *Bot. Reg.* 13-47.

SCROPHULARIACEÆ.—*Didynamia Angiospermia*.

*Penstemon miniatus* (Lind.) A very pretty, little, half-shrubby perennial, which is nearly hardy, requiring the same kind of treatment as *P. gentianoides*. The vermilion-coloured flowers



are particularly brilliant. The plant was raised in the garden of the Horticultural Society from seeds received from Frederick Scheer, Esq., who obtained them from the north of Mexico.—*Bot. Reg.* 14-47.

PRIMULACEÆ.—*Pentandria Monogynia.*

*Primula Munroi* (Lind.) In many respects this is strikingly like *P. involucrata*, and it may be a mere variety of that species. But if the distinctions admitted by botanists among the European so-called species are valid, then must this be regarded as essentially different. It is a yellower green; it is much larger; its leaves are slightly cordate and extremely blunt; its flowers are twice as large, and the calyx is of quite a different form. Instead of being taper, it is prismatical; instead of being contracted above the base and then bulging out, it is gradually narrowed into the pedicle; and instead of being shorter than the tube of the corolla, it is as long; its teeth, too, are much shorter than those of *P. involucrata*. Like the latter, it is a charming little alpine perennial, which grows freely in a mixture of loam, sandy peat, and leaf-mould, and flowers from March to May, in either a cold pit or the open border. The white flowers are deliciously fragrant. It was raised in the garden of the Horticultural Society from seeds presented by Captain Wm. Munro, in April, 1845, and was stated to have been collected at an elevation of 11,500 feet, on the mountains of the north of India, growing in the neighbourhood of water.—*Bot. Reg.* 15-47.

NEPENTHACEÆ.—*Diacia Monadelphia.*

*Nepenthes Rafflesiana* (Jack). To Dr. Jack is due the discovery of this remarkable species of Pitcher plant, in the island of Singapore, in 1819, but no plants of the *Nepenthes Rafflesiana* ever reached Europe alive, till the Royal Gardens were supplied with a case of them through the kindness of Capt. Bethune, R.N., who, on his return from his scientific mission to Borneo, had a Wardian case filled with them; and so well were the plants established in the case, and so great was the care taken of them overland from India, that they were as healthy on their arrival at Kew in 1845, as the day they were transplanted from their native glen in Singapore. Dr. Jack well observes: "This is the

largest and most magnificent species of the genus, being adorned with two kinds of urns, both elegant in their forms and brilliant in their colouring." The cirrhi of the lower leaves are not twisted, but hang straight from the apex; they terminate in large ventricose and highly coloured ascidia or urns, fringed along the interior angles with two membranous fimbriate wings, somewhat contracted at the mouth, which opens obliquely, rising much higher and slightly recurved behind, where the operculum or lid is inserted. The tendrils of the upper leaves are twisted into one or two spires at the middle, and terminate in long ascending funnel-shaped urns, flattened anteriorly but not winged, and gracefully turned at the mouth like an antique vase or urn. Both have the inverted margin beautifully and delicately striated, and variegated with parallel stripes of purple, crimson, and yellow. The lids are incumbent, membranous, ovate, marked with two principal longitudinal nerves, and cuspidate behind the hinge. The racemes of flowers are at first terminal, but the stem begins after a time to shoot beyond them, and they become lateral, and are always opposite to a leaf, which differs from the others in being sessile and urnless; the pedicles are thickly set together, so that the deep red calyces touch each other, and being enlivened with the bright yellow round head of the anthers, has a very striking appearance.—*Bot. Mag.* 4285.

LOBELIACEÆ. *Pentandria Monogynia.*

*Siphocampylos microstoma.* (Hooker). Among many fine species of *Siphocampylos* detected by Mr. Purdie in New Grenada, few, if any, can vie with this in the size of the flowers and richness of their colour. It seems also to produce its blossoms early and freely, and they continue a long time in perfection, so much so, that though our plants were only raised from seed twelve months ago, they have been gay with flowers throughout the whole autumn and winter months, and have proved a great acquisition to our stoves during this dreary season. In the summer, a greenhouse will be a better situation for it, and from the succession of buds that are forming, it seems to be one of those plants which one may reckon on having in bloom at all times of the year. Some of our plants have the stems and branches deeply tinged with purple, and the corollas are occasionally of a deeper and

sometimes a paler scarlet, always produced in a compact leafy, terminal umbel.

SCROPHULARIACEÆ.—*Didynamia Angiospermia*.

*Brunfelsia nitida* var. *Jamaicensis* (Bentham.) A very handsome plant, flowering during the summer months copiously, in a cool stove, and easily increased by cuttings; its blossoms are very large and pale yellow, with a narrow tube, and spreading, irregular, five lobed limb; the foliage is ample and deep green.—*Bot. Mag.* 4287.

BROMELIACEÆ.—*Hexandria Monogynia*.

*Tillandsia bulbosa picta*. This splendid variety was sent from Jamaica to the Royal Gardens Kew, by Mr. Purdie, where on being simply suspended by a piece of wire from the beam of a moist stove, it flowered in the winter of 1846-7. The stem is simple, leafy at the base, immediately swollen and bulbiform, the leaves are a span or more long, rigid and terete from the singularly incurved or almost convolute sides, dark green, the bases of the lower ones singularly dilated into very broad membranous sheathing bases to the bulb; the upper leaves gradually smaller and almost bracteiform, richly tinged with scarlet and yellow; the spike is racemose, the branches compressed and clothed with distichous scarlet, imbricated bracteas, entirely concealing the flower-buds, calyx of three green convolute sepals, corolla of three linear-lanceolate, purple, acuminate petals twice as long as the calyx.—*Bot. Mag.* 4288.

CONVOLVULACEÆ.—*Pentandria Monogynia*.

*Pharbitis cathartica* (Choisy.) A native of St. Domingo, Porto Rico, and Mexico according to Choisy; we may further add Santa Martha, in New Grenada, whence Mr. Purdie sent seeds in 1845, which flowered at Sion Gardens in November of the same year, and made a very lovely appearance. The colour of the corolla is particularly vivid, varying from deep reddish purple to rich violet blue.—*Bot. Mag.* 4289.

LABIATÆ.—*Didynamia Gymnospermia*.

*Scutellaria cordifolia* (Bentham.) For this beautiful Scutel-

laria the Royal Gardens of Kew are indebted to Messrs. Rollison of Tooting, who had received it from the continent under the name of *S. splendens*. The brilliant red colour, the size and general form of the flowers indicate an affinity with *S. Ventenatii*; but the hue is more inclined to orange red, the corolla is longer and more slender, the flowers are not secund or distichous, but subverticillate, and pointing in all directions; it has shorter stems, and very different foliage, in colour, form, texture, and reticulation. It is a native of Misantla and other parts of Mexico, and flowers in the stove in September and October. *Bot. Mag.* 4290.

ASCLEPIADACEÆ.—*Pentandria Digynia*.

*Raphistemma pulchellum* (Wallich.) A very handsome stove twiner, with numerous campanulate flowers, borne in a corymb; they are white when first expanded, but change to cream-colour, with a small streak of crimson in the centre of each division of the limb. It is nearly equal to *Stephanotis floribundus* for culture in pots, and superior to it as a conservatory or stove climber, inasmuch as it is not so stiff in its habit, and therefore more suitable for training to columns or rafters in the interior of a glass structure. Silhet, Gowalpara, Tavoy, and other places in the British territory of Hindostan are given as natural habitats of the species.—*Pax. Mag. Bot.*

GESNERIACEÆ.—*Didynamia Angiospermia*.

*Niphæa albo-lineata* (Hooker). The genus *Niphæa* was recently established by Dr. Lindley upon a Guatemalan plant, and is derived from *νῖφὰς*, snow, in allusion to the snowy white blossoms. The present species, evidently of the same genus, and preserving the same character in the pure white of its flowers, was discovered by Mr. Purdie on moist banks near Laguneta, Ocaña, in New Grenada. The curious scaly roots, resembling those of *Achimenes coccinea*, were sent to the Royal Gardens in 1845, and quickly came to perfection, being planted in pots with a mixture of loam, peat, and leaf-mould, and placed in the tropical propagating house. By a little management in the periods of planting these roots, by which the plant readily increases, it may be made to bloom at almost all seasons of the year, and

although the flowers do not display any gaudy colours, like many of the *Gesneriaceæ*, yet the purple-tipped calyces contrast prettily with the snowy white of the corollas; and the leaves, with their purple-green hue, marked with white lines upon the costa and nerves, are always beautiful.—*Bot. Mag.* 4282.

LEGUMINOSÆ.—*Diadelphia Decandria.*

*Smithia purpurea* (Hooker). Five species of *Smithia* are described, all natives of India, and all having yellow flowers. Our valued friend, J. S. Law, Esq., has discovered in Bombay a sixth species, having purple flowers, the vexillum and alæ being, moreover, each marked with a conspicuous white spot. Seeds of this lovely little plant were forwarded to us by Mr. Law, which soon germinated, and blossomed in the stove, at Kew, in October, 1846. It is an annual, with an erect branching stem and closely pinnated sessile leaves, producing its pretty flowers at the points of the branches.—*Bot. Mag.* 4283.

ORCHIDACEÆ.—*Gynandria Monandria.*

*Calanthe curculigoides* (Lindley). A bright yellow *Calanthe* is an unexpected novelty; and this species, which was previously known only from bad dried specimens, proves to be one of the handsomest of its race. The flowers have a firm, waxy texture, and do not wither so soon as those of some species. They are much yellower and finer than in *C. densiflora*. We have now before us wild specimens, collected by the late Mr. Griffiths at Malacca, with ten inches of flowers and a further part of the inflorescence is lost. It is not too much to say that the flowering spike of *C. curculigoides* may be expected to be a foot long. The species has been found exclusively in the Straits of Malacca, whence Messrs. Loddiges received it. It flowered at Hackney in November, 1845, and may be expected to require more heat than some of the sorts.—*Bot. Reg.* 8-47.

*Gongora bufonia leucochila* (Lind.) The sepals and petals of this pretty variety are streaked with pale crimson and yellow; the lip is white, terminating in a pale brown point. The horns at the base of the lip are in this species only little round callosities. It was flowered in April, 1844, by S. Rucker, Esq.—*Bot. Reg.* 17-47.

*Cælogyne præcox.* A lovely little species, with small, sessile, pseudo-bulbs, clothed with beautifully veined scales, imbricated in two ranks. The flowers are produced just previous to the development of the seasonal growth, they are large, solitary, on shortish, terminal, nearly upright stalks, each within a lanceolate membranous sheath. The sepals and petals are lanceolate, acute, recurved, light rosy-purple, all nearly equal in length; sepals narrowest; the lip is nearly as long as the petals, rolled up into a funnel shape, externally pale purple, its taper base united with the bottom of the style, and a little protuberant, not embraced by the petals; its margin spreading, fringed, white; the inside marked with five longitudinal, rough, elevated yellow lines. This species is a near relation of the charming *C. Wallichiana*. It inhabits a similar station in the East Indies, and principally differs in being altogether more robust, having paler coloured flowers and a much finer fringed labellum. Under culture it proves less delicate, requires similar treatment, but grows stronger and increases with greater freedom.—*Pax. Mag. Bot.*

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#### GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

- MEMBRANACEOUS.** Having a thin, semitransparent texture, resembling a skin.
- MICACIOUS.** Glittering.
- MIDRIB.** The principal vein of a leaf, passing through the middle from the footstalk to the opposite point.
- MITRIFORM.** Shaped like a mitre.
- MONILIFORM.** Alternately swollen and contracted, like the variations of a string of beads.
- MONOCOTYLEDONS.** One of the great divisions adopted in the natural system of botany, the members of which are distinguished by having only one seed-leaf.
- MONŒCIOUS.** Plants bearing flowers entirely of one sex.
- MONOPETALOUS.** Flowers composed of only one petal.
- MONOSEPALOUS.** When the calyx is entire.

- MUCRONATE.** Terminating in an abrupt, sharp point.
- MURICATE.** Having several mucronate points.
- NAVICULAR.** Boat-shaped.
- NECK.** The upper end of bulbs and the lower end of the stem of fruticose plants are alike called the neck.
- NERVES.** The veins of a leaf or flower.
- NODDING.** Growing in a drooping position, without regard to the power of motion.
- NODES.** The joints of the stem or articulations of the branches with it.
- NODOSE.** Having many joints.
- NUCAMENTACEOUS.** Bearing nuts.
- NUCLEUS.** The point of vitality in a seed; the kernel of a nut.

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### LUCULIA GRATISSIMA.

SOME difficulty appears to be still felt in the cultivation of this charming winter-flowering plant, or its indisputable claims to adoption would certainly ere this have made it very general; such, however, is not the case, for its presence in collections may be regarded rather as an exception than the prevailing rule, which in justice is its right. Having been successful in its management, I send the following outline of my treatment for the benefit of such of your readers as may desire to possess this lovely species.

Any time in April or May cuttings may be taken, and they will be found to root pretty freely in a brisk moist heat, such as that of a cucumber frame; those about three inches long, retaining a small portion of the old wood at the base of each, are to be preferred, placed in a pot of sandy peat, and covered with a bell glass. They do not require other attention than is ordinarily given to cuttings of other kinds. As soon as they are rooted, each one should be placed in a small pot filled with sandy peat, and returned to the hotbed until it has become established. By the middle of July, the plants will be ready for another shift, when they may be placed in eight-inch pots, and the terminal bud

taken off to induce an increase of branches ; a cold pit kept rather close will prove a suitable position for them through the next six weeks, by which time they will have grown considerably, and had better then receive the full influence of the air and sun in order to set the flower-buds which will occur by the end of September, when they may either be forced gently into bloom, or allowed to stand in the greenhouse and open their blossoms in a natural way ; in either case they make very handsome objects, their bright pink flowers produced in dense heads, like those of the *Hydrangea*, and deliciously fragrant, being highly desirable in the dull months of winter.

After blooming, the plants should be allowed to rest till the following March, when such as it is wished to propagate from should be excited to grow, that cuttings may be provided in good time. Those which are intended to form specimens had better remain dormant till April, when they may be cut closely in, re-potted into large pots, with a light soil of peat, loam, and sand in equal quantities, amply drained, and then started by placing them in a close pit and moderate applications of water. Through the summer, when the plants are in full leaf, it will be advisable to sprinkle them over at least once a day, either early in the morning or in the evening. This keeps the foliage healthy, and prevents the attacks of red spider. A slight shade through the day, with plenty of air, when they have attained about the middle of their growth, keeps the leaves a deep green and the plant robust. In the active part of their progress water must be given liberally, withholding it gradually as they come nearer to maturity and the blooming season. The after management of the large plants will be the same through each season as that described, and each successive year will add to their resplendent beauty by an increase of branches, and consequently a finer display of flowers.

J. GREEN.

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## CALENDAR OF KITCHEN GARDEN OPERATIONS FOR APRIL.

Sow successional crops of peas, and mould and stake such as are through the ground. They should be staked early, both for the sake of shelter and to avoid the risk of breakage. At least two sowings should be made during the month—three or four if the demand is great, or if they are used very young.

Two sowings of broad beans should be made during the month, and full crops of French beans and scarlet runners should also be got in in sheltered places. It should be borne in mind that the ripe seeds of all the French beans are considered as far superior to split peas for soups, and that all the numberless varieties under the name of *Haricots* in France, and of *Calavances* in Portugal, and many other parts of the world, form a most important item in the list of domestic supplies, especially for winter use. Mould up and protect former sown or transplanted crops, leaving the earth as light and porous about the roots as possible. The crops in forcing-houses must be well looked to, and the syringe kept going, or the red spider will soon damage them.

Make three sowings of brocoli and two of cabbage and savoy during the month, and plant out crops of all as the plants attain a proper size. Also put out cauliflowers in a warm border, and protect them from frost or cold winds. Keep up a proper succession of spinach by sowing about every ten days or so.

Get in full crops of onions, leeks, carrots, parsnips, beet, salsify, scorzonera, and skirrets, or of any that were not sown last month. If not done, finish potato planting as soon as possible. It seems preferable to choose rather poor land for this crop at present: those grown on such soils do not appear to have been quite so badly attacked with the rot as those on rich soils.

Lettuce and radishes should be sown three or four times during the month, and fresh crops of the first should be put out as often as necessary. Onions should be sown about every twenty days, for use in a young state. Small salad should be sown every ten days, or oftener if in a hot-house or frame.

Sow cardoons in trenches prepared in the same way as for celery, only let them be wider apart, and the bottom be deeply dug, or better make the plantation in fresh trenched ground. Sow the seeds in patches of five or six, about eighteen inches apart, and keep them watered in dry weather. The cardoon of Tours is the dwarfest and best.

Where necessary propagate the various perennial herbs by slips or parting the roots, putting them in well-dug ground which has had a moderate dressing of manure. These plantations should be renewed every three or four years at the farthest, as their produce is far from being so good on old roots as on those of two or three years' growth. Sow all annual herbs also at the end of the month, such as basil, tomatas, capsicums, and others which are tender, in heat; the others in sheltered spots.

Make at least two sowings of turnips, and hoe and thin previous crops. Plant a crop of Jerusalem artichokes, choosing the poorest soil, for in such they produce the best crop, both in quantity and flavour. They may be usefully employed in rows, running north and south, as a shade from the intense heat of the sun for more delicate crops. Thin out the weak shoots from the common artichokes, reserving the best to form a new plantation if wanted, and manure and dig the ground about the old plants.

Sow a full crop of celery, and put out such as are big enough. Earth up such as may need it, and keep the ground from becoming hard or caked about the plants. Water freely in dry weather.

Look over previous Calendars, and keep all work as forward as the season will permit.

D. M.

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Alfred Edward

AZALEAS.

1 MURRAYANA. 2 OPTIMA. 3 BROUGHTONI.

## INDIAN AZALEAS.

WITH AN ILLUSTRATION.

IF we were about to introduce a new class of plants of equal beauty with those forming the subject of the present paper, we should feel very diffident of our descriptive powers—it would be a task involving no little embarrassment lest the full mete of justice were not awarded. Fortunately, however, Azaleas are so well known and properly esteemed, as to need no encomium at our hands. We have only to point to what has been done with them, and show the way in which it may be done again, to fulfil all that is required of us. To do this in a manner that may the better illustrate the present position of the class, it will be necessary to take a slight retrospective glance at the original condition of the materials with which our cultivators have had to deal.

The first of the Indian group known to us (*A. Indica*) was introduced in 1808, but it was not till near twenty years after that much attention was given to the family; in the interim a few others, such as *Phœnicia*, *ledifolia* and *variegata*, had been known, and the practice of originating seedling varieties then fairly commenced. From the circumstance of all having the same, or nearly the same, plants to operate on, a great similarity pervaded all the productions of the first few years: thus, *Phœnicia*, being found a prolific seed bearer, the varieties possessing more or less of its character were multiplied exceedingly; the same rambling growth, and the long, flimsy, pointed petals which distinguished the parent were equally evident in its offspring. Nor did the introduction of *Danielsiana*, in 1830, at all improve or counteract this tendency. Its bright colour was a great inducement to the hybridizers of the day to employ it in their endeavours for novelty, but being naturally deficient of every qualification, save that mentioned, it was not likely that the progeny of so ill-assorted a match should possess a character likely to render them permanent objects of esteem. The consequence of this has been the almost entire rejection of the earlier varieties in favour of other and more recent kinds. The production of *Gledstanesii*

marked a new era in the history of seminal varieties, and the employment of it with the judicious mixing of *Sinensis*, *lateritia*, and a few others, has resulted in the production of such as combine the most vivid colours with an outline and texture almost faultless.

*How to raise seedlings* is a matter that every one who grows Azaleas desires to be practically acquainted with, for, if nothing deserving of continued attention should happen to result, the young plants thus obtained usually afford very excellent subjects whereon to graft others that it is desired to increase. Wherever the intention goes beyond the mere raising of stocks, particular care must be given to the selection of the seeds. Let it only be saved from positively the best, that is, such as possess an unobjectionable outline. In all operations of the kind among flowers subject to the rules of the florist, and where improvement is designed, the shape and texture must rule before any other consideration, because it is more pleasing to look upon full round flowers than on a meagre-looking, narrow-petalled object, however bright its colour; and the latter qualification is always found more easily attainable than the former, and so, if we once establish a predisposition to the circular, the remaining embellishment is readily effected; and, as it is only reasonable to expect in the offspring a continuance of the leading features of the parent, so it would be absurd to propagate an ill-formed variety with the expectation of an unobjectionable race from it, such a course would wilfully entail the profitless trouble of going over ground that has been already traversed. Therefore, let only such as have the best shapes be selected for the purpose, especially those intended to bear the seed, for, though not quite a matter of certainty, in most cases it is found that the female parent imparts the greatest share of character to the future plant.

As soon as the flowers open, the anthers of those designed to carry the seed should be cut out without injury to the stigma, and this, when in a fit state, which will be when the flower is in its highest perfection, should be dusted over with the pollen from the kind it is intended to mingle with it. As a general rule it is not desirable to force flowers intended for such a purpose, but in this case, from the long time necessary to ripen the seed, it is advisable to get the plants in bloom by the middle of April, so as

to give them the greater part of the summer to perfect the operation; and, in order to accelerate the maturity of the seed, the plants should be kept in the house as long as they will bear it without injury. If the convenience of a stove is at hand, it will be best to sow the seed as soon as it is ripe, otherwise it must be kept till the following spring; in either case it should be sown in pans of very sandy peat, pressed down firmly, then sprinkled evenly over and barely covered with sand. A very gentle heat is sufficient to get it up, and, if sown in autumn, the pans should be placed in the stove and the young plants kept growing. This will save a whole season in the plants' progress, because then they may be potted the first spring. This operation should be done as soon as they can be handled, and it should be an endeavour to grow them pretty fast the first year or two, so as to get them to a blooming state as early as possible.

*Propagation* of established varieties is done in various ways, by cuttings, inarching, or grafting. The latter is the most usual, though, with a few exceptions, there does not appear any very good reason assignable for the custom: the only positive necessity for grafting is in the case of a very delicate-growing variety, to which it is desirable to impart some additional vigour, and it not unfrequently happens in the blind practice of following the general rule, that we meet with a scion worked upon a stock more weakly itself, and not a few of the provoking cases of sudden death, which sometimes occur in this family are attributable to this cause, the stock is unable to support the naturally vigorous head, it becomes exhausted, and death of the whole ensues as a necessary consequence. With kinds of a robust habit it is far easier to propagate by cuttings, and blooming plants are obtained quite as soon. The cuttings should be taken when the current year's wood begins to harden at the base; those shoots which are from three to four inches in length are the best, and, if they are planted in the usual way, covered with a bell-glass, and placed in a very mild hot-bed or a cold frame kept close and shaded, they will root freely, and, under tolerably good management, will make flowering plants in two years.

Whenever it may be necessary on account of habit to employ grafting, care should be taken that the stock or plant to be grafted on is in good health and of a vigorous, free habit, or it is

quite likely that some years of attention may be thrown away in consequence of its inability to support the head when full-grown. This operation should be performed with wood of the same age as that recommended for cuttings, and when the juncture is made the plant should be kept in a close, humid, and slightly elevated temperature till the union is complete, when the head of the stock should be cut away gradually and the new wood of the scion encouraged and regulated as occasion may present.

*The management of specimens* is a matter of high interest to all who delight in a greenhouse, for few plants make a more ample return for attention than these: their magnificently rich flowers may be had to embellish the collection through the greater part of the year, and that in such profusion as is nowhere else equalled. To begin the cultivation of these charming plants we should select healthy young plants, whose roots just fill a four-inch pot; they have then safely passed the accidents and chances of infancy, and may be expected to progress rapidly under good treatment. At the starting it should be determined whether a few flowers produced every year till the plant attains a stature worthy of notice is to be taken into account, or if it is not better to grow it rapidly for the first two years, without regard to the blossoms. With the first method we have little to do: it will then only be necessary to keep it in the greenhouse through the winter: repot it immediately it has flowered, and place it in the open air through the summer. But if it is thought worth while to wait a couple of seasons for the flowering, in the mean time ensuring handsome specimens, then to produce a rich display of flowers, we may say that the possessor intends to cultivate them to the greatest advantage. In March such plants as we have described should be repotted, using sandy peat, full of fibre and well drained. In turning the plant out of the pot, the roots should be carefully preserved, as, from their silk-like texture, they are peculiarly susceptible of injury. If the ball of earth has been allowed to get hard the bottom may be gently loosened with the hand, in a manner that does not lacerate the roots. Then, having the new pots ready drained, put a sufficient quantity of soil in and place the plant on it. In filling the sides up, with every handful of soil mix a few broken potsherds and press it all down firmly, give a gentle watering, and stand the



plant in a close, moist atmosphere, where it can be shaded till its re-establishment. This may be regarded as the outline of all the future shifting, though, as the plants attain a great size, it is certainly advisable in every respect to place them, when too large to turn over by hand, into the West Kent Garden Pot, an invention deserving every praise, as it enables the cultivator to examine, shift, and return the heaviest plants with the greatest ease. As it now becomes desirable to increase the size of the plants as rapidly as is consistent with their future welfare, they should be placed in a temperature of about 55 or 60°, such as that of a vinery, where they may have plenty of moisture; and here they will grow amazingly. The points of the shoots should be taken off when they have grown two or three inches, and, if this be continued through the summer, they will by August have become handsome bushy plants; indeed, they will sometimes increase so fast as to render another shift or repotting advisable by the beginning of July, but it should never be done later than this, and the plant's action should cease in a month after, or there will be some trouble to get it properly ripened for the winter; in August, therefore, they should be set out of doors, where they can be sheltered from excessive wet, but open to the influence of the sun. This will mature the increase of the past summer and prepare them to stand through the winter without injury. Azaleas only require protection from excessive cold, and therefore may be safely trusted in a well-built pit.

The same round of management should be followed through the succeeding year, removing all the flower-buds as they appear, after it is known that each sort is correctly named. The third year will then see them in a fit state for flowering.

The temperature in which they are kept in spring must be regulated by the period at which the blossoms are desired: thus, if they are required early, the plants should stand in their old situation, the vinery; but, if they are only wanted to bloom in a natural manner through April and May, they may continue in the pit or greenhouse. After flowering it is desirable to encourage the growth by repotting and keeping them in the house till it is nearly complete, which will forward it so far that abundant time will be left to mature it in the open air, and for this pur-

pose they should be removed to the shelter of a north wall, where they may stand till the period arrives for their return to winter quarters. All Ericaceous plants, of which these form a part, are remarkable for their very slender roots, which are easily injured by excess either of drought or moisture, but particularly of the first. It is consequently a good plan to set them in larger pots, filling the space between the two pots with moss when they are set in an exposed position; and, in the application of water, it is every way preferable to give them a thorough soaking when they are dry than to apply a small quantity and often. The latter method often leads to serious mistakes, as we have on previous occasions pointed out, for in such cases it is not unlikely that, though the top of the soil is wet, from the small quantity given it has never percolated more than half-way down the mass, and the bottom is therefore quite dry, a state of things that must soon end in the dissolution of the plant.

The subjects of our accompanying illustration are seminal varieties, which emanated from the nursery of Messrs. Knight and Perry, King's Road, Chelsea, about two years since. Of them we need say no more than that their excellence has already obtained for them a place in every collection where the best things are most desired. Along with them should be grown either or all of the following twelve, which we have selected for their superior combination of form and colour.

TWELVE OF THE BEST INDIAN AZALEAS.

- Broughtonii*. Carmine red, fine habit, free flowerer.  
*Carminata*. Very deep rose, rich and pleasing.  
*Double Red*. Free flowerer, bright red, showy.  
*Fulgens*. Scarlet, large flowers, good habit.  
*Gledstanesii formosa*. White, with pink stripes, first-rate in shape, rather delicate in habit.  
*Lateritia formosa*. Bright orange red, exquisite form, free flowerer, pendent habit.  
*Magnifica*. Rose, very large and showy.  
*Murrayana*. Rosy lilac, one of the largest, vigorous habit, and very free bloomer.

*Optima.* Rich, deep reddish scarlet, fine shape, vigorous habit, and an abundant bloomer.

*Phœnicia alba.* The largest and best of the whites.

*Speciocissima.* Scarlet, richly spotted on the upper petals, free to grow and flower.

*Triumphans.* Large, deep rose, with a tinge of lilac, spotted thickly with rich crimson on the upper portion of the flower; a first-rate variety.

EDITOR.

## PLANTING AND TRANSPLANTING.

FILLING the borders and beds of the flower-garden at this season, occasions a great deal of the work mentioned in the heading of this paper: the important effect of the operation on the future progress of such plants as are subject to it, and the little that some who undertake it think of the manner in which it should be done, induces me to notice it. Theory and good practice are so closely interwoven, that I may be excused if I first point to the principles which should regulate the manner of its performance. That the roots of plants are highly important organs, inasmuch as through them the vegetable fabric receives its chief supply of food, will be generally admitted; it is also pretty well known that it is the extreme points of the roots, or the spongioles as they are called which possess the greatest power of absorption, acting as so many mouths wherein the food is taken and afterwards conveyed to the stem and branches; that water enters largely into the composition of the food of plants, or at least that the nutriment taken up by the roots is chiefly in an aqueous form must also be allowed; and that a porous body is more easily percolated by both air and water than a solid or compact one, the evidence of every one's senses will make known to them. Here then is the basis of the principles which should prevail in the removal of every plant, and yet it may be safely asserted that every time the dibble is employed in transplanting, every one of these rules is broken, and there is a complete departure from what a knowledge of vegetable physiology tells us should be observed. Let us take a pan full of annuals that are to be trans-

planted singly into the flower-garden, and dispassionately look at the mode in which it is usually done: a pointed dibble is thrust into the ground, compressing the earth by its action so tightly that a hole is left, into this the roots of the plants are pushed, and the dibble is again brought into requisition to squeeze the mould tight round them; fancy then what is the position of these very organs that we have just allowed to be so important, jammed between two hard surfaces, lacerated, broken, crushed, and completely paralysed, if it were by nothing else, their unnatural perpendicular position would positively ensure such a state, then the plant droops and water is given it, which is a mockery, for the state of solidity into which the earth has been pressed, prevents alike the admission of the water and the action of the roots, could it get to them.

I have no desire to obtain celebrity as a mere caviller, and know something of the trouble of removing three or four thousand plants annually, the experience gained in the practice of the latter, enables me to state positively that the dibble may be dispensed, and therefore any imputation of the former must fall harmless.

I am aware too, that the practice now condemned has been the means through which much transplanting has been done, but a considerable loss of time in the progress of the plant to a blooming state must ever follow such a mode, as until the roots regain their proper position, that part of the plant above ground is on a short allowance of food, and must therefore be retrograding to say nothing of the extra trouble thus incurred in keeping it alive till a reaction of the spongioles takes place. All this seems sufficient to warrant our abandoning the dibble, for though our fathers erred, it is no reason that we should continue sinning; and if the work may be done as easily without that detestable tool, which it certainly may, all the weight of the argument goes to displace it. The manner in which I would recommend transplanting of this kind to be done, is first to prepare the ground intended to receive the plants by stirring the surface with a fork, and then they may be stationed either with the hand or a trowel, taking care always to spread out the roots laterally, and never press the ground except close round the stem sufficiently to steady it in its place; a little more time will be consumed at the first by this method, but practice will soon make it familiar, and then it

may be done even more quickly, besides one plant so treated is worth a dozen of the poor starved things we too often see. They occupy but two or three days in re-establishing themselves, and from the open texture of the soil grow away at once, and therefore occasion no trouble in the after-management. I hold it to be generally more beneficial to the roots of plants in dry weather, to stir the surface of the soil than to water it without loosening it, and thus by keeping the earth in an open state my plants occasion little trouble, grow freely, and are less affected by weather of any sort.

HORTULANUS.

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### THE EPACRIS.

THROUGH the next three months, this beautiful genus will require the attention that shall lay the foundation of its future splendour; in other words, the plants will now require to be *grown*, and in proportion as this is effected, more or less vigorously, so will the production of flowers in the next season be copious or deficient. A few hints on the subject may therefore possess an interest that will repay the perusal.

It is not sufficient in the present state of horticulture, to acknowledge the possession of a plant without that plant is in a healthy vigorous condition; it must be either positively, or in a fair way to become a fine specimen; in the general endeavour to obtain plants of this character, a mistake has arisen in the management of this genus, from the circumstance of most operators merely following the usual practice of "stopping" the shoots in order to form bushy plants; however correct this may be with other families, and notwithstanding the positive necessity for these plants to be well filled with branches at the bottom, it is certainly an erroneous method of arriving at the desired end, thus to continually remove the points of the shoots.

The epacris produces its flowers from the axils of the leaves for the greater part of the length of the previous year's branches, and if these branches are strong and properly ripened, there will be a long spike of flowers: how wrong then must be the practice which

destroys the very part of the plant that should yield the greatest display. It may be argued that for every branch so stopped there are two or more produced, but if the course is persisted in, there will be a number of very short shoots, part only of which will be sufficiently matured to carry flowers, and these will be borne only a few together scattered in isolated patches. On this account I hold that the plants should not have their branches shortened but once a year after the second season of their existence; it is certainly necessary to stop young plants often that they may be induced to spread themselves near to the ground, but then no one would think of allowing small plants to bloom at all, and therefore nothing is lost; my remarks, however, are intended to apply only to the larger specimens which have arrived at a flowering age, and to make them the more intelligible I will give an outline of my own practice.

As soon as the plants have ceased to bloom, whether early or late in the spring, they are at once turned out of their pots, their roots examined, and then repotted into fresh earth and larger pots if requisite; at the same time all the branches are cut back to within about two inches of their origin, the plants are then set in a cold frame which is kept rather close, and after the plants have begun to move in an active manner, which will be in about a month, a humid atmosphere is kept up to encourage the development of their growth. This is easily managed by shading in the daytime and a liberal application of water about the floor of the frame or pit. When the shoots have attained a foot in length it becomes necessary to admit more air, and as this will necessarily dry the atmosphere about the plants, a proper degree of maturity is brought about in a gradual manner, though as they will continue to grow till near the end of summer, aridity must be avoided by a plentiful supply of water to the roots and a gentle syringing at night; by this course, shoots from two to three feet long will be made by August, and if these are well ripened by exposing them to the full influence of the sun and air till the end of September, it becomes nearly a matter of certainty that flowers will be produced for more than two thirds their length, and thus long, densely-filled spikes will be had instead of a few widely-spread flowers; nor will the general appearance of the plant be at all injured but rather an improvement is effected,

for the branches may be trained to any desired form, with all the advantage of having plenty of blossoms wherever they may be most required. This annual pruning must never be left to a later period than that at which the plants are shifted; the decidedly superior contour of plants so treated will be evident. The first season and in each succeeding year, their appearance will improve because of the greater number of branches which will go on annually increasing, and from their flexuous character, it is always easy to draw the outer ones down to cover the stems, so that the base of the plant must always be filled, and that with young wood of a kind that is certain to yield an abundance of flowers.

F. ERHERD.

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### DAHLIAS.

Now that the season is fast approaching for preparations being made to plant out the dahlia, I offer a few remarks relative thereto, but which are chiefly intended for those amateurs who grow them somewhat extensively. It is a plant of easy cultivation, and by attending to a few particular points in the management, perfection in blooming will be more readily obtained.

Why success does not always result, is because artificially our treatment is incoherent in some measure to the nature of the plants themselves.

If we starve growing plants at one time, and superabundantly supply them with food at another, we cannot expect but that imperfect blooms will be the consequence. So that our object should be to secure those advantages wherewith our treatment subsequently may be in uniformity to the wants of nature.

The variations of this climate are oftentimes the sole cause of disappointment; thus it is for us to make provisions in a certain degree to prevent any such failure. After dahlias are planted out, if perfect blooms are the object, they should receive no check from the soil becoming too arid, but should be kept moderately growing by being supplied with an abundance of water in dry weather; herein in my opinion much of the success depends, and the operation may be greatly facilitated if the planting be

judiciously carried out, which every one who loves this tribe professedly will not fail to do to the utmost of their abilities. In planting them I would recommend the following plan to be adopted, which will render the plants accessible for all purposes, without in any way damaging them or trampling over the beds. Let the plot of ground intended to receive the plants be a square or parallelogram, a four feet border should surround it, with openings at intervals for entry and egress, next to this a path of about the same width traversing the plot on all sides; and the interior may then be divided into alternate beds and paths, the former not exceeding four feet, and the latter three in width; by continuing these parallel with the outer border no space is lost, the design is easily worked and is appropriate to the character of the plants intended to fill it. By keeping the beds to an uniform width of four feet, with a path on each side, all the necessary operations may be carried on without incurring the least risk of damage to the plants, and they are also insured a full supply of air on all sides; the quincunx mode of planting will for the same reason be the best, and by its adoption the ground will hold nearly a third more plants. The desirableness of collecting these plants in a mass must strike every person at all conversant with their management, and where proper attention is given to order and neatness, something of the kind becomes indispensable.

In dry weather the whole can be forked over and kept loose to admit a plentiful supply of water to the roots, which operation should be performed once or twice a week in very dry weather, it is useless to attempt to water at all unless it is done on this liberal method, as it is not a little water that is required at this season, when so much is carried off by evaporation independently of that which is required as food by the roots of the plants. I am convinced that too much attention cannot possibly be paid to this part of the subject, especially when amateurs wish to exhibit fine well-developed blooms; of course it is essential to thin the flower buds, carefully cut out the centres of those that come hard in the eye, &c., &c.; this little operation requires to be performed with many of our best flowers, and if it is not done they become confused in the centre, consequently unfit for showing.

E. FRY.



## DESCRIPTIVE LIST OF NEW PLANTS.

HEMODORACEÆ.—*Hexandria Monogynia*.

*Anigozanthos fuliginosa* (Hooker). This plant is among the rarest of the genus yet found in Australia, and is thus noticed in conjunction with another species, *A. pulcherrima*, in a letter from Mr. Drummond, published in the 'London Journal of Botany,' vol. iii, p. 263 :

"By a ship now about to sail, I send two fine species of *Anigozanthos*, collected by my son (since killed by the natives) in the vicinity of the Moore river. The dark-flowering one, *A. fuliginosa*, of which but two specimens have ever been found in bloom, is a real *mourning flower*, the upper portions of its stem and the lower portion of the corolla being covered, as it were, with black velvet; the corolla is deeply cleft and expands about two inches. The species is not allied to any other yet discovered in the Swan River settlement."

The flower alone, independent of the curious sooty tomentum of the upper part of the plant, is indeed quite sufficient to distinguish this species, being much deeper cleft, with far larger and longer laciniaë, and longer filaments to the stamens than any known species. The flowers are borne in spikes on a dichotomously divided panicle; they are individually large, the upper portion lemon-coloured, the lower part and the ovary being covered with the same dense, dark red-brown or sooty-coloured tomentum as the panicle, but which gradually becomes more scattered and inconspicuous towards the upper portion of the flowers. The plant does not yet exist in our gardens, but we do not despair of seeing it ere long.—*Bot. Mag.* 4291.

BROMELIACEÆ.—*Hexandria Monogynia*.

*Æchmea discolor* (Hooker). A singularly attractive plant, from the rich coral red of the panicle, the flowers being of the same bright vermilion colour and the calyx tipped with black; also from the great length of time the plant continues in blossom, through the whole of the winter months. The unexpanded buds have a most striking resemblance to well-known beads, commonly

called "crab's eyes," which are the seeds of *Abrus precatorius*, only that they are much larger. The species is probably a native of Brazil, but I know nothing respecting its history further than that it was received at the Royal Gardens of Kew under the name here retained, from Messrs. Henderson and from the Paris Garden.—*Bot. Mag.* 4293.

GESNERIACEÆ.—*Didynamia Angiospermia.*

*Columnnea aureo-nitens* (Hooker). From the Royal Gardens of Kew, where it flourishes in a moist stove, producing its blossoms sometimes in autumn, sometimes in early spring. These flowers, and nearly the whole plant, but especially the younger portions, are densely covered with a rich gold-coloured clothing of silky hairs. The plant is suffruticose, but succulent: erect, or nearly so, scarcely branched, everywhere of a golden hue, from the copious golden-coloured, silky, shaggy hairs, most abundant in the young parts. The leaves are placed opposite to each other, and are of two kinds, one large, being from four to six inches long, and the other scarcely an inch; both are ovate-acuminate, and are unequal at the base, one side terminating abruptly and the other decurrent to the base of the petiole. The corolla of the flowers is tubular, about an inch and a half long, slightly curved, yellow, but aureo-nitent from the golden hairs: they are produced in the axils of the large leaves.—*Bot. Mag.* 4294.

CACTACEÆ.—*Icosandria Monogynia.*

*Echinocactus Williamsii* (Salm Dyck). A neatly formed species, which has a very pretty appearance when its starry blossoms are expanded. We received several plants of it at the Royal Gardens of Kew, through the favour of the Real del Monte Company, from the rocky hills of their district of mines in Mexico, with many other treasures. It flowers in the summer months. Our largest plants do not exceed a few inches in height. They grow in a tufted manner, and are often proliferous, the parent plant being, as it were, stifled or subdued by its offspring. Each individual is turbinate: from the base to the crown or summit terrete, of an ashy brown colour, and scarred with close trans-

verse lines, occasioned, it would appear, by the progressive withering and contraction of the tubercles. This summit is broadly convex, but with a deep depression in the centre, glaucous, traversed from the centre outwards by 6-8 furrows, and thus divided into as many convex ridges; and these again, transversely, but more or less deeply, into rather large, rounded, more or less confluent, unarmed tubercles, each of which has a dense tuft or short pencil of compact, erect hairs—no aculei. The flowers proceed from a young tubercle, near the centre of the crown; the base of the calyx is downy. The petals are lanceolate, rather numerous, white, externally tipped with pale green, and having a rose coloured line down the centre; stamens yellow; stigma of four spreading rays.—*Bot. Mag.* 4296.

RANUNCULACEÆ.—*Polyandria Tri-Pentagynia.*

*Aquilegia jucunda* (Fischer and Meyer). Dr. Fischer says that this plant stands intermediate, as it were, between the true *A. glandulosa* and *A. alpina*. "It differs from the former not only in those points included in the specific character, but in the sepals being ovate, tapering to the point, and deep blue; in the petals being roundish ovate (not truncate, as in *A. alpina*, nor acute, as in *A. glandulosa*), whitish, touching each other by their whole length; in the anthers being narrowly oval, the carpels fewer (6-10), and the seeds thicker, with five imperfect longitudinal keels. Among the slighter marks by which it differs from *A. alpina* are the long peduncles, the spurs, which are exactly those of *A. glandulosa*, the white petals, the yellow anthers, and more numerous carpels. It is found in the mountains of Siberia."

In gardens it is a fine hardy perennial, growing about a foot high, when planted in a compost composed of sandy loam and leaf-mould. It is well suited for rock-work, where it can be kept free from damp when in a state of repose, but freely supplied with moisture during the growing season, otherwise the plants dwindle away and never flower.—*Bot. Reg.* 19-47.

IRIDACEÆ.—*Monadelphica Triandria.*

*Tigridia conchiflora Watkinsoni* (Paxton). This variety was raised by Mr. J. Horsefield, of Whitfield, near Manchester, from

seeds of the *conchiflora*, fertilized by the pollen of *Pavonia*. The following is Mr. Horsefield's own account of it :

“About ten or twelve years ago I cut out the anthers of a flower of *T. conchiflora* as soon as it opened in the morning. Towards noon of the same day I took the burst anthers of a flower of *T. pavonia*, and dusted the stigma of the former flower. The seed-vessel ripened and a few seeds came to perfection : some of these produced plants whose flowers combine the properties of the two species. In habit and strength this hybrid resembles *T. pavonia*, the male parent, but in colour and the markings of the flower it resembles *T. conchiflora*, the female parent. The large outer sepals, however, are of a very deep yellow, inclining to orange, and sometimes elegantly streaked with red lines, whilst the spotted centre equals, if not surpasses, the brilliancy of either of the species. One of its greatest merits is being so free a bloomer, and as easy to cultivate and increase as *T. pavonia*, whereas *T. conchiflora* is rather delicate, increases slowly, and is easily lost. I have grown the two together for some years, and, whilst I can scarcely keep up a stock of *T. conchiflora*, the hybrid increases abundantly. — *Pax. Mag. Bot.*

#### ORCHIDACEA.—*Gynandria Monandria.*

*Eriopsis biloba* (Lindley). This new genus belongs to the Maxillarids, among Vandeous Orchids, but has so much the habit of an *Eria* when not in flower, that it may be mistaken for it. It has large plaited leaves placed two or three together upon the summit of a fleshy oblong stem, and it throws up from the base a long spike of gay orange-coloured blossoms. The history of its introduction is unknown : it has flowered with J. J. Blandy, Esq., of Reading, having been acquired by him among the many rare species forming the late Mr. Barker's collection which Mr. Blandy purchased, and is possibly some western plant. Its nearest affinity is with the racemose Maxillarias, readily distinguished, however, by their crescent-shaped gland and tubercular (not lamellated) lip with a long chin.—*Bot. Reg.* 18-47.

*Sarcochilus fuscoluteus* (Lindley). The flowers of this species are bright yellow, tipped with tawny, and nearly three quarters of an inch across in the principal diameter; they grow in close conical spikes. The leaves are about four inches long, and

three quarters broad. Imported from Borneo by Mr. Lowe.—*Bot. Reg.*

*Odontoglossum Warneri purpuratum* (Lindley). The present variety of this dwarf species has white sepals and petals, broadly streaked with crimson, the lip is entirely yellow; the flowers are borne on a raceme, from five to seven or eight together. The plant was obtained from Mexico by Messrs. Loddiges, and is very handsome.—*Bot. Reg.* 20-47.

*Acriopsis densiflora* (Lindley). A very curious plant, imported from Borneo by Mr. Lowe. Unlike the other species, this has its flowers compactly arranged in racemes about two inches long; the former are small, but delicately marked with brown upon yellowish green, and the lip is rose colour bordered with white.—*Bot. Reg.*

*Cælogyne speciosa* (Lind). This species was sent from Java to Messrs. Veitch of Exeter. The pale tawny sepals and petals, and pitch brown lip of this plant detract from its beauty, notwithstanding that they are relieved by a broad white column, and a pure white termination to the lip, and that its flowers are nearly four inches in diameter when fully expanded. They have, however, a very singular appearance, and if they are produced in greater numbers, will be attractive so long as the white remains unchanged.—*Bot. Reg.* 23-47.

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## FLORICULTURAL HINTS FOR THE MONTH.

*Auriculas.* As the blooming declines, these plants make a rapid though short vernal growth, this should be encouraged by keeping them in a humid atmosphere, give plenty of water to the roots every evening, and sprinkle the floor of the frames every morning, or place pans of water under it; the plants should continue in their frames or pits till the end of the month, by which time they will have completed the spring growth, and may then be removed to their cooler summer standing in order to rest them preparatory to the autumnal action: keep the surface of the soil clear of weeds and moss, and the plants of dead leaves: in removing the latter, an injury may be inflicted without some

care is exercised: the proper mode is to take hold of only one side of the leaf supposed to be dead, draw it gently across the stem, and if in a fit state it will readily part at the point of union with the stem, and thus the whole of it will be brought away; if done too soon, and in a violent manner, either a portion of the leaf is left which conveys an impurity to the stem, or the latter is wounded by the separation.

Plants intended to furnish seed should be set in the open air where they are subject to all but the strongest mid-day sun, those in frames will of course require shading.

*Carnations and Picotees* must have plenty of water every day, and liquid manure towards the end of the month, once or twice a week; watch constantly for the appearance of green flies, and remove them with a brush, or dust them over with snuff to be afterwards removed with a brush or water.

*Polyanthuses* should be turned out of their blooming-pots into a shaded border having a moist loamy soil; they will not bear more than three or four hours of the morning sun, and though they like a moist position the drip from trees must be carefully avoided.

*Ranunculuses.* As these advance, it is a good plan to lay on the beds a mulching of decayed leaves or old tan, which saves much trouble in watering, the soil round the neck of the plants should be pressed tight with the hand to prevent drying and keep the leaves erect; weeds must be removed as often as they appear, and should it become necessary to water, I prefer to dam up the ends of the paths and fill them with water, rather than to pour it on the beds, as it causes such a hard incrustation of the soil when given in the usual way.

*Roses* will require frequent examination to detect and destroy those pests, the green aphides. Various preparations are advised for this purpose, though but few are found to bear the test of trial; as a rule, always avoid a glutinous wash, which, whatever its composition, will certainly kill not only the insects but the branch on which they rest. Tobacco water, or ammoniacal liquor, such as diluted hartshorn, are among the best of liquid applications; and where they cannot be used, Scotch snuff may be dusted, but this must be washed off again in a day or two, or it will sadly disfigure the foliage.

When roses are grown in pots for exhibition, they should stand in pits or frames from the first breaking of the leaf buds, or the foliage will not wear the necessary rich appearance, and here the application of tobacco smoke may be readily made a preventive to the attacks of nearly all insects, certainly all to which these plants are subject, except the froth-fly, which must be removed by hand, and sometimes from inadvertence the leaf-grub may have got so securely rolled up as to defy its effects, but they are easily seen and soon removed.

*Tulips* will engross a considerable share of attention through the next three weeks if we have a propitious blooming time; water will be wanted in considerable quantities, and is best given about four o'clock in the afternoon, and, whenever it can be done, the awning had better be drawn up about the same time, that the leaves may be quite dry before night. As it is generally admitted that blanks disfigure a bed, and yet will occur with the most careful, I generally grow a few roots in pots, which prepares them for removal, and about the time that the bed is wanted in its best state, these plants are carefully transferred to the places where any have failed; if it is done without injuring the roots, the pot plants do not flag or show any signs of removal. Every attention must now be given to the protection of the flowers, guard them carefully from wet and distressing winds, but let them have as much air as is consistent with the above rule.

FLORISTA.

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## GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

- OB.** In Latin composition indicates an inverted position; thus, obovate is inversely ovate, or, more familiarly, an ovate leaf is attached to its petiole by the broadest end, thus tapering towards the apex; while an obovate leaf tapers towards the petiole, the broadest part being near the point.
- OCCIDENTAL.** Coming from the west.
- OCHRACEOUS.** Pale yellowish brown.
- OFFICINAL.** Medicinal, or used in the arts.

- OLEAGINOUS.** Containing oil; partaking of the nature of oil.
- OLERACEOUS.** Esculent; fit to eat.
- OPERCULAR.** Having a membranous covering, or lid.
- ORBICULAR.** Having a flat surface, with a circular outline.
- OSSIFIED.** Hardened to the consistence of bone.
- OVARIUM.** The immature seed-vessel.
- OVATE.** Egg-shaped.
- OVULES.** The embryo seeds, contained in the ovarium.
- PALEACEOUS.** Clothed with dry, chaff-like scales.
- PALMATE.** Divided into several deep lobes, resembling the fingers of a hand.
- PANDURIFORM.** Fiddle-shaped.
- PANICLE.** A kind of inflorescence, in which the flowers are arranged on a branching spike, the branches decreasing in size as they approach the upper part of the main stem, so that the whole assumes a pyramidal form.
- PAPILIONACEOUS.** Butterfly-shaped.
- PAPILLOSE, PAPULOSE.** Having small protuberances, resembling nipples.
- PARENCHYMA.** The soft part or cellular tissue of plants, as the internal portion of a leaf.
- PATENT.** Spreading; broadly expanded.
- PATULOUS.** Spreading in an inferior degree; slightly expanded.
- PECTINATE.** Cut deeply, like the teeth of a comb.
- PEDICLE.** The small footstalk of a flower.
- PEDICELLATE.** Attached by a short footstalk.
- PEDUNCLE.** The principal stem to which flowers are united by their pedicles.
- PELLUCID.** Semi-transparent.
- PELTATE.** Descriptive of a leaf whose footstalk is attached to the centre, instead of the margin.
- PERENNIAL.** Continuing for several years.
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## PRUNING AND TRAINING HEATHS.

BEING an ardent admirer of that lovely tribe of plants the Heaths, which I am much pleased to see occupying the prominent position they deserve in general estimation, I have been led to look closely into their natural habits, and to compare with them the usual modes of pruning and training; that the prevailing taste for densely-filled circular plants, is a correct one, perhaps no good reason can be adduced to disprove, providing the proper proportions are not outraged, and the general character of the plants sacrificed to the production of a formal lumpish object.

By this it will be understood that I follow the fashion in admiring a round bushy plant, whenever it can be had without the appearance of distortion, and will as earnestly insist on having them thoroughly branched from the base as the most determined advocate of circular training; yet I think a little error is creeping into our methods of attaining to this desired form, inasmuch as relates to natural character. The usual mode of training these plants is to frequently remove the points of the growing shoots to induce bushiness, and because this succeeds to perfection with some varieties, it has been rather blindly adopted for all; what I desire to point out is, that this is a mistake, the adoption of any particular system of training with a family so extensive must be as erroneous, as it would be to treat them in other respects exactly alike.

My idea of the matter is, that those which produce their flowers on or near the points of their branches, may be safely stopped in the usual way till they have become sufficiently furnished with branches; but to follow the same course with varieties that are distinguished by bearing their flowers in spikes or on a continued length of the stem, is to virtually disfigure the plants by preventing the formation of such branches as would yield the greatest number of blossoms; thus for instance all the varieties of *tricolor*, of *ampullacea*, and of *ventricosa*, possess a character that will certainly be improved by stopping, as the production of more points must result from the practice, and consequently more flowers will be borne, but those which grow and bloom in the

manner of *hyemalis*, *Wilmoreana*, *Bowii*, *Cavendishii*, and several others should be pruned in a different manner; they are best when cut down close to the origin of the current season's wood, and afterwards allowed to grow on without interruption, as the plant is then composed of strong shoots only, and the display of flowers is every way superior, while the habit of the plant is preserved in its native luxuriance.

W. B.

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### HABROTHAMNUS FASCICULATUS.

VARIOUS opinions are promulgated respecting this plant. Sometimes we are told it is absolutely worthless, and that it is attention thrown away to attempt its management; and again we hear of its magnificent aspect. Our own opinion is, that it will form a very handsome early-spring flowering plant in the conservatory, and as such must ever be valuable, though there can be no doubt of its receding before the gayer occupants of the same erection, that unfold their beauties on the approach of a warmer season.

There are many other plants of the same useful class, and the present will certainly bear a comparison with the best of them. A specimen which came under our notice some little time since, though not quite perfect as regarded its growth or form, evinced a disposition to bloom that made it quite clear to us, to be a matter of only ordinary attention to secure perfect plants in all respects.

There are, however, two or more varieties, and it is therefore incumbent on any one desiring the plant, to be quite sure, when they make their purchase, that they have the right one.

As to its management, we fancy it to be one of the easiest a gardener can desire. Let young, healthy plants, of about a foot high and branched, be potted in May into large pots, filled with fibrous peat and loam, the latter predominating; stand them in a cold pit, kept rather close and moderately damp, and their progress will be most rapid. As, however, the natural habit of the plant is to grow erect, without producing branches, it will be necessary to stop the leading shoots twice or three times in the course of the summer: and by the end of August they will have

exhausted the soil in the pots, by filling it completely with roots, and may then be placed in the sun to ripen and prepare them for blooming, which will occupy the remainder of the autumn ; and, on their return to the conservatory, there can be little doubt of a very fine display of flowers resulting.



## CALENDAR OF KITCHEN GARDEN OPERATIONS FOR MAY.

THE most important part of this month's operations, will be the thinning and transplanting of the various crops sown in the last and preceding months. Carrots, parsnips, and beet should stand from eight inches to a foot apart, and onions at rather more than half that distance. It is false economy to leave these crops to be thinned by such as may be required for use in a young state, as in general they are not withdrawn till the remainder has suffered through crowding.

The strongest plants from the seed-beds of early brocoli, cabbages, cauliflowers, &c., should be planted out on the first opportunity of showery weather, and at the same time the planting of the warm crops of celery should be got on with.

Earth up and stake peas as they require it, sow more for autumn use. The several crops of these and other advancing vegetables should be frequently hoed, that the ground may be kept light and porous, and also to prevent the spread of weeds.

The principal crops of French beans may now be sown, and at intervals of eight or ten days. Spinach, lettuce, and radish seed should also be got in, it being preferable to sow small quantities in rapid succession, as much of it is likely to be wasted should the weather prove dry. A sowing of endive may also be made for early use, and where young carrots are esteemed, a few sown now will come in nicely after the summer supply is done.

The asparagus beds being now in full bearing, should be kept perfectly clear of weeds; in cutting the shoots, avoid injuring those proceeding from the same stool that are just coming through the soil; young heads should be cut but sparingly, ceasing with them altogether by the end of the month.

Potatoes should be earthed over as they appear till the middle of the month, lest a late frost nip them off again.

Herbs of all sorts are easily propagated now by cuttings struck under a handglass on a shaded border. Capsicums and tomatas may be planted out as soon as the nights become warm.

Strawberries and newly-planted vegetables should have a plentiful supply of water in dry weather.





GARDENIAS.

1 STANLEYANA. 2 DEVONIANA.

## GARDENIAS.

WITH AN ILLUSTRATION.

IN the genus under consideration we are presented with a group of species numbering about a dozen and a half, composed of plants for the most part natives of the East Indies, principally affecting those regions whose character approaches the temperate. Some of them have been known to us for a considerable period, and are among the most popular flowers of our collections: the double-flowered varieties of *G. florida*, the well-known Cape Jasmine, and the not less beautiful *G. radicans*, are equally favorites with us as in their native countries, China and Japan, where, on the authority of Thunberg and other travellers, we are told, the inhabitants are extremely fond of cultivating them near their dwellings, planting them as hedges to the gardens, and training them as standards for isolated positions.

In our climate the character of the plants renders the adoption of pot culture necessary, that they may be nurtured in glazed erections, and kept portable for the greater convenience in their management; they are notwithstanding sufficiently hardy to bear with impunity a considerable amount of cold, for we have known cases of their resisting  $12^{\circ}$  of frost, when in a dormant state, without any apparent injury. To grow them successfully, however, a comparatively high temperature is decidedly necessary at certain periods, that a free, vigorous development of new foliated parts may be obtained; they also require a very humid atmosphere while in an active state, or the leaves are soon disfigured and ultimately killed by the innumerable punctures of a host of insects which are certain to attack an unhealthy plant, and thence spread over all that may be near.

As one system of treatment seems to suit the entire genus, new and old, we shall proceed to describe that usually employed by commercial growers, who cultivate these plants in quantities, and certainly get them into a healthy blooming condition in a surprisingly short time. The means of propagation are confined to cuttings alone, as the plants seldom perfect seed, and the process of layering is so lengthy an operation, without corresponding

advantages, as to be seldom employed ; while, on the other hand, cuttings can usually be had in unlimited number, and, under good treatment, soon make handsome specimens. They should be taken off as early in the season as it is possible to procure the young wood of sufficient length, pieces of three or four joints being the best. They should be cut quite from their origin, so as to retain a small portion of the parent stem at the base of the cutting, or, as it is technically called, "a heel;" this being squared off with a very sharp knife and the lower leaves removed, the cutting is ready for insertion in the pot, which should be filled to within an inch of the rim with very sandy peat, or leaf-mould and sand, mixed thoroughly, in equal quantities, filling up the remaining space with pure sand. Into this the cuttings are to be placed with a small dibble, at a distance of about an inch one from the other ; and, when the pot is filled, dip it carefully into a vessel of water till the fluid runs evenly over the surface of the sand ; then draw the pot quickly out, and the passage of the water downwards draws the sand so tightly around the cuttings, that air is completely excluded, a point of the utmost consequence in all kinds of propagation. Cover them with a bell-glass, and plunge the pot to its rim in a steady bottom-heat of about 80°. It will of course be necessary to shade them from strong sun-light and to supply them moderately with water, till in three or four weeks they will have protruded sufficient roots to warrant their removal into separate pots. The treatment through this second stage of the plants' progress very closely resembles that of the mere cuttings. They should be potted in sandy peat, and the smallest pots should be used. The plants must be kept in a hot-bed frame, with a temperature of 65° or 70°, maintaining about them a close, humid atmosphere by the liberal application of water, and shading the glass to reduce the heat, rather than by the admission of the external air, as the exhaustion caused by the influx of a dry atmosphere would be more than the plants in their present delicate condition could bear. If the first part of the season has been taken advantage of to get thus far, the young plant's future progress will be rapid, and by the end of the summer they will have thoroughly established themselves, and, by a few weeks' exposure to a liberal aeration, will become ripened, and in a fit state to meet the winter. This



is perhaps the most trying period in the history of the plants. They will require to be kept just cool and dry enough to prevent any attempt at renewed growth, and yet so warm as to be in full vigour, and in a condition to start with energy on the first application of the usual stimulants. The best period for renewing the action will be about the middle of March; repot them then, and place them again in a brisk heat like that in which the cuttings were struck. Here they will advance rapidly, and it may be necessary to watch that they do not run up too fast without an inclination to become bushy. In such a case, if it be only a few individuals that require correction, "stopping" may be resorted to; but should the same character pervade all the plants, it will be advisable to admit air more freely, lest they become drawn and weakly.

By the end of May repotting will again be necessary, and the after-treatment will be that of mature plants, for after becoming properly established in these pots the plants may be expected to commence blooming. The principal object in each succeeding season will be to establish a healthy, vigorous growth, for on this the production of flowers mainly depends. Gardenias delight to grow in a humid, somewhat elevated atmosphere, and to secure this, it is found advisable to confine them to pits, as being more manageable, because of their smaller size, than houses of any sort can possibly be; here the plants may be kept moist, warm, and shaded, which includes all the essential conditions to their most successful cultivation; these elementary principles must be supplied, modulating one by the other so as to cause a healthy development of new branches and leaves through the summer, and in autumn the lights may be removed altogether, and all but the strongest sun-light admitted to the plants; this will mature them, as before remarked, the result of which will be an abundant production of flower-buds, which the cultivator may consider as a store of floral ornaments to be made available at his pleasure; for the removal of a few plants at a time in succession to a warmer place will ensure a continuance of blossoms so long as there are plants left to be forced. It matters little to the Gardenia whether it is induced to bloom at mid-winter, or allowed to unfold its flowers by the influence of a summer sun; they are alike in

purity of colour and delicious fragrance, and so that the plants are well-grown the remainder is a matter of ease and certainty.

The subjects of our plate are two species recently introduced to our collections through the exertions of Mr. Whitfield, who traversed the torrid regions of Sierra Leone and adjacent parts of Africa in quest of botanic and zoological novelties, how amply his labours were repaid may be judged of if we take only the two plants before us as specimens of the many interesting additions thus made to our knowledge of that portion of the world. The extraordinary size and delicious perfume of the flowers of both species, together with their rich, deep green, and ample foliage, and the comparative ease with which they may be grown, all tend to mark them as distinguished members of a truly noble race. From eight to twelve inches may be stated as the ordinary length of these extraordinary tubular flowers; the ground colour of both is white, and those of *G. Stanleyana* are richly blotched with deep crimson, faintly shaded with rose and a pale green, while those of *G. Devoniana* are remarkable for the purity of the white when first expanded, looking like so many enormous lilies; the colour of these, however, changes after some days' exposure to an equally agreeable light straw colour.

Mr. Glendinning, of the Chiswick Nursery, to whom we are indebted for the specimens from which our drawing was made, and who has been most successful in their management, says, they may be cultivated with quite as little trouble as the more humble members of the same genus, and in the same way, the great point of attention being to grow them luxuriantly in a temperature of at least 80°, with an abundance of moisture, and afterwards to gradually inure them to a full exposure of light and a lower temperature, when their blossom-buds will set, and a cool pit or greenhouse receive them till it is desired to have them expand their immense flowers, when a moderately warm house will bring them out in the greatest perfection. In fact, no appreciable difference exists in his mode of treating them and that we commenced this paper with, and we cordially agree in his remark, that their extraordinary, conspicuous flowers, together with their sweet scent, will give them so high a claim to public attention, that no collection of the least pretension can be without

them ; we may add, too, in conclusion, that notwithstanding the immense size of the individual blossoms, they are borne freely on very small plants, and on larger specimens are most copiously displayed.

The name of the genus is one given by Ellis, in honour of his friend Dr. Garden, of Charleston, in Carolina, an ardent botanist and collector. Its geographical distribution extends over a great part of the eastern world. From China most of those best known to us have been obtained, such as *radicans*, *florida*, and its double variety *amœna*, and some others.

Various parts of the East Indies also boast their Gardenias, all of them handsome evergreen shrubs, with, for the most part, white highly-scented flowers ; the African species, however, very far exceed in floral magnificence those of Asiatic origin, those regions claiming not only those which now grace our pages, but also the handsome *G. Sherbourniana*, *Thunbergiana*, and *Rothmannii* ; all of them decided acquisitions everywhere. The last-mentioned species is remarkable for the intense odour it emits at night, and for the freedom with which it produces its black pear-shaped fruit. Nearly all the species in a state of nature are armed with sharp spines, these, however, disappear under high culture, or as the plants grow old.

The genus is arranged by most botanists in the natural order *Rubiaceæ*, though some place it in *Cinchonaceæ*, the close affinity of the two rendering the definition of either a matter of some difficulty. In the Linnæan arrangement it is stationed in *Pentandria Monogynia*.

EDITOR.

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## CULTURE OF THE TREE PÆONY.

THE *Pœonia Moutan*, or Chinese tree pæony, is a free-flowering, very handsome ornament of our conservatories in spring, and of the flower-garden in early summer ; there are four varieties of it already known in our gardens, and the reports of travellers lead us to expect some others from the Celestial Empire, which shall decidedly eclipse all those we were previously acquainted with ;

those already included in our collections are the true *Moutan*, with large purple flowers; *papaveracea*, having pure white blossoms; *rosea*, which, as the name expresses, is distinguished by its pale rose-coloured flowers; and *Banksia*, a purple variety very often confounded with the original species, to which, however, it is inferior in point of size, though perhaps a more liberal bloomer; all are highly desirable in every garden, especially where forced flowers are in request at an early period of the season; and the cultivation is of the easiest description, as the following outline will make apparent. Their propagation is readily effected either by cuttings or layers, both requiring to be done when the new shoots are about half ripened; for the first method, those about three inches in length will be found the most suitable, and if taken off with a little piece of the old wood adhering, which is most readily done by "slipping" rather than with the knife, and afterwards trimmed in the usual way, setting them in a pot filled with sandy peat, and plunging the latter into a cool shaded border without any covering, the cuttings will root quickly, and form good plants in the course of the autumn. It is found that when the cuttings are subject to heat, however low, their tissue becomes elongated, a weak growth expends their strength, and scarcely any roots are emitted, and with the confinement of a glass even out of doors, mouldiness is induced among the leaves, and no advantage accrues to compensate for this etiolation. Layers are easily formed of the longest shoots; these should have their lower leaves trimmed off, and a tongue cut in that part of the branch which will come in contact with the earth when the former is bent downwards; the tongue is formed by entering the knife just beneath a joint, and passing it upwards for about an inch and a half through the middle of the stem, thus splitting up a piece of the above length and half the substance of the branch; as the wood is likely to be rather hard and stiff, it may be well to introduce a small wooden wedge beneath the tongue, to prevent its touching the other portion from which it has been severed, and to which it would again adhere was it allowed to resume its natural position; the branch is then to be curved down, and the lower part covered with earth, it may be layed either into the bed in which the old plant is growing, or in a small pot placed so as to receive it; the latter is necessary in cases where there exists

any danger of breaking the branch, and then perhaps it will be still better to pass the head of the layer up through the bottom of the pot, which will entirely remove any risk, and the mould may be filled in exactly to the required height; some little attention to keep them moderately supplied with water will ensure good-rooted plants, fit for removal by the following August. The young plants supplied by both processes will then require the same treatment; let them be carefully lifted without injury to the young fibres, and pot them into a mixture of sandy peat and loam, using pots of ample size, according to the strength of the plants. A cold pit should receive them through the first winter, and the strongest may be expected to bloom in the following spring. If they are intended for pot culture, it will be advisable to repot them in March, using a rather larger proportion of loam in the compost than before, and stationing them in an open airy part of the garden that they may grow vigorously, and be ready for use in the ensuing season.

When they are required only to embellish the flower-garden, it will be sufficient to keep them in the same pots, and in the winter, if pit-room is scarce, they may be laid on their sides, and covered with litter to protect them from severe frosts; then as they are wanted or become large enough, they may be transferred to their respective places. These pœonies make a fine appearance when grouped together in a bed, and it is the most desirable way of growing them, because the requisite mould may be provided and kept in a fit state, and the plants protected in winter with far less trouble than when standing singly. The bed should be formed of an equal mixture of peat, loam, and rotten dung, and the plants placed about a yard from each other, which will allow them sufficient space to become fine specimens, and yet fill the ground fully, avoiding either a crowded or mean half-dressed appearance. On the approach of severe weather it will then be easy to form a framework of stakes, and to cover the whole with double mats, which will prove sufficient protection in all ordinary seasons, and with only an occasional thinning of the superfluous branches, the plants will speedily become extended over their allotted space and amply filled with blossom.

When grown in pots they are chiefly used for forcing into flower at an early part of the spring, and for this purpose esta-

blished young plants are perhaps the best, a gradually increasing heat, commencing at 45° and rising to 55°, is the best for them, and with plenty of water in the earlier stages of their development, the production of handsome well-flowered specimens is certain to result.

T. HENDERSON.

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### THE CINERARIA.

As an admirer of this charming family, I observe with much pleasure the interest now so generally taken in their improvement, and abundantly they deserve it, for scarce another tribe is so admirably adapted to render gay in the cheerless months of winter the greenhouse or sitting-room. Those who bestow a little labour and attention on them now, will then find themselves duly rewarded by the profusion of bloom which under judicious management is invariably produced.

When the plants have done flowering, they should be cut down and set in a cold frame, or any other convenient, airy, and sheltered situation, where they require no further attention than an adequate supply of water to enable them to push forth a fresh foliage, which they readily do from the crowns of the old roots, and when of sufficient strength for propagation, cuttings may be carefully taken off; the old plants are consequently destroyed, each cutting is potted in a sixty-sized pot, with a mixture in equal parts, of sand and leaf-mould finely sifted, then placed in a frame with a gentle bottom heat, where they strike root and grow freely; when they are sufficiently rooted they should be shifted into forty-eight-sized pots, with a compost in equal parts of fresh loam and leaf-mould, to which is added a little sand; they should then be taken to a cold frame shut close, and slightly shaded during the hours of sunshine, until the plants recover from the check they sustain by shifting. Afterwards air is admitted freely by tilting the lights back and front, which prevents the plants from becoming drawn. As soon as they seem to require it, they are again repotted, placing them this time into the blooming pot, which should be those known as thirty-twos. The compost at

this shifting consists of three parts maiden loam, two parts rotten dung, a small portion of well-pulverized sheep's dung, and a little coarse sand, all well incorporated, but not sifted; they are either again set in the cold frame or placed in the open air on a bed of coal ashes, in a sheltered but not shaded situation, where they may receive the benefit of the morning sun. Here they are permitted to remain until the cold autumnal nights approach, when, being very impatient of frost, they are removed to the frames. Those intended to be brought into flower about January require no further shifting, and are taken into the pits, or housed in the beginning of autumn for that purpose. Those which flower later are better adapted for specimens, and as they begin trussing their flower-stems, the strongest are selected and reshifted into twenty-fours, and by the time these are full of roots, the plants are in a profusion of bloom, and will continue so for several weeks.

Through the whole course of culture particular attention must be paid to watering, as the Cineraria, when in a healthy state, absorbs a large amount of this element. In potting, it is a good plan to place a little moss in the pots over the crocks, it serves a twofold purpose; preventing the mould from obstructing the drainage, and retaining a moisture to nourish the roots of the plants.

In consequence of the liability of these plants to attacks from insects, especially green flies, it will be necessary to frequently fumigate them with tobacco-smoke, or if the entire foliage is dipped into a vessel containing tobacco-water that has been allowed to settle into a clear state it will act also as a preventive; it must, however, be used quite clear, or the leaves will be disfigured by the sediment; these insects may also be removed with a brush, but it is rather a tedious operation; still by some method the plants must be kept clean, or they will soon be completely disfigured.

T. T.

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## TULIPS. •

THESE "gems of Flora" have been sadly deficient in interest and beauty throughout the metropolitan districts this season; the terrible effects of the past severe winter have been everywhere visible in cramped stems, spotted foliage, curled, split, and abortive flowers, and fortunate will it prove if canker does not make its appearance in the roots before the next planting season; the cause of all this mischief may be readily and consistently traced to the action of excessive frost on the young leaves and incipient bloom-buds at an early part of the season. In most places the Tulips came up well last year, the roots were as healthy as could be desired, and every promise of a beautiful bloom this season was raising the florist's expectation to the highest pitch, when the tremendous weather of last February and March occurred to mar all his golden visions.

The question as to how the recurrence of these disastrous effects are to be prevented has often and long ago been mooted, and the remedy urged, yet little attention is given to it at the right time. Cultivators may depend they do not cover their beds soon enough; the young shoots must be protected from frosts as well under the ground as after they are through the surface, for they are then even more susceptible of injury, and so surely as the frost penetrates to them, which it will very readily do, all the after attention is thrown away, for the mischief is done. It is surprising that the subject is so much neglected, for to guard them then incurs but little trouble; some loose rubbish, such as fresh leaves or the small thinnings of plantations, would be most effective, and yet admit all the air and light necessary, and when the shoots were an inch above the ground the whole might be cleared away, and recourse had to the usual hoops and mats; though I am by no means certain it would not prove advantageous to allow the leaves to remain, supposing them to be employed, for I think they would afford a supply of nutriment to the plants in the first part of their growth, and afterwards serve to keep them moist in the hot weather of April and May, and there would be no danger of their solidifying to any injurious extent, if they were slightly dried in the autumn before being put on the bed.



With respect to the coverings used on the hoops at a more advanced period, I think that worsted netting of a rather small mesh will be found preferable to mats, as affording a warmer covering, and will at the same time admit a much larger proportion of light.

FLORISTA.

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### THE VERBENA AS A SHOW FLOWER.

I READ with much interest the remarks of your correspondent Hortulanus, at page 173 of the last volume, on the propriety of adopting the Verbena as a flower pre-eminently qualified for exhibiting, and, cordially agreeing with his commendation of that lovely tribe, I am highly gratified in observing that at least one society has judiciously embodied the suggestion in their schedule for the present season. The Royal South London Floricultural Society have thus wisely added another great attraction to their autumnal show by offering prizes for collections of twelve varieties of these interesting flowers. There cannot be a doubt, from the timely notice thus given, and the general favour in which the plants are held, of a very fine display being present: it will give to the raiser of new varieties an opportunity of thoroughly establishing the character of those that are really deserving of public estimation, and afford the purchaser an equally good one of judging of the habit of such as he may feel disposed to add to his collection, a matter of almost equal moment with the quality of the blooms, which all will admit who like myself have felt annoyed by the straggling, uncontrollable character of a great part of those now cultivated. The prize is certainly not restricted to new varieties, being open alike to all; but no dealer who values the fair fame of his productions, and who is anxious to supply his customers with really good articles, will, I should think, omit the opportunity of thus bringing them in competition with the best of the existing varieties. Such a chance of advertising their qualities ought not to be passed over, and, as the plants are good travellers, there can be no reason why they should not be collected from all parts of the country, and there is little doubt, if growers evince a proper conception

of the value of the course adopted, that the Society will in another season increase both the number and value of these prizes, for it would be quite as easy to have the plants fit for showing in June or July as in September; and, as it opens up another chance for the smaller growers, it will undoubtedly prove beneficial to the funds of the Society in the end, for there is perhaps no class of subscribers more deserving consideration than these, who readily contribute wherever they have a chance of competing, and with this view of the case the class obtrudes itself forcibly upon the notice of all provincial meetings, and I hope soon to hear of its adoption throughout the country.

It is not possible to add anything to the excellent practical directions given for their management in the paper referred to. I would, therefore, merely hint that in my opinion the pots known as twenty-fours would be the most appropriate size for blooming them in, and the following twelve would be perhaps deserving of selection for the purpose.

Any one at all conversant with exhibiting plants will, however, be aware that, to be certain of having the requisite number in a fit state to show, a few extra plants must be grown, but in this case a very few additional specimens will suffice, and I should rather have duplicates of the best sorts, than extend the list of varieties without a corresponding attention to quality.

TWELVE VERBENAS, SELECTED FOR THEIR SUPERIOR HABIT  
OF GROWTH AND BLOOMING.

- Atrosanguinea, bright crimson.
- Avalanche, white.
- Boule de Feu, orange scarlet.
- Emma, light purple.
- Imperatrice Josephine, blue.
- Louis Philippe, dark maroon.
- Princess Royal, Tilley's, dove colour.
- Rosy Morn, rosy red, white eye.
- Rose d'Amour, Girling's, bright rose.
- Tricolor Alba, blush, pink eye.
- Favorite, large, fine rose.

AMICUS.

## DESCRIPTIVE LIST OF NEW PLANTS.

APOCYNACEÆ.—*Pentandria Monogynia*.

*Echites Franciscea* (De Candolle). A fine, fragrant hot-house climber, of considerable beauty, the introduction of which was effected by his Grace the late Duke of Northumberland. It is found in the Brazilian desert, near the river San Francisco, whence it takes its name. The flowers are borne on short axillary racemes; they are rather small for the genus, deep rose colour, having a green centre, and appear to be copiously produced.—*Bot. Reg.*

BORAGINACEÆ.—*Pentandria Monogynia*.

*Macromeria exserta* (Don). A half-hardy perennial, discovered by Hartweg near Tuspan and Anganguco, in his first journey in Mexico; but it was not till his second visit, in 1846, that he succeeded in obtaining ripe seeds. It grows from two to three feet high, terminating in a branched panicle of long, tubular, yellow flowers. The limb is divided into five narrow, spreading lobes, and the stamens project in a remarkable degree beyond the orifice of the tube. Its foliage, however, is too coarse to make it of much value as an ornamental plant; and its flowers, which always droop, fall so soon after opening, that it never looks so well as its showy appearance on paper or in the herbarium would lead us to expect.—*Bot. Reg.* 26-47.

CONVOLVULACEÆ.—*Pentandria Monogynia*.

*Jacquemontia canescens* (Bentham). The type of the genus *Jacquemontia* is the old *Convolvulus pentanthus*, of which M. Choisy now regards this as a variety. It differs from *Phorbitis* in having but two cells in the ovary; from *Ipomœa* in the lobes of its stigma being flat, not spherical; and from *Convolvulus* in their not being long and narrow. It is a perennial twining plant, with the stems and leaves closely covered with a short down, which is brown and white, and by no means justifies the name of *canescens*. The leaves are about two inches long, of a firm texture, concave, heart-shaped at the base, with an oblong outline, which is rather wavy. The flowers grow in

short cymes of from nine to eleven each, on stalks somewhat shorter than the leaves; they are of a clear, bright blue, and very handsome; the corolla is an inch and a half across, with a flat limb, a very short tube, and long projecting stamens. The species has been regarded by M. Choisy as a variety of *Jacquemontia violacea*, the *Convolvulus pentanthus* of gardens, but it is certainly quite distinct and far handsomer. The seeds were collected by Mr. Hartweg near the village of Fusagasuga, in the province of Bogota.—*Bot. Reg.* 27-47.

LARDIZABULACEÆ.—*Monœcia Hexandria.*

*Akebia quinata* (Decaisne). Mr. Fortune, who sent this plant to the Horticultural Society says, "I found it growing on the lower sides of the hills, in hedges, where it was climbing on other trees, and hanging down in graceful festoons from the ends of their branches. The colour of its flowers in China is of a dark brown, and they are very sweet-scented; indeed it was the delightful fragrance which first attracted my attention to the spot where the plant was growing. In the garden of the Horticultural Society, where it has flowered for the first time in England, the flowers are much lighter in colour and nearly scentless. We may still hope, however, that when the plant gets older it will shed its fragrance on us.

As the past winter has proved many of my Chusan plants perfectly hardy in this country, there is every reason to suppose that this *Akebia* will succeed well when grown on trellis in the open air. Young plants are easily made from cuttings of the stems or roots treated in the ordinary way. In China, it generally grows in poor well-drained soil.—*Bot. Reg.* 28-47.

ACANTHACEÆ.—*Didynamia Angiospermia.*

*Ruellia Purdieana* (Hooker). A desirable acanthaceous plant for cultivation in the stove, having ample deep green leaves, which with the stem are quite smooth. It strikes freely from cuttings, blossoming at an early period and at different seasons of the year, and the flowers are a full deep crimson lilac. In character it approaches the *R. bracteata* of Mr. Brown, from New Holland, from that, however, the present species is

readily recognised by the different form of the corolla, and by its glabrous stem and leaves.—*Bot. Mag.* 4298.

ASCLEPIADACEÆ.—*Pentandria Digynia.*

*Marsdenia maculata* (Hooker). This has long been cultivated in the stove of the Royal Gardens at Kew, as a new asclepiadaceous plant which had been sent by the late Mr. Lockhart, of Trinidad, and we have received flowering plants from Messrs. Lucombe, Pince, and Co., of the Exeter Nursery. In 1834 living plants were again transmitted to the Royal Gardens by our collector Mr. Purdie, from the plain of Santa Martha, New Grenada. It seems to be a true *Marsdenia*, and is remarkable for its large foliage, spotted with pale yellow, somewhat like the leaves of *Aucuba japonica*, but with the spots more regular, more equidistant, and less confluent. It is a great climber, and flowers readily in June; the flowers are of a dark purplish or liver colour, greenish when young, and thus the dense umbels have a mottled appearance; their texture is rather fleshy, like those of *Hoya*.—*Bot. Mag.* 4299.

SCROPHULARINEÆ.—*Diandria Monogynia.*

*Calceolaria amplexicaulis* (Sprengel). A handsome and ornamental *Calceolaria*, though except in foliage little differing from many other forms of that genus, which have been some time in cultivation, and on that account perhaps not likely to become a general favorite. It is a native of Peru and Colombia. Humboldt met with it upon the banks of the San Pedro, between Chillo and Condoto, at an elevation of from seven to eight thousand feet above the level of the sea; Mr. William Lobb at Muña, whence he forwarded seeds to Mr. Veitch, of Exeter, where it has flowered; the flowers are deep yellow, produced in a large compound corymb.—*Bot. Mag.* 4300.

CONVOLVULACEÆ.—*Pentandria Monogynia.*

*Ipomœa muricata* (Cavanilles). A beautiful little species, not very aptly named *muricata* by its first describer (for the base of the sepals alone are tubercled), and very inaccurately described by most authors in regard to its foliage. The leaves are not simple and whorled or fascicled, as they might appear at first

sight, but multifid almost to the base; and the segments are often again divided. It would appear, from the numerous collectors through whom I have received it, to be common in many parts of Mexico and Columbia. Our living plants were raised from tubers sent by Mr. Purdie from open grassy mountains of the Nivada de Sta. Martha, New Grenada; they flowered both at Sion and the Royal Gardens in October, 1845. The flowers are solitary, small, and of a deep rose colour.—*Bot. Mag.* 4301.

CACTACEÆ.—*Icosandria Monogynia.*

*Cereus grandiflorus Maynardi* (Garden Hybrid). This beautiful hybrid was raised in 1837 by Mr. Henry Kenny, gardener to Viscount Maynard, at Easton Lodge, Dunmow, Essex. A flower of *C. speciosissimus* was fertilized with the pollen of *C. grandiflorus*. The habit is trailing like the latter, and like that species, its flowers always open in the evening; but they continue expanded about three days, and are in size from nine to eleven inches in diameter, and from seven to nine inches in length, from the base of the tube to the expansion of the sepals. It flowers equally as free as *C. speciosissimus*, and though it has not the rich violet tinge of that species, possesses a still more vivid colour in the scarlet portion of the flower. The wood and spines are intermediate between the two species, and very distinct from any kind previously raised.—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria.*

*Brassia brachiata* (Lindley). This beautiful plant was originally defined from a dried specimen collected near the Hacienda de la Laguna, in Guatëmalá, by Mr. Hartweg. Since its introduction it has occasionally flowered, as with Messrs. Rollisons and with Mr. Bateman, but it remains a comparatively scarce species. It is far handsomer than either *B. guttata* (alias *Wrayæ*) or *verrucosa*, and its flowers many times larger. The only species that really can vie with it in beauty is *B. macrostachya*.—*Bot. Reg.* 29-47.

*Dendrobium Veitchianum* (Lindley). We are not sure that this will not prove a rival to the best of the East Indian Orchids. It is a most beautiful plant, with upright racemes of large mossy

flowers, nearly two inches in diameter, and a fine stiff habit. Its sepals are a clear dull yellow, the petals pure white, the lip deep green bordered with white, and richly marked with crimson veins. It is from Java, and is in the possession of Messrs. Veitch.—*Bot. Reg.*

*Catasetum serratum* (Lindley). Nearly allied to *C. maculatum*, from which it differs in the sides of the lip not curving inwards, in the shortness of the columnal cirrhi, and in the emarginate apex of the lip. The flowers are nearly of the same size, but not spotted; they are pale green, with the convexity of the lip yellow. Sent from Panama to Messrs. Veitch, by Mr. Lobb. It is a most abundant bloomer, having long spikes, with from ten to twelve flowers on each spike, and powerfully scented.—*Bot. Reg.*

*Saccolabium miniatum* (Lindley). A Java plant imported by Messrs. Veitch, and flowered by both Mr. Rucker and Mr. C. B. Warner. It is not to be traced among Blume's species, and seems new. Its flowers are of a gay vermilion or rich apricot colour, although somewhat small, have an extremely lively effect; they grow in upright racemes about ten together.—*Bot. Reg.*

#### LITERARY NOTICES.

*The Cultivated Plants of the Farm—the Legumes, the Grains, and the Esculents.* By JOHN DONALDSON, Professor of Agriculture and Botany, Hoddesden, Herts.

PROFESSOR DONALDSON'S connexion with the Agricultural College at Hoddesden has, without doubt, made apparent to him the great want which existed of a "first book" for pupils, as a basis to future lessons of practical learning.

The little work before us supplies this deficiency most effectively. It comprises the scientific description in full, and an outline of the cultivation of the principal crops of the farm, such as wheat, rye, barley, oats, beans, peas, turnips, cabbages, potatoes, &c., commencing with the derivation of the name, succinctly explaining the botanical difference in structure, and the relative value of each as an article of food, ascertained by well-authenticated analysis.

While it equally avoids the laboured detail of practice and the

repulsive preponderance of dry technicalities, which too often disguise pure science, this manual sufficiently unites both, to show to the young aspirant for agricultural fame the positive necessity and importance of the combination in his future operations, grounding in him the natural, scientific, and economic history of the subjects most likely to engage his attention.

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*The Rose Garden.* By W. PAUL, of the Nurseries, Cheshunt, Herts.  
London, Sherwood, Gilbert, and Piper, 1847.

THIS is the first part of a work designed to treat wholly on that very popular flower, the rose; and, from the circumstance of the author living in one of the first "rose gardens" of the kingdom, there can be little doubt of his being perfectly "at home" in his subject. From the prospectus we perceive it is intended to issue the book in about twelve monthly parts, of twenty-four pages, each part embellished with one or more coloured engravings of the most desirable members of the family; and in the present part we have two handsome figures, one of the old and justly-esteemed Crested Provence, and another of a more modern variety, called Eblouissante de Laqueue, a brilliant crimson rose.

The subject is ranged in two divisions, the first treating of the history of the rose and its cultivation, and the second to a lengthened description of all the approved varieties found in our gardens. For the latter, which we regard as an eminent feature of the work, Mr. Paul is peculiarly qualified, and we are gratified to find he has set about reducing the present confused nomenclature of the tribe to the order necessary to the enjoyment of a rose garden; and, were no more attempted, he would well deserve the thanks of the flower-loving community and the extensive patronage we hope he will receive.

To "paint the rose" is a task most of us would shrink from. Mr. Paul, however, succeeds in a graphic and pleasing manner, as the following extracts will amply testify.

"*The History of the Rose.* The rose, which is the leading flower of the day, the acknowledged favorite of the two greatest nations in the world, is to be found in a wild state very generally spread over the earth's surface. As if too beautiful to be excluded from the national Flora of any one of the ancient divisions



of the world, it graces alike various countries of Asia, Africa, and North America, and extends over the whole of Europe, where, blooming in its native wildness and simplicity, it is universally prized and admired. But, although the geographical distribution of the various species makes the rose an inhabitant of nearly the whole of the northern hemisphere, some species are far less plentiful than others, or, if plentiful in certain localities, have a less extended range. Here is one, confined to some particular and favoured spots; here another, not content with ranging one part of the globe—the *Rosa canina*, for instance, the one most commonly seen adorning our wilds and hedge-rows, is found also in Africa and Asia.

“It is a remarkable fact, that Australia has naturally no roses; and none have yet been found very near to, or south of the equator. It is in the temperate regions of Asia and throughout Europe generally that those species abound, from which nearly the whole of the present garden varieties have sprung. But if we extend our view, we find some growing on the mountains of North America, whose tops are covered with eternal snow; and others in the dreary wilds of Greenland, Kamschatka, and Iceland; while in Siberia there are several interesting species. On the other hand, if we turn to warmer climates, we discover that Mexico, Abyssinia, China, Persia, India, and Egypt have their roses; and even on the outskirts of the mighty Sahara one species is found, gladdening the approaches to the desert with its clusters of white flowers, though doubtless often—

— ‘Born to blush unseen,  
And waste their sweetness on the desert air.’

“Who were the first people to bring this flower from its natural habitats, to be a dweller in cultivated grounds, will ever remain a matter of conjecture. Doubtless it attracted the notice of the virtuoso in plants at a very early date; probably when they were merely valued as objects of natural history, or for their medicinal properties. We may follow in imagination the busy doings of the plant-collector in the earliest times; we may fancy him gathering, and fixing in one spot, the beautiful productions scattered around him; and it is natural to suppose that the most beautiful or most useful would be first collected. This surely

would give an early date to the civilization of the queen of flowers, and doubtless the rose has a claim to our regard as well for its antiquity as for its beauty, variety, and fragrance. The famous gardens of Babylon, which are supposed to have existed two thousand years before the Christian era, would probably number it among its treasures; this of course can be but conjecture, though the probability is increased when we consider that the neighbouring country, Persia, has ever been famous for the roses it naturally produces.

“Cicero, Ovid, and Martial speak of roses; and Pliny, who wrote on gardening towards the close of the first century, devotes some considerable space to them. He mentions those of Carthage, and others of Miletus (supposed to be *R. gallica*). He tells us they used to obtain roses before the natural season by watering the plants with warm water so soon as the buds are visible. Whether such was the plan pursued by the Roman gardeners we are at perfect liberty to doubt, although it is certain they had, under the reign of Domitian, abundance of roses in winter. Martial, the famous epigrammatic poet, ridicules the Egyptians for sending them roses when they had already plenty. Dr. Deslongchamps relates, on the authority of Seneca, that the Roman gardeners had at this time found out the means of constructing hot-houses, which they heated with tubes filled with hot water, and thus induced roses and lilies to flower in December.

“On the authority of Horace it appears that roses were grown in beds; and Columella mentions a place being reserved expressly for the production of late roses. With regard to the culture of this flower in those times, M. Boitard says, ‘the cultivation of flowers, and particularly of roses, was carried on upon a grand scale, both at Pæstum and in the environs of Rome. The sale of the flowers was ordinarily in the hands of the prettiest girls of the place; and the Latin poets have immortalized the names of several of these charming flower-girls, and have even deified some of them. The divinity of Flora, the goddess of flowers, has no other origin.’ If there is any one period in the world’s history, when flowers engrossed too much the attention of a nation, it was under the reigns of Augustus and subsequent emperors of Rome. The love of flowers was then carried to excess; and the rose seemed to bear away the palm from all. It was customary for

such of the inhabitants as could afford it to take their meals resting on rose-leaves,—a practice which Cicero loudly condemns. They were scattered upon the beds and floors of the chambers of their guests. At their festivals they put the flowers in their wine-cups. In times of public rejoicing the streets were strewed with flowers, and the statues of their deities were adorned with crowns and garlands of roses. Cleopatra, in a feast given to Marc Antony, is said to have expended a talent in their purchase; and the room of entertainment was strewed with them to a considerable depth. Suetonius, the Latin historian, relates of the Emperor Nero, that he spent four millions of sesterces, amounting to more than £30,000, in procuring roses for one feast. Alas, that these gems of earth should have been so perverted from their just use! Here, instead of opening up a source of pure and intellectual enjoyment, we see them debased, and administering to the lust of a luxurious people.

“From the fall of the Roman empire there exists a chasm in the history of gardening which cannot be filled up. The world, sunk into a state of barbarism, had neither inclination for, nor opportunity of enjoying pursuits of this kind, and roses shared in the general oblivion. As, however, mankind emerged from this state—as wars became less frequent, and men felt the blessings of peace—they found time to attend to the comforts and enjoyments of life. Charlemagne, who flourished in the beginning of the ninth century, enumerates the rose, among other flowers, and shows his fondness for it by desiring it to be grown in his garden.

“The rose was as favorite a flower with the Moors of Spain, and they paid considerable attention to its cultivation. They sowed the seeds; and it has been said they had blue roses, which were obtained by watering the plants with indigo water. That they had such cannot for a moment be supposed, and the means by which it has been said they obtained them are still more questionable; nevertheless, a French writer (Marquis D’Orbessan, *Essai sur les Roses*) states that he saw them. I have heard persons, unacquainted with floriculture, maintain that they have seen pure yellow moss-roses; a deception probably practised on them by a charlatan or some witty friend. Is it impossible that the same thing might happen with the Marquis D’Orbessan?

“In Holland the rose seems to have made but little way, although it was from that country the most beautiful of the tribe, the moss-rose, was first introduced, from whence it found its way to France. The transactions which took place in Holland during the Florimania associate no unpleasant ideas with our flower: the rose was without the pale; the tulip, the hyacinth, the ranunculus, the anemone—these, with a few of minor importance, were the pride of the seventeenth and eighteenth centuries—these were the flowers of Holland, and the enthusiasm with which they were cultivated there had rendered them popular in other European countries. Thus the rose lay neglected. Its capabilities of improvement were not thought of, or unknown. The unlocking of its treasures was reserved for more recent times. The skilful and persevering individuals to whose labours we are indebted for the choicest ornaments of the rose garden still live to admire the productions of their genius, and to witness their favorite flower reigning without a rival in the floral world.”

We have been beguiled thus far by the pleasing manner in which Mr. Paul handles his interesting theme, and look forward with much pleasure to the perusal of the future parts, in which, judging by the present, we anticipate much useful information respecting the management of the rose, and particularly in the increased facility to a knowledge of the family by the new arrangement of the several groups or classes now entered on, and the remarks associated therewith.

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#### GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

**PERFOLIATE.** When the bases of two opposite leaves encircle the stem with a broad band, looking like an entire leaf, with the stem passing through the centre.

**PERIANTHIUM.** A coloured calyx, or floral envelope.

**PERICARPIUM.** The seed-vessel.

**PERIGYNOUS.** Attached to the calyx.

**PETALOID.** Assuming the colour or form of a petal.

**PETALS.** The divisions of the corolla, or floral leaves.

- PETIOLATE.** Furnished with footstalks.
- PETIOLE.** The footstalk or uniting medium of either a flower or leaf to its parent stem.
- PILEUS.** The head or cap of a mushroom.
- PILIFEROUS.** Furnished with soft hairs.
- PILIFORM.** Hair-shaped.
- PILOSE.** Hairy; covered with small, downy hairs.
- PINNÆ.** The divisions or lobes of a pinnate leaf.
- PINNATE.** Applied to leaves that are composed of several smaller leaves arranged on a central rib or footstalk.
- PINNATIFID.** Leaves are so called when they are divided into nearly equal lobes, that are cut to within a short distance of the midrib.
- PISTIL, PISTILLUM.** The female organ, situated in the centre of a flower, usually a columnar body, composed of three parts—the ovarium or undeveloped seed-vessel, the style or pillar which supports the stigma (though sometimes absent), and connects the latter with the ovarium.
- PLICATE.** Capable of being folded lengthwise, like a fan; plaited.
- PLUMOSE.** Resembling a feather.
- PLUMULA.** The embryo leaves, between the cotyledons of a seed.
- PLURILOCULAR.** Having many cells.
- POLYGAMOUS.** Applied to plants whose flowers are occasionally male, female, or hermaphrodite.
- POMACEOUS.** Bearing fruit of the nature of an apple.
- PORRECT.** Extended forward.
- PROLIFEROUS.** Applied to plants that have a natural tendency to increase otherwise than by seed.

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## CALENDAR OF KITCHEN GARDEN OPERATIONS FOR JUNE.

MAKE sowings of peas and beans every week or ten days at the farthest, in order to maintain a constant succession. In dry weather soak the drills well with water previous to depositing the seed in them, and cover them with the moist earth. French

beans should also be sown in the same manner once a fortnight. Two small sowings of cabbage should be made about the first week, and again in the third week. Prefer a quick-hearting variety. Brocoli and borecole may be sown about the latter end of the month for spring use. A small crop of turnips may be sown at the commencement, and a full autumn crop about the middle of the month. Two small sowings of carrots may be made for drawing in a young state. Thin and stir the earth among the previous crops of turnips and carrots, and water them if possible in very dry weather, bearing in mind that whenever water is applied to kitchen-garden crops, it should be applied gradually but constantly, until the ground is thoroughly soaked, and not splashed on until the surface is caked and the water runs off into the alleys. Make another sowing of onions to be used in a young state; and pull up the underground sort as soon as the leaves begin to turn yellow, letting them lie on the ground for a week to ripen, if the weather be hot and dry. Full crops of endive should be sown during the second and fourth weeks for autumn and winter use; and fresh plantations should be made as often as necessary. Lettuce of sorts should be sown about every ten days, and others should be transplanted as often; choose a damp cool situation for the last. Radishes and small salads should be sown every week, the former in very rich light soil; between the asparagus beds is a good place, where they can be kept moist, and where the shade of the growing grass is very beneficial. Gherkins and other cucumbers for pickling may be sown in the open ground, in the beginning of the month, as also may vegetable marrow, squashes, and other gourds. The tender tops of all the latter plants may be used as an excellent substitute for greens.

Very little asparagus should be cut this month, and none at all after the first week, or the plants are weakened for the next season. Keep the beds clear of weeds, and a dressing of salt previous to rain will be found beneficial. Cut and dry sweet and other herbs for winter use, observing as a rule that the first flowers are fully expanded before they are gathered. D. M.





Alfred. Allen. Del.

RIBES.

1. ALBIDA — 2. SANGUINEUM FLORE PLENO.



## RIBES.

WITH AN ILLUSTRATION.

THE ornamental division of this genus contains a number of plants more or less beautiful, all of the freest growth and simplest management, that, by judicious selection and arrangement, may be made to contribute largely to the embellishment of every garden. Even the coarser growing kinds, which, from their weedy, rambling character, are rejected from the dressed portion of the grounds, will be found of infinite service throughout the shrubbery and wilderness quarters. The habit that renders them unsuitable for the former position is here their chief recommendation; their wild aspect is in perfect keeping with surrounding objects, and their rapid development in any soil or situation makes them particularly valuable for filling such spots as are refused by other shrubs. Whether the soil be stiff or stony, wet or dry, in an open exposure or imbedded in trees, some species of Ribes may be found that will flourish therein.

There are some of the family, however, that deserve every care for their unpretending beauty, displayed at a season when the least addition to our ornamental Flora claims attention. Among early spring flowering shrubs they stand unrivalled: the well-known *R. sanguineum* is seen imparting a charm alike to highly-kept grounds of the mansion as to the cottage porch, ere we have yet ceased to feel the keen influence of winter. It is emphatically everybody's plant who will be at the trouble of merely planting it, and the general estimation in which it is held may be judged of by its frequent appearance in gardens of every grade. If, then, this species in its simplest form be so great and deserving a favorite, what must be the destiny of the variety whose portrait now graces our pages, which, far surpassing its parent, presents us with double flowers, twice as large as the single ones of the species from which it originated, and distinguished by a deeper and richer tint. This double-flowering, crimson currant is a seminal variety of the *R. sanguineum* before mentioned, accidentally occurring among a bed of seedling plants in the possession of the Right Hon. the Earl of Selkirk; and to

his gardener, Mr. David Dick, at St. Mary's Isle, Kirkcudbright, is due the merit of originating and distributing this valuable hardy shrub. Its racemes of flowers are rather larger than those of its parent, and they are produced three weeks later in the season. The ease and rapidity with which all these plants may be propagated will soon render it plentiful, and we may then expect to see it superseding the single-flowering kind.

It is only necessary to take cuttings of the preceding summer's wood, any time between the fall of the leaf and spring, and, cutting them to about a foot in length, insert them in the ground in any shaded situation, to insure almost as many plants as there are pieces. In two years they make blooming plants, and may then be transferred to their respective destinations. As before remarked, they are by no means particular in the choice of soil or station, though, like all vegetation, they will thrive better in a good position than its opposite; rich, friable loam suits them best, and without doubt this beautiful variety is worthy of such a place as will promise it the opportunity of free development.

The second subject of our plate, if it be not so showy as its fellow, is certainly worth a place by its side, were it only for the contrast thus afforded, and for the same reason should be included in the garden. Groups of these plants have a good effect, and some or other of them continue to flower till Midsummer, or even later.

Another mode of turning the most ornamental portion of the genus to account, is in the employment of them among forcing flowers. Their early habit of blooming makes them peculiarly adapted to this course, and few plants repay the little attention necessary better than the *R. sanguineum*, and we have no doubt of the same success attending the adoption of the double variety, though its scarcity has hitherto prevented a trial. For this purpose two or three years' old plants will be most suitable: they should be potted in autumn, or, if grown from cuttings in pots they will be preferable; either way, compact, handsome specimens in perfect health should be selected, and, after keeping them dormant till January, may then be introduced to a temperature of about 50 degrees. It must be borne in mind, that, though their naturally precocious habit of blooming points them out as suitable objects for forcing, the same reason makes it

apparent that they will not bear a very high temperature and bloom in perfection ; 55° or 60° may be stated as the maximum, and in a heat exceeding this we should expect nothing but leaves, a circumstance that will be understood immediately we consider the temperature in which they bloom naturally.

EDITOR.

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### THE RESERVE GARDEN.

THIS indispensable adjunct to a well-kept flower garden should just now engage a good deal of attention, for without a proper stock be maintained in it the more frequented parts of the establishment will, in all probability, wear but a second-rate appearance in the course of a month or six weeks. It is but too frequently supposed, even by some who desire to be good flower-gardeners, that when the beds and borders are once filled in spring, they are complete for the season ; this is an error, for how few even of our best bedding plants will continue in perfection for the long period of five months ; some that are really beautiful in summer become exhausted early in autumn, others get too large, and no pruning will reduce the rambling character to the proper bounds in the damp weather usual towards the close of the season ; besides, accidents may occur with the best attention, some may die, or get broken by high winds or other causes, what then is the condition of the gardener without a reserve, to say nothing of the charm of freshness and additional interest given to the garden by a change in the arrangement ; in short, from numberless reasons, too obvious to require mention, a reserve garden is necessary wherever it is desired to keep the ornamental portion of the establishment in the best condition, and to that I would now direct attention. The principal part of those placed in the beds in May and last month are now growing, and beginning to display their several beauties ; they will require but little attention for some time, and therefore an available opportunity presents to provide a succession against the declination of any of the existing subjects, and those of the most ephemeral character should be attended to first.

In geometrical gardens, or where the several kinds of plants are grouped so as to be included in one view, it will be necessary to provide a repetition of the present colours, that the complementary harmony may not be interrupted by any subsequent alteration of the plants; either the same kinds may be propagated, or others of the same heights and tints that are more readily procurable, and that will produce a copious display of flowers at the required time, even though they be shorter lived; these are matters that only require forethought to determine on, and must be left to the judgment of the operator. The spot selected as the depot for such things as are likely to be wanted for this purpose, should be some shaded place where the necessary operations may be carried on without trespassing on the finished appearance of the garden proper, as it may be impossible or unnecessary to maintain the order here that should distinguish the more open parts. It will be requisite to have the plants in a portable condition at all times, to secure which, implies the use of pots, which, under most circumstances, entails a great deal of labour in watering, cleaning, and general attention; yet there appears no practicable way of avoiding this, unless wooden boxes be substituted, and the plants placed in them as they are to stand when finally stationed; the evaporation is then considerably less, and consequently less water will suffice. I have sometimes, when pressed for pots, tied the more free-rooting kinds up in a ball of moss with some earth inclosed, and standing them rather closely together, with a little old tan between the balls, have had them in excellent condition for removal, with the fibres completely interwoven in the moss, and by transferring them to the beds just as they were, no check was observable of any kind, and but little trouble occasioned in their previous management: this course, however, can only be recommended with such as grow freely, lest disappointment ensue. A good stock of the most showy annuals are often of great service in autumn, and if sown about the middle of this month, will commence blooming at the time they are most likely to be wanted; these and all other plants kept in pots must be plunged either in old tan or ashes, as it is far better for them to prevent the draught arising from exposure to the air, than to make good the deficiency by watering, though it be ever so well attended to, and they are pretty certain to

require as much under the most favorable circumstances as it is usually convenient to give them. Above all things, observe that whatever is kept here, with a view to its ulterior removal to the flower garden, be kept at sufficient distance one from another, to allow of a vigorous development; for, as in all other cases, crowding will inevitably spoil their appearance, the want of a full supply of pure air being quite as evident in the vegetable as the animal kingdom.

HORTULANUS.

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### THE ROSE.

THAT the popularity of this beautiful gem of Flora keeps pace with the times is demonstratively evinced by the fact that our eminent cultivators, both at home and on the continent, are more arduous in their devotion, with reference to its advantageous cultivation, than on any subject connected with floriculture. I think the love for this genus may be said to be more universal than any other extant; preponderating in the floral affections of all, from the highest grade of society down to that of the humble and industrious cottager.

In introducing this paper, I do not pretend to enter into detail with regard to its cultivation, it being needless, as many extensive and successful growers have previously given the result of their manipulation. My object is to offer such matter as may be useful to those connoisseurs who give a decided preference to the Queen of Flora, and whose grounds admit of a somewhat extensive cultivation.

The propagation is performed most readily either by budding, grafting, or by the insertion of cuttings, but the former and latter modes are the most generally practised in the present day.

The operation of budding may be performed from the beginning of June until the middle of September, and every bud insured if the two plants about to be united are in a working condition, and the operation carefully performed.

It is well to keep the ligature damp for a few days until the union takes place, should the weather be excessively hot and

arid, also to plentifully supply the roots with water under the same supposed circumstances, and this matter should be attended to previous to budding, that the plants may be in a free growing state.

The best time to put in cuttings is about the middle of July or the beginning of August. They should be taken off the parent plant with what is technically termed a heel, making the incision close to the preceding year's growth, from which the cutting started; as they are prepared, let them be thrown into a pan of water, for if the cuttings are allowed to lose their freshness, they will not emit roots so freely as otherwise.

For striking, choose a south aspect, and select those hand-glasses with portable tops, placing them firmly on an inch or two of coal ashes and lime to prevent the ingress of worms; fill the bottom part of each glass full two thirds with equal parts of well-decomposed leaf-mould and river-sand, or sharp road-drift, in which thickly insert the cuttings, giving a good sprinkling with a syringe or fine rose watering-pot. Shut them down close, and shade from the intense rays of the sun, and maintain a humid atmosphere about them, taking off the moveable part of the glass occasionally to dry up superfluous moisture.

When rooted, which will be in a few weeks, put them into three-inch pots, using the same compost, with an addition of a small portion of good, rich, turfy loam, and place them in a cold frame, on a good stratum of coal ashes, keeping them close and shaded until they become somewhat established, when air must be abundantly administered. In this situation they may remain until they are required for turning out the following season. Slightly protect them from severe frost, but expose freely in propitious weather. These will be found to make strong blooming plants the following spring without the loss of a single plant.

Where this lovely plant is extensively grown, perhaps no better plan can be devised for the rosery than the geometric, and a radiating series of circular beds would afford the readiest means of grouping and arranging, according to their affinities, the several families of the extensive genus; thus, if a small circular bed occupy the centre, filled with pillar roses, and a walk surround it, on the outside of which another bed of convenient width, to be succeeded by another walk, and another bed of the same

circular form, but of parallel width, no space will be lost beyond what is absolutely necessary for the convenience of getting to the flowers; but that an approach may be had to the centre, it will be necessary to divide the concentric beds, increasing the number of divisions as we approach the outside, and that these separations may partake of the general character of the whole, small round beds should be placed one in each opening, curving the separated walk thus formed on either side of it. Pillar roses may fill the centre of each of these small beds, and standard trees the middle of all the others, at a distance of from five to six feet from each other, filling up between them with dwarf plants, neatly pegged and distributed over the entire surface. The climbing roses may be neatly trained to pyramidal trellisses formed of wire, or made to assume the form of arches, according to taste. The plan, being a serial one, may be carried to any extent, and it has the twofold advantage of allowing a scientific arrangement of the plants, as well as facilitating the access to each individual, either for conducting the necessary operations or the scrutiny of the visiting admirer.

G. FRY.

*Blackheath.*

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## FLORICULTURAL HINTS.

It may be well to remind your readers who are beginners in this enchanting pursuit of some of the principal operations that should engage their attention during the next month or six weeks. Among the open air stock, Midsummer is a busy period.

*Auriculas* should be so situated that they may receive the morning sun, but be shaded from it by ten o'clock, at the same time they must have plenty of air; frames with wooden shutters, that can be easily pulled up or down, are perhaps the best contrivance for obtaining the required shade, and if the bottom of the frame is elevated six inches from the ground, there will be a circulation of air among the pots as well as the foliage of the plants; the shutters may be lowered to within a foot of the frames, which will exclude the sun, and yet admit a current of air among them. Those which were repotted last month will perhaps require to be

kept somewhat closer than the others; the seed will require to be looked after; save it from none but the best, and see that it is well ripened before it is gathered. In very hot weather it may be necessary to water morning as well as evening, but by all means give the whole foliage and the bottom of the frame a good sprinkling towards night. The compost for the autumn potting should be frequently turned and got ready for use.

*Dahlias* will require additional stakes, and some of the superfluous shoots may be thinned to the advantage of the remainder; let the ground be mulched round their stems to the distance of a couple of feet; this will save much trouble in watering. Traps must be set for earwigs, for every one killed now is equal to a dozen in September; one of the simplest means of catching them is to fasten a bit of wool loosely to the stakes, they will creep into it, and are then easily taken.

*Roses* are now in the height of their beauty; all that can be done towards ridding them of green flies and other insectivorous pests, must be unceasingly resorted to; perhaps no better means offers than to wash them with the garden engine or syringe, showering the water on rather heavily; dead flowers must be removed as they occur, and by the middle of the month budding may be done with almost a certainty of success, especially if showery weather occur. Use none but the most vigorous stocks, and only the strongest shoots of them, and let me advise all who care about the future success of their plants, or the production of really fine ones, to abstain from the insertion of more than one sort on each stock, otherwise there will be an irreconcilable struggle for mastery going on, that will only end with the dissolution of one or both sorts. This has been frequently urged, and yet we find it frequently occurring from some plausible reason or other; sometimes we are told the space is so limited and the desire to grow a number of sorts so great, that no other mode of meeting both difficulties could be adopted: this excuse may deserve the most lenity, but still it is better to have only a few and grow them well, than to be disappointed in all.

*Picotees and Carnations.* The revolving seasons have brought the cultivator of these flowers near the goal of his hopes; there can be no occasion to urge attention on the part of those who are really fond of their charge; they are far more likely



to require some moderation applied to their zeal. The thinning of the pods must be finished at once ; slender-growing sorts should not be allowed to carry more than a single bloom, while others that are stronger may be left with two or three, and care should be taken that they are placed some distance apart on the stem ; as they are about to open, the pods should be tied round with strips of soft bast, and the points of the calyx opened equally on all sides, that the petals may have a fair chance of opening in a proper manner ; the expanded flowers should have their petals arranged on a card, and, by means of a piece of wire, each one may be fixed firmly in its place at a distance of a few inches from the stick by which it is supported : protection from the rain and strong sunlight must also be provided, either by means of the usual awning or pasteboard caps ; if the former is used, some care must be taken in the admission of air, that the plants may have sufficient to prevent their becoming drawn.

*Tulips.* The bulbs must be looked over and turned, that they may be thoroughly dried before they are put away. Keep them in the shade till just the finishing off, when a day in the bright sunshine will complete them thoroughly, and the dirt and loose skins may be removed, the bulbs put in their places, and put away till the planting time.

*Pinks.* Proceed at once with the propagation of these flowers ; take only the strong shoots, if you desire to have fine flowers next season, the laterals are necessarily weak, and will remain so throughout, therefore reject them so long as you can obtain sufficient pipings of the first growth to form your required stock. Station the hand-glasses, in which the cuttings are to be struck, in the full sun, and shade when necessary ; nearly a fortnight will thus be saved over those which are struck in a shaded place.

*Pansies.* Continue to propagate for the autumn blooming, selecting for the cuttings only the small ground shoots, as those higher up the stems, though stronger in appearance, will be found hollow ; an easy, useful shade for these flowers is made with a piece of wood about a foot square, which is supported in an oblique position by a stick stuck in it at a sharp angle.

## BIENNIALS.

THE importance of these plants in every garden, especially those in suburban situations, where, from the influence of dust and other causes, it is often difficult to cultivate any flowering plants, renders them deserving a passing notice, and as their character obliges the provision of the roots a whole year before we can expect the flowers, it may be well to remind those who desire to see such things as Hollyhocks, Canterbury Bells, Sweet Williams, and a host of other similar objects, ornamenting their borders next year, that no time should be lost in getting their favorite kinds sown. It is usual to sow these things at an earlier period, indeed it is a practice with some to begin their culture as soon as the month of April, but my experience goes to prove that the beginning of the present month is a preferable time, and thus two months' attention is saved. At the same time I am fully aware of the advantage of having the plants properly established before the winter; the great difference between mine and the ordinary management is that I do not sow so thick as is usual, and consequently my plants never require to be transplanted till they are finally stationed in the borders, thus the time lost by the check attending the intermediate removal is saved, and the trouble obviated. I was led to this course by observing the plants resulting from self-distributed seed, being generally stronger, and in bloom quite as soon as those which had received the utmost attention; though the latter were frequently sown as much as ten weeks before the natural plants, and had been shifted twice into the best earth of the garden, and so invariable is the recurrence of this circumstance, that I am persuaded the transplanting is injurious rather than a benefit, and could it always be done, I should prefer sowing them where they are to bloom; but as this is not practicable at all times, it is in my opinion advisable to sprinkle the seed thinly on a warm border, and leave the plants till they are wanted in spring, deferring the removal even then to as late a period as may be prudent with regard to their season of blooming.

AN AMATEUR.

## DESCRIPTIVE LIST OF NEW PLANTS.

VACCINIACEÆ.—*Decandria Monogynia*.

*Thibaudia pulcherrima* (Wallich). Rarely have I been more surprised and delighted with any plant than with the flowering specimen of this *Thibaudia* (*Agapetes*, Don), kindly sent from the Exeter Nursery by Messrs. Lucombe, Pince, and Co. Imagine a branch, four feet and a half long, divided only at the top in from 4-6, rather short, leafy ramuli, the leaves evergreen, 6-8 inches long; the old, long, and woody portion of the stem throwing out on one side (unilateral) numerous crowded clusters or drooping sessile umbels of from twelve to twenty blossoms in each umbel, and in all states of progress, from the early buds, when they, as well as the pedicles, are scarlet, variegated with pale, but bright, green, to the finely-expanded corollas, an inch long, narrowly campanulate, of an ochraceous red, veined and chequered (something like the flower of *Fritillaria meleagris*) with deeper and brighter lines of red. The inner structure of the flower, too, is very curious, the stamens forming a close column around the style, and the anther tubes of very great length. The plant is a native of the North of India, and Dr. Wallich, on my showing him the blossoms and a leaf, recognised it as a native of the district of Khasiya, and to which he had given the name of *Th. pulcherrima*—a name it well deserves.

“Planted against one of the walls of our Camellia house (which in winter is frequently within a degree of the freezing point),” observe Messrs. Lucombe and Pince, “in a border composed of peat, loam, and sand, which, being very well drained, admits of copious waterings during the growing or summer season, it thrives remarkably well, making vigorous shoots, from three to four feet long, in a year. The copious flowers appear on the *two years’ old wood*, and first begin to develop themselves at Christmas, expanding in April, and they still continue to expand, many at a time, in succession.”

It must, then, be considered a hardy greenhouse plant, and I consider the best way to cultivate it is, to plant it out in the border of a conservatory, where it will soon become a noble and interesting object.—*Bot. Mag.* 4303.

CONVOLVULACEÆ.—*Pentandria Monogynia*.

*Ipomœa pulchella* (Roth). A very handsome Bindweed, which would much better deserve the name of "*pulchra*" than "*pulchella*." It was sent, in December, 1845, from the stove of Mrs. Sherbourne, near Prescott, Lancashire, the seeds having been received by that lady from Ceylon. It is a climbing plant, with an herbaceous, angular stem and 5-part leaves, the petioles of which and the peduncles of the flowers are spirally twisted. The latter are axillary and mostly one-flowered. The flowers are large, of a uniform, rich, dark purple; the tube is rather strikingly inflated immediately above the calyx, so as to be bell-shaped as far as the faux. The limb is spreading, of five rounded, rather waved, emarginate lobes, much plaited between the lobes.—*Bot. Mag.* 4305.

LEGUMINOSÆ.—*Polygamia Polyandria*.

*Acacia celastrifolia* (Bentham). If a gracefully formed, much branching, evergreen shrub, with rather dense and broadish, bright, glaucous, green leaves (*phyllodia*), whose ultimate branches are literally bowed down with the abundance of yellow heads of highly fragrant flowers for nearly two months of the year, and those almost of the winter season, can have any claim to cultivation, then may *Acacia celastrifolia* be confidently recommended. We raised it from Swan River seed, sent by Mr. Drummond, and our plant is now nearly six feet high; so loaded with fragrant blossoms, that it would be in itself sufficient to scent the entire house. The odour a good deal resembles that of white-thorn, but is more delicate. Although very different it will rank near *A. myrtifolia*.—*Bot. Mag.* 2306.

RUBIACEÆ.—*Pentandria Monogynia*.

*Gardenia Malleifera* (Hooker). My first knowledge of this fine plant, with its large and fragrant flowers (not unlike the odour of primroses), and extraordinarily large and clapper-shaped stigma, so large and so heavy that it rests, as it were, on the lower side of the flower, was from dried specimens sent to me by Miss Turner, daughter of the then Governor of Sierra Leone; and I have long had what I consider the same plant, but with

rather broader, thinner, and green leaves, from Senegambia, gathered by Handelot. Again in 1843, Mr. Whitfield gave me dried specimens which he brought from Sierra Leone, and the same year he enriched the stoves at Knowsley with living specimens. Our plant, which as far as I know, is the first to have flowered in this country, is derived from the same source, and we gladly illustrate another fine species of a group of *Rubiaceæ* peculiar to tropical western Africa.

*Gardenia Malleifera* loves heat and moisture, and planted in a good-sized pot, with a mixture of peat and loam, makes rapid progress, and begins to flower when only two or three feet high. It would seem to be in its native country a large shrub. The corolla is a span long, white or cream white, soon, in age, changing to a tawny; the outside clothed with a short woolly down; the tube four inches long, as thick as a goose-quill, curved, thin, at the top rather suddenly expanding into a broad, campanulate mouth; the limb of five, broad, ovato-rotundate, slightly waved, large, spreading segments. This campanulate mouth contains the five sessile linear anthers; the style is filiform, longer than the tube, beyond the mouth singularly enlarged into a club, or rather clapper-shaped stigma, two and a half inches long, and half an inch broad in the thickest part, white, solid, fleshy, streaked in the upper extremity longitudinally, with impressions of the anthers, which were applied there in the state of the bud. The real stigmatic surface, however, is upon this swollen part, and is distinguished by a cleft on each side the apex, and that cleft is surrounded by a yellow, waxy, glutinous substance.—*Bot. Mag.* 4307.

BERBERIDÆ.—*Hexandria Monogynia.*

*Berberis ilicifolia* (De Candolle). Of this rare and beautiful Berberry, hitherto only known to the hardy adventurer on the coasts of Fuegia, beyond the straits of Magalhaens, living plants were sent home by the officers of the Antarctic voyage, under Captain Sir James Ross, to the Royal Gardens, with other treasures of those regions. So much did they suffer during their perilous voyage, that, of the *Berberis*, only one could be successfully reared, and that has, during the month of March 1847, produced its deep orange-coloured blossoms, which, taken in conjunction

with its bright, glossy, holly-leaved foliage, induced Dr. Hooker to consider it, and justly so, the handsomest known species of the genus. The wood is pale yellow, affording a gamboge-coloured dye. The berries are of a deep steel-blue colour, and remarkable for their gourd-shaped form. We trust to be able to increase it, and to prove that the climate of Britain is suitable to it. Hitherto, on account of its rarity, we have given it the protection of a cold frame in winter, and in summer it requires to be well screened from the sun.—*Bot. Mag.* 4308,

ACANTHACEÆ.—*Didynamia Angiospermia.*

*Henfrefya scandens* (Lindley). The climbing habit of this plant is an unusual feature in the order to which it belongs. We presume it to be nearly related to Thonning's *Ruellia quaterna*, another West African climbing plant, with white flowers. The species seems to be common at Sierra Leone; it was found there by Mr. George Don, whose specimens, in our Herbarium, are in fruit; and we also possess wild specimens from Mr. Whitfield, by whom it was introduced in a living state. We are indebted to Mr. Glendinning (who, under the provisional name of *Dipteracanthus* (?) *scandens*, exhibited the plant at a meeting of the Horticultural Society in the spring of the present year) for the following note on its management:

“Amongst the numerous plants of climbing habit which adorn our stoves, *Henfrefya scandens* is assuredly a subject deserving our notice. Under the most liberal and satisfactory cultivation it never ranges beyond proper limits. Its foliage is not subject to injury, being always dark green, coriaceous, and permanent, contrasting admirably with the delicate *Petunia*-like flowers which are produced in the utmost abundance in racemes, at the axil of every leaf, continuing to throw out a succession of bloom for several months. Its cultivation is not by any means difficult. The following treatment has enabled me to flower it with certainty and success. After it has ceased to produce flowers in the spring or beginning of summer, it should be divested of the greater part of the old soil, and repotted into fresh turfy peat and loam, in equal portions, intermixed with a small portion of silver sand. The pot should be rather small in proportion to the size of the plant; plunge it in bottom heat, where a humid grow-

ing atmosphere, perfectly sweet, of 75° or 80° is kept up during the night, and partial shade must be given in bright sunlight. When roots have been plentifully produced, give it a final shift, using a rough material as before described; a few round stakes will answer for its support, and to which the shoots must be tied as they grow; by autumn it will have done its work, and may then be brought into flower at any time from February to May, by placing it in a higher temperature as may be required.—*Bot. Reg.* 31-47.

AMARYLLIDACEÆ.—*Hexandria Monogynia.*

*Collania dulcis* (Herbert). For the opportunity of figuring this rare plant we are indebted to our kind correspondent, the Dean of Manchester, with whom it flowered in August, 1846.

The stalks of this plant are about a foot high, erect, with a little tortuosity, but not prehensile; the leaves are narrow and glaucous; the flowers are produced from one to four on the apex of the stem, and have a pendent position; they are cylindrical, the calyx reddish purple, and the corolla bright green. The plant is a native of the Andes of Bolivia, where, it is stated, the children gather its capsules to eat on account of their sweet pulp, and hence the name *dulcis*.—*Bot. Reg.* 34-47.

ERICACEÆ.—*Decandria Monogynia.*

*Rhododendron arboreum Paxtoni* (Gibson). This very magnificent variety of *R. arboreum* is a native of the East Indies, where it was discovered in 1837, by Mr. John Gibson, his Grace the Duke of Devonshire's collector. It grew in elevated situations on the Khoseea Hills, forming a spreading tree of considerable beauty. It produced its splendid flowers for the first time in the greenhouse at Chatsworth, in the spring of 1844, being then a very small plant. This spring it has again flowered. Its leaves are three to four inches long, tomentose, somewhat obtuse, dull green above, ferruginous beneath. The flowers are not seated immediately above a whorl of large leaves as are those of *R. arboreum*, the corolla is dark crimson, very fleshy, campanulate, three inches long, and the same in diameter when expanded, and the throat very indistinctly spotted. The plant requires exactly the treatment of *R. arboreum*.—*Pax. Mag. Bot.*

ORCHIDACEÆ. — *Gynandria Monandria.*

*Oncidium Barkeri* (Lindley). This fine species of *Oncidium* was imported from Mexico some years ago by Mr. Barker, but it is still scarce. It is a comparatively small growing plant, with oval, compressed pseudo-bulbs, with a furrow or two passing down each side. The flowers are disposed in a simple curved raceme, and are from five to seven in number, sepals and petals alike in form and colour, linear lanceolate, wavy, spreading or turned back, the lateral very slightly attached at the base; they are covered with deep rich brown spots and bands on a pale cinnamon coloured ground. The lip is pure yellow without spotting, much paler on the under side, and larger than the sepals, middle lobe large, broader than long, slightly pointed at the top, which curves inwards; it is distinctly stalked; the entire flower 2-3 inches across. Like the other species of *Oncidium*, this requires a hot and very damp situation, and also in its growing state a liberal supply of water, but when it has perfected its summer growth, it should be gradually dried off and have a rest for about three months in a cool dry atmosphere.—*Pax. Mag. Bot.*

*Vanda Violacea* (Lindley). This is one of those charming epiphytes which are only procured in the fertile regions of the East. Mr. Cuming found it in Manilla, and introduced it to Europe some seven years since. The flowers are in short pendulous racemes, rather large, with an ivory white ground spotted with light violet; of the latter colour there is one large blotch within the extremity of each sepal and petal, and a few small dots are scattered over their surface; the lip is wholly violet. The flowers have a faint and rather disagreeable smell, which is not, however, perceived till they are nearly approached.—*Bot. Reg.* 30—47.

*Epidendrum plicatum* (Lindley). This fine species has been introduced from Cuba by Messrs. Loddiges, with whom it flowered last January. It is remarkable for the petals, which are green inside, with a few purplish stains near the point, being of a deep rich violet on the outside. The sepals are greenish, stained with dull purple on both sides. The lip is a very rich purple, with a little yellow near the base; its middle lobe is strongly plaited, and deeply cordate.—*Bot. Reg.* 35—47.



## THE FLORA OF JAVA.

OUR earlier readers and those interested in the culture of exotic plants will, we doubt not, be pleased to hear we have received intelligence of our old and respected correspondent, Mr. J. Henshall, who left England in July, 1845, for Java, in pursuit of new plants and other objects of natural history. From his account of the island generally, we learn, as might be expected from the exceedingly warm and moist character of the climate, that vegetation there is altogether of the most luxuriant description. In the neighbourhood of Batavia he enumerates the following as very prevalent: *Poinceana pulcherrima*, *Costus speciosa*, *Justicia speciosa*, *J. picta*, *J. guttata*, *Russellia juncea*, *Ixora coccinea*, *Dracena terminalis*, *Plumbago capensis*, *Hoya carnosa* and *Pottsii*, *Acacia lophantha* (?), *A. decurrens* (?), *A. catechu*, several *Ipomæas*, *Clitoria fulgens*, *Musas*; and on the Cocoa and other trees the following Orchids, growing with a vigour which in many cases completely envelops their support, and not unfrequently, by their great weight, throwing the trees to the ground: *Dendrobium moschatum*, of an enormous size; *D. cruminatum*, *D. secundum*, very large; *Renanthera coccinea*, scrambling in all directions. *Aerides odoratum*, various species of *Pleurothallis*, and, by the sides of the canals and corners of the roads, *Bletias* and *Calanthes* grow and flower surprisingly.

The country near the coast is inhabited chiefly by Chinese and Malays; the latter are a vindictive, treacherous race, addicted to thieving from their infancy. The Javanese of the interior are far more peaceful and decorous in their demeanour, hospitable to strangers, and of some mechanical skill. In the provinces of the native princes, who continue in their original independence, governing the country by their own laws, and observing their own religion and customs, he was received with the greatest kindness. Travelling through the unexplored parts appears to be a work of much trouble and no little danger, as it frequently happens that they have to cut a way through some miles of jungle, the abode of tigers, snakes, and boars. He says:

“This at first rather alarmed me, especially at night, when the

hut has been surrounded with ferocious tigers, howling with terrific fierceness; and, to think of sleeping while labouring under the expectation of one of them introducing his unwelcome face through the walls of your fragile house, that has been built in an hour from the bamboo and long grass, covered with cocoa-leaves, was certainly too much for my philosophy; and not unfrequently we have been obliged to seek refuge in the branches of a neighbouring tree to procure a few hours' sleep. Here, however, it is often difficult to effect such a lodgment as will secure your equilibrium; but when in the vicinity of the shore, the securest plan is to construct a kind of raft, and at night push out to sea a short distance; then, by the aid of a rope and a large stone, you may anchor at any convenient distance. In this way I have been every night for three successive weeks. In such neighbourhoods, however, another annoyance arises: it is the most difficult thing imaginable to travel with any luggage—even a change of clothing can scarce be preserved from the cupidity of the people inhabiting the coasts, and, in consequence of their depredations, I have been several times reduced to a pair of trousers and a straw hat, and, when at a distance from camp, have had no other covering for a week together, which, with a temperature at noon of  $115^{\circ}$  in the shade, and very heavy dews at night, is, to say the least of it, rather trying.

“The distribution of plants appears to be rather circumscribed, certain tribes affecting particular spots, and being scarcely ever found in other places, which may be accounted for by the peculiarities of soil and position. Thus, I have only met with *Phalænopsis amabilis* in two places. On the first occasion, myself and nine natives had for some hours been rowing along the shore, watching the tigers and rhinoceroses, and waiting for an opportunity to land, when I detected a fine patch of it, and, losing all fear under the impulse, rowed in and jumped ashore. One spike had upwards of thirty flowers upon it, all expanded together. It is truly a magnificent thing. On the same island I found *Grammatophyllum speciosum*, with stems full six feet in length. This also was a splendid object. I spent eight days on this spot, and found it rich in several valuable things, getting thence *Helcia javanicum*, *Rhododendron javanicum*, several species

of *Saurauja*, *Medinilla*, *Michelia*, and others. As I before remarked, the plants appear local; each kind seems always to be together in one situation, except near the sea, where sometimes there will be several genera scattered over a range of some few miles. In the dark and dull forests few are to be found, but in all exposed places, where trees have been blown down, or any other cause has left an opening, there they inhabit, and almost universally the ravines, where it is nearly always damp, are filled with Orchidaceæ. They bear very heavy rains without injury, and also a very powerful sun from nine till four o'clock, with an extremely variable temperature. My belief is now, that, under cultivation in England, they have too much shade, too much heat, and not sufficient air while growing; they require an abundance of water, but it must not remain about them, and a moist atmosphere is far more natural than frequent waterings to the roots. To see them flowering here you would think them the most beautiful objects in creation."

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#### THE CHINESE CHRYSANTHEMUM.

ALTHOUGH these flowers have engaged the attention of horticulturists for above half a century, there still appears something to learn respecting the best mode of managing them. That they are hardy, autumnal flowering plants, which may be had in pots protected in the greenhouse, and which sometimes display their handsome blossoms in the open air, every one knows; and that they are highly desirable at that particular season is universally conceded; but how to ensure really fine flowers on dwarf plants in the first position, or to ensure them at all in an unprotected situation is by no means certainly defined.

Various and opposite rules have been given for the attainment of the object, without other result than the increased chances consequent on a knowledge of the several methods, and in my turn I propose to mention a course of treatment, differing materially from all those usually followed, and which for two seasons has been eminently successful.

It has always appeared to me, that, in order to be certain of having a display of Chrysanthemums in the open air, we should endeavour to get the plants forward, or, in other words, induce a blooming state at an earlier period than usual. It was, however, with a view to a different object that I stumbled upon what seems to be the best means of attaining this end, in my endeavours to obtain superior flowers on potted plants.

The Chrysanthemum, as is well known, when left to itself, grows upwards till about the middle of summer, when it begins to protrude branches near the summit of the new wood, leaving the lower part bare, and this, from the great demand of the upper portion, is soon denuded of leaves, to remedy which it is usual to stop the first growth when only a few inches high, that branches may be formed near the bottom, and when very bushy plants are desired, these branches are again stopped. This course, without doubt, tends to the production of handsome specimens, but the repeated checks thus offered to the plant's progress, and the disposition, so induced, to form new growths, necessarily retards the blooming, and consequently the method is unsuited to open-air culture.

Two years ago I observed, at the period when the plants naturally begin to form branches, that there were incipient flower-buds at the point of each stem, and, fancying the new shoots would be likely to rob the buds of a great proportion of the vigour that otherwise would be directed to them alone, I rubbed the new branches entirely off several stems, leaving some others to confirm the error or truth of my suspicions. Those which were thus cleared of their additional parts retained nearly all the existing foliage, and the flower-buds advanced rapidly, arriving at a very extraordinary size by the middle of September, when they began to expand, and proved the finest in my collection.

Those which were left in their natural condition grew fast and in the ordinary way, formed a large, tall head, but the flower-buds died, and no others were formed till the recent branches had grown upwards of two feet. That season the plants so treated did not flower at all.

I had never before observed this production of buds, and then

felt inclined to attribute it to some chance influence; but last year the same thing recurred, and the same results followed a similar method of management, and now I am daily expecting the reappearance of the buds of both denominations. They are not yet visible, and therefore I hope this may be in time to induce some one to try the matter this season. There is a saving of at least three weeks, and last year, when it was extensively applied to the potted plants, the blossoms in nearly every case were almost twice as large as others on plants that had received the ordinary treatment.

Wherever a few plants have been left without stopping, I would recommend it to be tried. The buds, it must be remembered, are very small at the time, and, being seated in the centre of the terminal cluster of leaves, may escape observation; but if the shoots are cleared away, they will speedily show themselves, and then they engross all the supply of food that would otherwise go to the production of a useless length of wood and leaves.

Last autumn was so fine, that *Chrysanthemums* bloomed everywhere; but it was not so in the previous year, and even last season those mentioned were in bloom full three weeks before the flowering became general.

J. M'IVOR.

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#### GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

- PROPENDENT. Weeping; pendulous towards the front.  
 PRURIENT. Possessing the property of stinging.  
 PUBESCENCE. Soft downy hairs, lying close to the surface.  
 PULVINATE. Resembling a cushion.  
 PUNCTIFORM. Sharp-pointed; shaped like a needle.  
 PUNGENT. Sharp; acrid; stinging.  
 PUSTULATE. Covered with little blisters, or warts.  
 PYRIFORM. Pear-shaped.  
 QUADRANGULAR. Four-angled.

**QUADRIFARIOUS.** Arranged in quadrangular rows, as the leaves of *Kalosanthes*.

**QUADRIFID.** Divided four times.

**QUATERNARY.** Occurring in successive fours.

**QUINQUEFID.** Five times separated; divided into five.

**RACEME.** A common arrangement of the inflorescence, in which the flowers are placed round an unbranched stem, one above another.

**RACEMOSE.** Flowering in racemes.

**RACHIS.** The principal stem of a spike or raceme of flowers.

**RADIANT, RADIATE.** Diverging from the centre, descriptive of a composite flower whose lower florets extend further from the disc than those in the centre.

**RADICAL.** Proceeding from the root; suckers are radical shoots.

**RADICANT.** Stems which throw out roots in their upward progress are called radicant.

**RADICLE.** The principal or tap root.

**RADICULI.** The small roots produced from the stem.

**RAMOSE.** Branching.

**RAMULI.** Small, subdivided branches; twigs.

**RECEPTACLE.** The bottom part or support of the fructification.

**RECESSES.** The hollows or sinuses of a lobed leaf.

**RECURVED.** Bent backward.

**REFLEXED.** Synonymous with the above.

**RENIFORM.** Kidney-shaped.

**REPAND.** Wavy; having an irregularly undulating margin.

**REPLICATE.** Folded back.

**RESUPINATE.** Changed in position; turned completely round, as the back to the front.

**RETICULATE.** When the ramification of the nerves resemble network.

**RETUSE.** Terminating abruptly in a blunt point.

**REVOLUTE.** Rolled together; curled backwards.

**RIBS.** The projecting veins of a leaf or petal.

**RIGID.** Stiff; firmly erect; rough.

**RINGENT.** Having a wide throat; gaping.

## CALENDAR OF KITCHEN GARDEN OPERATIONS, JULY.

ENERGY must prevail in the operations through this month, as a great deal usually requires attention at the same moment. Provision for the winter supply is the first matter : Brocoli, Savoys, Coleworts, Kail, Leeks, Autumn Cauliflowers, and all other crops of like nature that are likely to be wanted, must be got out in full quantities, and the opportunity of a shower should not be neglected on any account.

On heavy lands, the ground should be forked over, and if necessary, a coat of dung turned in, but where the soil is light, it is better for Brocoli to leave it unturned, providing there is no deficiency of manure ; in poor worn-out ground this crop had better be avoided altogether, as it never can arrive at perfection, and a better return will be made by winter greens of any description ; the green and purple varieties of the curled or Scotch Kail are useful substitutes in such cases.

Earth up the first planted Celery as it requires, and in the operation avoid throwing the mould into the hearts of the plants, two strands of bast passed alternately on either side of each plant will hold the leaves up and render the work easy ; plant out the principal crop and supply the plants liberally with water. Beans of both the tall and dwarf kinds may yet be sown, and the last crop of peas should be got in at once, a sheltered situation should be selected for these, and a hardy, quick-growing sort will be most suitable. The advancing crops of all sorts should have the ground frequently stirred among them, and such as peas, beans, potatoes, &c., should be moulded up, and sticks placed wherever they are required.

Finish thinning the Carrots, Onions, Beet, and all other similar things. Young Turnips are often subject to the attacks of a small fly, which, in a few days, will destroy the crop, especially if the weather be hot and dry : as a preventive, sprinkle the plants over with the waterpot, and immediately after throw fine dust, either of wood-ashes or common mould, upon the leaves ; it is simple and generally effective.

The frames may now be taken from the Cucumbers, and the plants allowed to grow over the sides of the bed, those ridged out, will in dry weather require plenty of water.

Melons should have plenty of air through the day, but must be covered up close at night; water freely once or twice a week, and sprinkle the foliage of growing plants every evening.

Salading must have constant attention; small crops in quick succession are best. Endive may be planted largely for autumn and winter use, and the principal crop should be sown in the early part of the month; sow Lettuces, Radishes, and Onions every fortnight; Mustard, and Cress, and Rape, at intervals of four or five days.

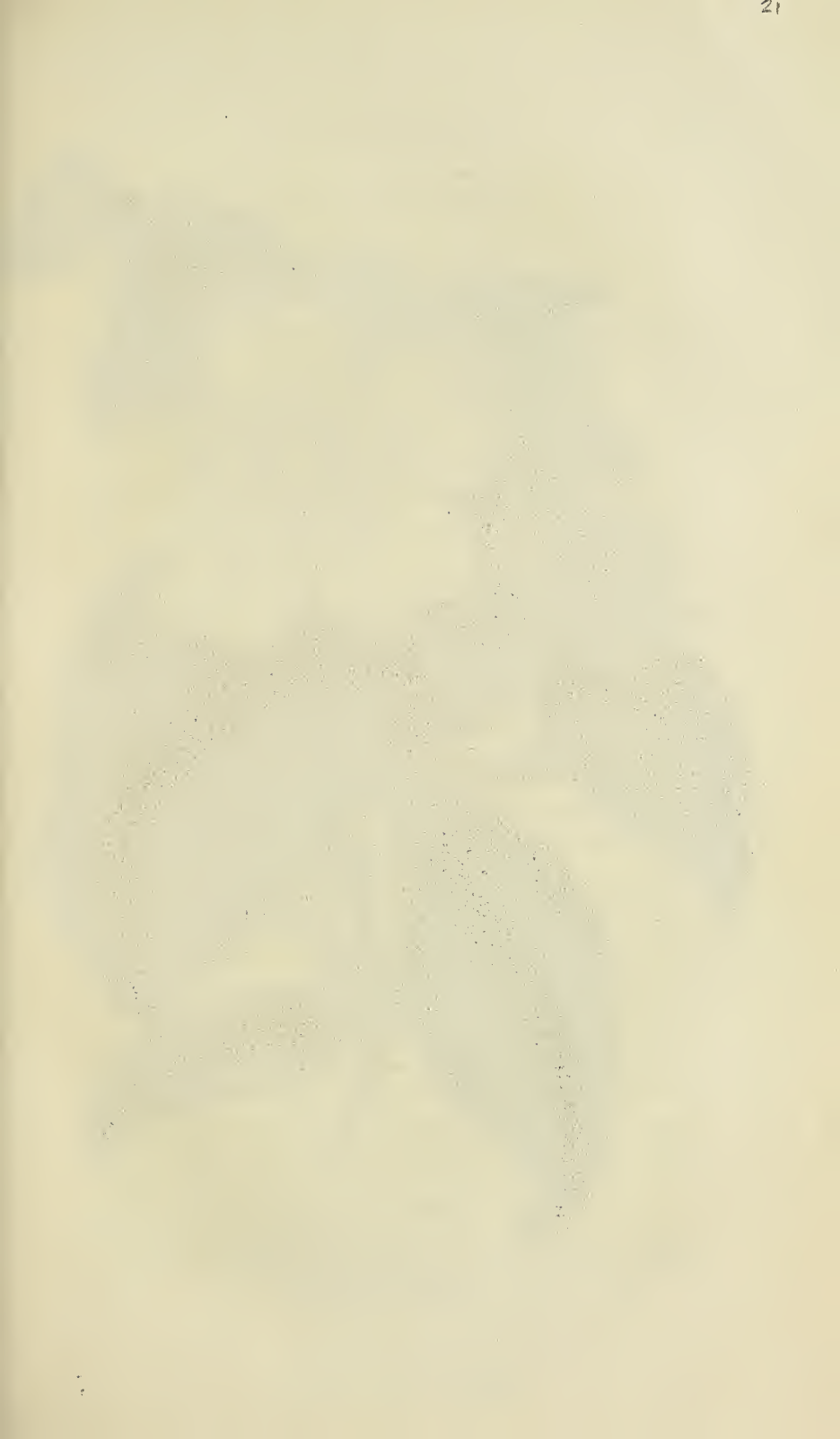
Pickling articles will soon be in demand; see that the Capsicums, Tomatoes, Nasturtiums, &c., are progressing: the first should be tied to sticks as they advance to guard against accidents, the second do better when trained against a wall, and should be kept constantly nailed up. Gherkins should have a little liquid manure occasionally.

Keep down weeds of all sorts by the constant application of the hoe; clear off exhausted plants immediately they cease to be useful, and observe that none of the standing vegetables become crowded, or all previous attention will be thrown away.

The possession of a superior variety of any particular vegetable sometimes leads the gardener to seed-saving. For this purpose always select the very best plants, and particular care must be taken in order to have the seed true, that no other variety of the same kind be allowed to flower at the same time, or the chances are greatly in favour of the two hybridizing through the instrumentality of insects, especially those of the Cabbage and Lettuce tribes; the latter, from their continued habit of flowering, require a good deal of attention in gathering, as only a part of the seed will be ripe together.

The most important point in harvesting seed of any kind, is to have it perfectly ripe before it is gathered, and to expose it to the sun for a few days afterwards, to dry out every particle of superfluous moisture; it may then be cleaned and put away till required for use. In connexion with this subject, a few words on keeping seeds may not be out of place: endeavour to have them always in a cool, dry place, of very equable temperature, for fluctuations of any kind are more destructive to their vitality than is generally supposed.







FRANCISCEA LATIFOLIA.

## THE GENUS FRANCISCEA.

WITH AN ILLUSTRATION.

THE genus selected as the subject of the present paper, is one which we believe to have been most inconsiderately neglected in favour of mere novelty; there is a fashion in floriculture, as in the most absurd frivolities, which, unchecked, leads its votaries into a species of delirium, the unequivocal symptoms of which are an insatiable desire to possess every new thing, without regard to any other qualification. Now, though we desire as ardently as any of these enthusiasts to witness the increase of variety and extension of the means to make the science interesting, in fact, make it our chief occupation to search for these means, we cannot agree with the sweeping measures of extinction too frequently put in force, by which often a well-known ornamental object is exchanged for one of equivocal character: and with every desire to assist in the spread of novelty possessing well-founded claims to the distinction it aims at, we are equally anxious to see the really beautiful maintain the position they are justly entitled to, without depreciation from their more ephemeral rivals. With this feeling, we determined on the notice of the interesting genus to which the subject of our plate belongs, and are confident of its pleasing wherever adopted.

*Franciscea* is a genus of dwarf tropical shrubs, numbering only five or six species, as at present constituted, all of which have pleasing blue and white flowers, copiously produced, and for the most part distinguished by an agreeable perfume; the plants have handsome deep green ample foliage, and under good management readily assume a very ornamental aspect, especially when spangled over with their lovely changing flowers, emitting the most delicious fragrance, and thus gratifying two senses at once. Their natural period of blooming is in the winter and spring seasons, and this alone should render them favourites, but they may be had in this state at almost any time, and are equally desirable in summer as in winter.

Some difference appears to exist in the opinions of botanists as regards the limits of this genus, and an allied one called

Brunsfelsia. As at present defined, the species of Franciscea are six in number: the first and best known is *F. uniflora*, or *F. Hopeana*, also called *Brunsfelsia uniflora*; this was introduced in 1827 from Brazil, and is more generally cultivated than any other member of the genus, though by no means the most beautiful, its flowers being smaller than those of either of the others. The next introduction occurred in 1837, when the beautiful species (*F. latifolia*) which forms our plate was made known: this was brought from Rio Janeiro, and may yet be regarded as the most desirable of the genus, though the succeeding one is a very noble plant. *F. hydrangeæformis* came from Brazil in 1839, and is very aptly named, as the dense cluster of flowers borne on the summit of its stems remind one very forcibly of the common hydrangea; a fault may be found with this species, inasmuch as the very large leaves appear to overpower the inflorescence, or rather, the latter is seated on so short a stalk as to be sometimes completely embosomed in the upper foliage. *F. villosa* and *F. acuminata* were made known to us in 1840, and as both have been erroneously called *Pohlana*, a confusion of the species has followed, which has led to the one being obtained for the other in several instances; they may be easily separated, however, as the larger shaggy leaves of *villosa* will readily distinguish it; *acuminata* has large flowers, scarcely so big as those of *F. latifolia*, while its foliage is very little larger than that of *F. uniflora*, and it is devoid of scent. *F. augusta* is a new and handsome growing species, which we have not yet seen in flower. There is yet another so-called species, *F. Lockhartii*, but we believe this to be identical with the *F. latifolia*, the name being only known in gardens.

All the species delight in fibrous peat, mixed with sand or leaf-mould, as its consistence may seem to require lightening, or to be made more adhesive; they are easily increased by cuttings formed of the young wood, which, taken from the parent plant when grown about three or four joints long, and struck in a pot of sandy peat, covered with a glass, and plunged into a brisk bottom, will protrude roots in about three weeks, and soon after should be potted separately. They are, strictly speaking, stove plants, but of the hardiest class, and are indeed much benefited by an occasional reduction of temperature, especially when they

are in a resting state. The young plants should be grown in a temperature of about 60° or 65° if they are struck in spring, and a trifle more through the summer, observing to shade them and maintain a moist atmosphere to induce a vigorous development; they will then grow fast, and to make handsome specimens will require to be several times stopped; this is perhaps the most important point in their management, for unless attended to while the plants are young, no after care will have the desired effect; if only one bud appears likely to break into a shoot, the branch should be bent between it and the next which will check the flow of sap, and cause the lower ones to push forth. By following this course, and repotting the plants as they require it, neat bushy specimens will be obtained by the autumn, which, if allowed to rest through the winter, will produce a copious display of flowers in the following spring.

When the principal portion of the blossoms have expanded, the plants should be set in a cool part of the greenhouse, which will allow them a rest and preserve their beauty at the same time; and by the time their flowers have declined, new shoots will make their appearance, when the plants must be taken back to the stove: and by these alternations of temperature they may be made to grow and flower four times in a year, observing throughout to provide them with fresh soil when wanted, and to keep them clear of insects. The beautiful appearance of all the species loaded with their blueish purple flowers, changing to a clear white in age, will then amply repay the attention required.

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### HYBRIDIZING.

As this interesting operation is likely to engage attention at the present season, a passing notice of some of the phenomena attached to it may prove interesting to those who, for the first time, try their skill and fortune in raising cross-bred seedlings. The first steps towards a successful issue rests in the selection of the seed-bearing parent, for where one can be had with a known inclination to sport as it is called, or break forth naturally into variations of itself, the chances of stamping its offspring with the lineaments of the fecundating parent are greatly increased over such as constantly and stubbornly reproduce only their own

individuality. On this account it is that seminal varieties are found more easy of hybridizing than the original species from which they spring, the greatest difficulty being often found in breaking in upon the normal character; but the tendency to sport once induced, it seems to be possible to carry it almost to any extent: those who are beginners, should therefore commence with such groups as already contain varieties, as with these their efforts are most likely to be successful, and, having closely observed the results of their operations, they will then be in a better position for more intricate and uncertain attempts.

The theory of this branch of the science is but yet in its infancy, and much of the practice consequently founded on nothing more than mere supposition. The researches of the late Messrs. Knight and Herbert, to both of whom a tribute of praise and deep regret is due, have, however, given us some intimation of the laws which govern this combination of natures, and with careful investigation we may reasonably hope to arrive ere long at a more satisfactory amount of knowledge; as it is, many practical results are at variance not only with what has been supposed an indestructible rule in the matter, but also with themselves, the strongest contrarities arising from one and the same act, as an increase of vigour, and decrease of strength, a departure from, and identity of character, together with all manner of variations of colour, have frequently been observed among the product of a single pod of seed; how this is to be reconciled with any stated or positive rule we have yet to learn. From the collective available evidence we are possessed of, it seems, however, that the anticipated progeny are most likely to partake largely of the character of the female or seed-bearing parent, though instances are not wanting which point to a directly contrary result, yet this is what may most reasonably be expected, and consequently, whichever of the individuals it is desired to mingle happen to come nearest the ultimate object of the operator, that one should be designed for the seedling parent, its character for ductility being equal.

In accordance with that great command, which declared that every plant and tree should yield seed "after its kind," it will be found, whenever the pollen natural to a plant, or that which it produces in itself, has been applied to the stigma, all subsequent

attempts to effect a change are unavailing; they are altogether abortive, and of no more consequence than would be the application of any other foreign substance: hence then the necessity of removing at the earliest period the anthers of the flower to be impregnated, for should their pollen but once reach the stigma the opportunity is lost; generally the anthers may be extracted safely at the first opening of the blossom, though there are some plants with which the expansion of the flower and the ripening of the pollen are a simultaneous act, with such the anthers must be drawn from the bud, for so great is the volatility of the farina of most vegetation, that all certainty will be removed from the cross impregnation if that of the plant be allowed to ripen even on another flower at the same time, much less in such close proximity to the point of attention.

Microscopic investigations show the action of the pollen in the fertilization of the seeds, to consist of the emission of certain tubes of the extremest tenuity through the stigma downwards by the style to the seat of the embryo seeds with which they come in contact; these tubes vary in number proportionately to the number of seeds contained in the pericarpium, and this fact will help to explain why there is or may be a difference in the produce of a single pod of seed when cross impregnation is resorted to. It is easy to suppose that some of these filaments possess a different tenuity, or vital force, which may prevent their action in so forcible a degree as the remainder, which would of course have a considerable influence on the future plants, in all probability rendering them weaker than their fellows; while so far as stability of character is concerned, and the variations observable in this respect, they may be accounted for by supposing that only part of the seeds are fecundated by that particular pollen, and the remainder at a subsequent period by some of another kind. These are matters almost necessarily of conjecture, but there appears no better way in which to account for what we see, and this knowledge of the mode in which the pollen operates is sufficient to show us the almost physical impossibility of superfœtation, for if the style be once filled with pollen tubes, by what means is any extraneous quantity to reach the seeds, even allowing there are any that have not received the impress of their future form.

The next point of moment to the desired end is to perform the operation at the exactly proper time, for it may be too soon as well as too late; a little observation will assist better in determining this than anything that can be written. If a flower of a Pelargonium or Fuchsia be observed from the first expansion of the corolla, the style will scarcely be seen on the immediate opening, but in a few hours it will lengthen, till in the pelargonium it reaches the anthers, and in the fuchsia exceeds them in length; up till this time the stigma of both will be club-shaped, but as soon as it reaches a position favorable for the reception of the pollen, a remarkable change occurs: they each divide into the same number of lobes as there are divisions in the corolla, those of the first-mentioned reflex turning their points towards the anthers, and both exude a mucus by means of which the pollen, on its separation from the anther, adheres to the stigma, and is held until its office is fulfilled; the appearance of this gum on the stigma indicates the proper time for the application of the pollen in our crossing operations, and if this is not waited for, the immature condition of the style prevents the emission of the pollen tubes, while if it is allowed to pass by the stigma loses its power by age, and in either case fertilization misses. The period necessary for the passage of the pollen to the ovule differs greatly in various plants, nor can it be known except by the growing of the seed-vessel, and even then it is uncertain whether fertile seeds are contained in it, for the late Mr. Herbert found in some cases of hybridizing, that more than one application of the same pollen was necessary to ensure seeds capable of growing, and it may frequently be observed on one of the plants just named, the fuchsia, that though the berries swell to a considerable size and ripen, they have no perfect seeds; he was of opinion, the stimulus given by the first appliance of the pollen is absorbed in the completion of the seed-vessel, or the outer tissue, or frame of the seed, a continuance being necessary to endue it with positive vitality; this is a matter to which it is impossible to attach too much importance, for if the hypothesis be correct, attention thereto will remove the vexatious possibility of finding, on the examination of some carefully-crossed seed-vessel, nothing but skeletons, or "light seed," as it is called.

With respect to the limits of muling, as little is known as of



the rationale of the art itself; it is generally supposed that the species of two distinct genera will not mingle, though cases are not wanting which disprove this; while, on the other hand, there are species from which no crosses have as yet resulted, though often tried, that belong all to one genus; it may, however, be regarded as an approximation to a rule that the several species comprising a genus will unite in this way, as it is held that the plants of any natural order may be grafted on each other, there are exceptions in each case, but the majority of experiments confirm the opinion. In cross-breeding, the greater the distinction between the parents the more vigorous will be the offspring.

HORTULANUS.

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### STRAWBERRIES.

AUGUST being the season when strawberries make their first and best runners, it may be well to remind those who design to cultivate this delicious fruit, either in quantity or to a limited extent, that no time should be lost in preparing the ground intended to receive them; for it is most essential to the expected crop of next year that the runners are planted out at the earliest period. As soon therefore as these have made roots, properly dig or trench the ground, applying manure if the staple is but poor, but in good land it is preferable to defer the dunging till a later period. The runners should be planted as they are taken off, in rows two feet six inches apart, and six inches from one another, giving them a liberal supply of water for the first few days to assist them in getting good hold of the new soil. The distance between the rows will admit of a light crop of vegetables being grown in the same ground, a row of endive or winter greens may therefore be planted intermediately without injury to the strawberries, and an immediate return will thus be made sufficient to cover the expense of the manure, which should follow the removal of the temporary crop. The object in leaving the ground unmanured till this time is, that the plants may have the greatest quantity of food when they most require it; the check consequent on

removal will necessarily deter the plants from any great development of foliage before the winter, and the utmost they can do, and indeed it is all that we should in wisdom desire, is to form a good number of roots, and to this end both theory and experience show that a paucity of aliment has a greater tendency than a superabundance of food. In the spring, as soon as the ground can be worked, a good coating of manure should be given, and then the plants having established themselves will be in a condition to receive with benefit all the assistance thus offered them.

The advantage of planting as early as possible lies in the increased chance it gives the plants to become firmly rooted before the winter, and so to prepare them for a vigorous start in the next active season, when each will throw up at least one truss of bloom, and being but six inches apart in the rows, will produce an average crop the first year, an advantage completely lost when the planting is deferred till the spring. Should circumstances, however, entirely preclude the possibility of finally stationing the runners in autumn, something may be gained by taking them off the parent stools, and bedding them rather closely together to stand till the ground intended for them can be made ready; they will then take up with a mass of fibres, and with attention will not feel the shift to any great extent, being decidedly stronger than such as may remain on the old plants all the winter.

As soon as the fruit is gathered in the first season, two adjoining plants should be cut out and only the third left, they will then stand eighteen inches apart in the rows, a distance that will be found far more advantageous, both for the production of fine fruit, and the opportunity it affords of running out a light crop of some other kind between the rows, than can be the old method of crowding strawberries into beds with the stools almost touching each other. In the succeeding autumn, on the removal of the runners, manure should be spread between them, and by all means dug in at once, as it must be at least unnatural if not positively injurious to mulch anything while in a dormant state, as is actually the case when dung is laid about them and allowed to wash in by the rains of autumn and winter; the absurdity of this practice can only be equalled by that of cutting off the leaves at the autumn dressing, and yet both are very generally followed;

it is in effect like removing a natural protection to the roots merely for the sake of substituting an artificial and inferior one.

It does not require any great amount of physiological knowledge to become aware of the mutual dependence which exists between the roots and leaves, for the removal of either will so palpably affect the other, that the slightest observation will make the error apparent, and yet every season witnesses a repetition of this barbarism. Let us then just look into the effect of this operation, that those who blindly follow an old practice may be aware of the serious injury they are inflicting on their strawberry beds. And, first, what is the object proposed in this removal of the leaves? Its advocates say, to reduce the beds to a proper trim, and to ensure plenty of young active leaves by the spring! The affectation of neatness may be left unanswered, but as regards the leaves, no more efficient means could be devised to nullify the proposition.

The rudiments of the future crop of fruit, it is well known, in strawberries, is formed in the preceding autumn, they are even visible on examination in the short, succulent, downy tuft or stool, as it is called, which constitutes the heart of the plant surrounded by embryo leaves of a similar succulent and tender consistence; to protect these must therefore be a matter of paramount importance, but, instead of so doing, the old rule says, cut away all the present leaves, simultaneously with which the ground about the plants is to be dug: what then is the position of the plant? Its roots are checked in their action by removal of the foliage; they may imbibe sap, but there are no organs for its elaboration, consequently they are soon in a state of repletion, and those which escape laceration from the spade die. The power of vitality existing in the heart-knot of the plant alone preserves it till a few weak rootlets can be forced into the earth again to re-commence the work of absorption, but a delay has occurred which brings the frosts of winter very near, ere the small, weak, yellow leaves can be unfolded for the assimilation of food; and just as they regain the requisite vigour the chill of winter paralyses their efforts: they sink beneath the conflict of opposing causes, carrying the putrefaction of death to the very seat of their owners' hopes, and then it is subsequently found that "the stools

were killed by frost !' On the other hand, the early removal of the runners, the application of manure, and the stirring of the ground enables the existing ample and healthy foliage to assimilate a store of nutriment which is deposited in the heart of the plant, to be developed at a future season in the shape of a strong tuft of bloom ; and this is done at the plant's natural and most active period of growth, with time to thoroughly complete all accumulations, when it gradually sinks into the state of rest designed by nature, with ample protection against the severities of the coming season, afforded by the imbrications of its broad and now leathery leaves ; a very slight comparison in the following spring of the plants grown by the opposite methods will testify which is the most productive, and consequently the best ; and to such a test I would advise all who are yet sceptical to subject a few of their plants, feeling certain that one fair trial will fully settle the merits of the question, and for ever banish the lazy method of mowing strawberry beds to the catalogue of obsolete practices.

For an ordinary garden, the best kinds are Keen's Seedling, for its early and prolific character ; the British Queen, for its superior flavour, as a principal crop ; and, for the latest gathering, the Downton Pine.

J. SPOONER.

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#### AQUILEGIAS.

ALLOW me to call the attention of your readers to this interesting genus of hardy, herbaceous plants, the recent additions to which have so greatly enhanced its value, that no garden should be without a stock of some or other of its members. There are about two dozen species now belonging to it, besides varieties, and most of them are worth a place in the flower borders, where, from April to August, they keep up a successional display of their curious and, in many instances, very highly-coloured blossoms. Their management is of the easiest description, the majority merely requiring to be planted where they are to bloom, and without further trouble continuing in health for

several years. This makes them well suited for an amateur's parterre, and their robust constitution equally fits them for suburban districts. No smoke or dust can injure them, for their smooth, shining leaves throw off all extraneous substances as readily as water leaves the back of a duck. There is, too, a uniformity of habit running through the entire genus, unbroken by anything, except a little difference in height, which allows of their being grouped to any extent with excellent effect, and the variations in stature are so evident in the size and strength of the leaves, even in the winter, that a stranger could make no glaring mistake in the planting of a number together, for he would only have to put the strongest plants in the highest places to be pretty certain of having them right in that respect.

There are not more than three or four which can be considered at all tender, which I take to be *Skinneri*, from Guatemala; *glandulosa*, an Altaian species; *viscosa*, from the south of Europe; and *fragrans*, from the north of India. It may be advisable, for the sake of ensuring their safe keeping through the winter, to pot these and preserve them in a cold frame, though there is little doubt of their withstanding our ordinary winters in a dry situation out of doors. All the Aquilegias delight in a light, rich soil, though they do not refuse to grow in anything a degree above clay, and in old lime-rubbish are most profuse of their flowers.

Their propagation is most easily effected by seeds, which are usually produced in abundance, and should be sown in April, in the open ground or in pans placed out of doors, and when the plants are large enough to handle they may be pricked out in nursery rows, or finally planted where they are to bloom.

A group composed of the following kinds has a very beautiful appearance, which continues for two months in uninterrupted splendour :

*Alpina*, blue; *Canadensis*, red; *glauca*, pink and white; *fragrans*, striped; *atropurpurea*, dark purple; *Skinneri*, scarlet and green; *glandulosa*, blue and white; *Garnerianum*, purple and white striped; *pubiflora*, pale purple, very curious, and any or all the varieties of the common *A. vulgaris*, some of which I have pure white, pink, purple, brown, and all these colours blended in each flower, either in blotches, stripes, or spots.

From the sportive character of this last species, I think, with attention, some very beautiful varieties may be obtained by cross-breeding, and, as a subject worth notice, would recommend the genus to the notice of those who delight in this pursuit.

F. ROBINSON.

St. Ives.

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### VISITS TO NURSERIES.

THE late charming weather happened most auspiciously for the rose gardens, and in no instance do we remember a better display than has been seen throughout the present season; the blooms in general were large, well filled with even highly coloured petals, and the foliage wearing an aspect of vigorous health in the deep green common to it, notwithstanding the irrepellable attacks of green fly.

The principal rose nursery near the metropolis, Denyer's, near Brixton, was visited by numbers of the admirers of this lovely family, and the appearance of this collection, ranged along the sides of a straight walk of considerable length was most imposing. All the best of the new kinds are here brought in juxtaposition with the established varieties, and thus their several merits are severely tested, affording the best opportunity that can be desired of forming a correct estimate by the immediate contrast that may be made. To purchasers this is of great advantage, and the time spent among a collection in this manner is well bestowed.

Among the hybrid China and Bourbon Roses, to which class we confess a partiality, we were much pleased with the following:

*Coupe d'Hebe*, a fine, large, deep pink flower, with exquisitely scented, thick petals, and first-rate form.

*Doctor Billiard*, bright crimson, very fragrant.

*Duke of Sussex*, very large, finely formed flower, bright carmine.

*Madeline*, large, full, pale pink, shaded with crimson.

*Las Casas*, bright rose, large, and very double.

*Duke of Devonshire*, rosy lilac, slightly streaked with white, very sweet.

*Attelaine de Bourbon*, bright rose, mottled with a darker shade.

*Belle de St. Cyr*, a peculiar pale, but very bright rose colour, large, full flower.

*Carmuzet carnée*, an excellent variety, pink, velvety petals, fine form, and delicious fragrance.

*Charles Duval*, bright rose, perfect in shape, and very sweet.

Among perpetuals *La Reine* shone preeminent, the large waxy flowers and bright pink colour of this variety render it conspicuous in any position.

*Duchess of Sutherland* is another superb variety: its large, well-filled, pale pink and white shaded flowers are very beautiful.

*Edward Jesse*, very large, dark crimson, shaded with purple.

*Prudence Ræser* is a remarkable flower, pink and fawn-coloured in the middle; the profusion of blooms borne in large clusters make it very desirable.

*Rivers, Prince Albert, Louis Philippe, William Jesse, Triumph de Montmorency*, and *Reine de Guillotière*, all dark roses, were very beautiful.

The *Noisettes* were loaded with flowers, particularly the little white *Aimée Vibert, Floribunda*, lilac; *La Victoreuse*, large white; *Jaune Desprez*, buff, large; *Monstreuse*, large, lemon-colour; and *Boulogne*, deep purple. We left them with regret.

GROOM'S, *Clapham Rise*. The Japan Lilies are the principal feature in this nursery at the present season; and very luxuriant they look, promising a grand display for a long period. Among the choice plants which form the staple of the stock, we noticed nice plants of the brilliant *Scutellaria Ventenatii*, the bright scarlet flowers of which, borne on well-filled spikes, make it very remarkable, and it seems likely to bloom till a very late period, if not through the entire winter. *Cuphea platycentra* is here, as everywhere else, continually interesting with its pretty vermilion and black flowers. *Torenia Asiatica*, one of the finest of recent importations, grows and flowers with surprising vigour, the deep porcelain of its flowers being quite a relief to the eyes in the glare of a hot sun-shining day. The new *Gardenias*, with their large, trumpet-like blossoms, look well, as do the stock plants of the pretty *Begonia fuchsoides, Abelia rupestris*, and *Epacris miniata* and *coccinea*. Healthy plants of the handsome *Wiegelia*

*rosea*, *Garrya macrophylla*, *Deutzia staminea*, *Franciscea augusta*, and the double-flowering variety of *Spiræa prunifolia*, were also abundant, together with most other novelties that are really worth having.

At the UNITED GARDENERS' NURSERY, *Chelsea*, we lately noticed a new species of *Torenia*, with smaller and darker flowers than those of *T. Asiatica*; a new and apparently very distinct *Achimenes*; a *Gesneria*, with ventricose yellow flowers; and a stock of the very pretty *Justicia bicolor*, having white flowers, spotted with crimson.

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### DESCRIPTIVE LIST OF NEW PLANTS.

#### BROMELIACEÆ.—*Hexandria Monogynia*.

*Puya Altensteinii* (Link.) var. *gigantea*. The small state of this plant was described in the 'Bot. Mag.' to 4241, under the name of *Pitcairnia undulatifolia*. The present gigantic variety attains a height of five feet, with large leaves, and an immense spike of yellowish white flowers, clothed throughout its length with brilliant crimson bracts. In the spring of the present year, it was flowered by Messrs. Lucombe, Pince, and Co., of the Exeter Nursery, and from its truly magnificent aspect, no collection should be without it.—*Bot. Mag.* 4309.

#### GESNERIACEÆ.—*Didynamia Angiospermia*.

*Hypocyrtia leucostoma* (Hooker). This plant grows about a foot high, with an erect, obtusely tetragonal stem, clothed with short woolly hairs, the leaves are opposite, oblong, acuminate, the nerves united by closely interwoven reticulations, so as to give a nettle-like roughness to the surface. The flowers are aggregate, on short simple peduncles, about three quarters of an inch long, of a tawny orange colour on the tube, and whiter on the limb. It was received by Mr. Purdie from New Grenada.—*Bot. Mag.* 4310.

*Achimenes cupreata* (Hooker). A new and highly interesting species of achimenes remarkable for the dark copper-colour on the upper side of its rather large elliptical leaves, (not unlike in



hue, those of the copper-coloured beech) purplish rose beneath, and the rich scarlet flowers, with the segments of the limb beautifully toothed and ciliated.

It was detected by Mr. Purdie on moist banks near Sona, New Grenada, and from seeds sent by him in September 1845 to the Royal Gardens, plants were reared which flowered in April 1847. It requires the same treatment as other species of *Achimenes*. A shallow pan is soon filled with it, owing to the extraordinary stoloniferous nature of the plant; among the dark coppery leaves the bright flowers have a very pretty effect.—*Bot. Mag.* 4312.

ERICACEÆ.—*Decandria Monogynia*.

*Leucothoe pulchra* (De Candolle). Received at the Royal Gardens Kew, from Mr. Makay of Liege as a "*Vaccinium*" from Caraccas. It will now merge in the genus *Leucothoe* as restricted by De Candolle, and is unquestionably the *Andromeda (Leucothoe) pulchra* of Chamisso, and Schlechtendal, of which we have authentic specimens of Brazil. *L. pulchella* is probably not different, and *L. crassifolia* and *L. crenifolia* are perhaps mere forms of the same species. This plant flowers in a cool greenhouse in May, and is equally handsome in foliage and in flower; it grows two or more feet high, with copious, neat, bright green foliage, and produces its numerous drooping racemes of white, bell-shaped flowers, from near the summit of the branches.—*Bot. Mag.* 4314.

FABACEÆ.—*Diadelphia Decandria*.

*Onobrychis radiata* (De Candolle). A native of stony hills in the region of Caucasus, common about Tiflis. It is a showy plant, conspicuous from its racemes of white flowers with a central yellow spot; in our gardens it is a hardy herbaceous perennial, which grows about a foot in height, and succeeds best when planted in a rich sandy loam, in a rather dry situation. It is increased by seeds, and the young plants will not flower before the second season; it flowers freely from the end of June to the beginning of August.—*Bot. Reg.* 37-47.

ROSACEÆ.—*Icosandria Pentagynia*.

*Spiraea pubescens* (Bunge). This is a small gay shrub, with

little hemispherical umbels of pure white small flowers, having a slight fragrance. In habit it may be compared to a weak *spirea opulifolia*; its leaves, when full-grown, are about an inch and a half long, much wrinkled, wedge-shaped and entire at the base, unequally serrated towards the point and covered beneath with wool, which becomes cinnamon-coloured as it grows old. The uppermost leaves beneath the umbels are oval or oblong and unequally serrated. It appears to be nearly hardy, grows about two feet high, and flowers freely in any good garden soil. We may expect this to prove an ornamental shrub for planting in sheltered situations and warm districts. It was sent from Chusan by Mr. Fortune, and flowered in the garden of the Horticultural Society last March.—*Bot. Reg.* 28-47.

OLEACEÆ. *Diandria Monogynia.*

*Forsythia viridissima* (Lindley). Another of Mr. Fortune's plants; he describes it as "a deciduous shrub with very dark green leaves, which are prettily serrated at the margin. It grows about eight or ten feet high in the north of China, and sheds its leaves in autumn. It then remains dormant like any of the deciduous shrubs of Europe, but is remarkable for the number of large prominent buds which are scattered along the young stems produced the summer before. Early in spring these buds which are flower-buds gradually unfold themselves, and present a profusion of bright yellow blossoms all over the shrub, which is highly ornamental." It may be expected to become a great favorite, for when old enough to flower, the branches will be found loaded before the leaves with yellow flowers as large as those of *Chimoanthus grandiflorus*.—*Bot. Reg.* 39-47.

IRIDACEÆ.—*Monodelphia Triandria.*

*Rigidella orthantha*. This new and brilliant flowering bulbous plant was blooming in the stove of Messrs. Knight and Perry, King's Road, Chelsea, last October. Nothing is known of the history and introduction of this species; probably, however, it is a native of Mexico, and found its way into Europe through some of the continental travellers, and from thence was introduced into England. It is a bulbous perennial, growing about eighteen inches high, with lanceolate, plaited, pale green leaves; the

flowers are terminal, and, though nodding, are not pendulous; the perianth is three-leaved, deep vivid scarlet, with a triangular black spot at the base of each leaf, somewhat concave and divided to the base. It should be potted in light rich mould, and grown in a mild stove temperature.—*Pax. Mag. Bot.*

CARYOPHYLLACEÆ.—*Decandria Digynia.*

*Dianthus Hendersonianus.* No particulars are known respecting the origin of this beautiful pink, but, from its mode of blooming and general growth, we suspect it to be a hybrid betwixt *D. caryophyllus* and *D. Chinensis*, the leaves and flower stem resembling the former, and the flowers approaching the latter; they are very double and of the richest crimson. It forms a very brilliant border plant, and is also well suited for pot culture.—*Pax. Mag. Bot.*

IRIDACEÆ.—*Triandria Monogynia.*

*Trichonemata Græca, vars. subpalustre, and pylium* (Herbert). We much regret our inability to furnish any account of these two pretty Trichonemes, which were collected by our late lamented friend the Dean of Manchester. All we can learn is that *T. subpalustre* was found at Salonica and in the Ionian islands, and *T. pylium* at Navarino. Mr. Herbert regarded them as perfectly new forms, distinct from all that have yet been made known. We have not seen even a dried specimen of them, and reluctantly leave them to some future botanist for elucidation. (*T. subpalustre* has pale blue and white flowers, and in *T. pylium* the flowers are white, shaded with yellow in the middle; they are both dwarf crocus-like flowers.)—*Bot. Reg.* 40-47.

ORCHIDACEÆ.—*Gynandria Monandria.*

*Dendrobium (Dendrocoryne) chrysotoxum* (Lindley). The Dendrocorynes or Club Dendrobes form a peculiar group in the large genus to which they belong, best, perhaps, characterized by their having a fleshy, angular stem, with two or more manifest articulations, one or more leaves at the upper end, and a lip not broken up into a tuft of hair or fringes. They are, as it were, Bolbophylls passing into Dendrobes. In the group thus limited are included *D. densiflorum Griffithii, aggregatum, tetragonum, Veitchianum, speciosum,* and some others formerly placed in

*Desmotrichum*, a section which it seems better to limit to the species whose lip is broken up into a brush.

The present species, which was imported from the East Indies by Messrs. Henderson, is extremely handsome. It differs from *D. densiflorum*, in its many-angled pseudo-bulbs, small bracts, and curiously fringed, pubescent, not shaggy lip; from *D. Griffithianum* in its round emarginate fringed lip; and from *D. aggregatum* in the same respects, as well as in its great club-shaped, many-leaved pseudo-bulbs. It has bright deep yellow flowers, produced on a lax pendent raceme in the manner of *D. densiflorum*.—*Bot. Reg.* 36-47.

*Cleisostoma ionosmum* (Lindley). A native of Manilla, whence it was sent to Messrs. Loddiges by Mr. Cuming. It flowered in the Hackney Nursery in March 1844. The flowers are in an open panicle, about an inch across, flat, with five obovate, equal, obtuse lobes, yellow, with cinnamon brown blotches; the lip is white, with a few red streaks, three lobed, with the basal lobes acute, and smaller than the middle one, which is cordate, triangular, acute, and much larger than they are. The flowers smell pleasantly of violets.—*Bot. Reg.* 41-7.

*Dendrobium mesochlorum* (Lindley). This beautiful species allied to *D. crumenatum*, and resembling it in habit, although destitute of a bulbous base to its stems, was imported from India by Messrs. Veitch, and exhibited by them at the last meeting of the Horticultural Society where it gained the medal. It is not discoverable among any of Blume's *Onychiums*, of which it would be one. The flowers are white, of the size of *D. crumenatum*, with a violet spot at the end of the petals and lip, and with a green stain in the centre of the latter. They have a faint but agreeable odour.—*Bot. Reg.*

*Dendrobium Egertonia*. This species has for some time been cultivated by Sir Phillip Egerton; it is very near *D. mesochlorum*, but the flowers are not half the size, the sepals are pale pink outside; there is very little appearance of a purple stain on the tips of the petals and lips, and the middle of the lip is dull yellow, not green. There is, moreover, no tubercle at the back of the point of the spur, and the lip is not fringed except at its base. If it is less showy than *D. mesochlorum*, it is not on that account less valuable, for its flowers are delightfully scented towards evening.—*Bot. Reg.*

## GARDEN MECHANICS.

ALL who are engaged in plant-growing, especially of such as are confined in the limits of an ordinary glass structure, must be conversant with the use of that most efficient extirpator of insects and filth,—the syringe, and fully alive to its importance as an agent in the management of their charge. The value of this instrument is proved by its universal adoption in all gardening establishments of consequence, where, notwithstanding its costliness, it would be thought in the present day almost as impossible to cultivate such plants without a syringe as without pots. Every gardener does and must continue to use it, or he would witness such a speedy accumulation of impurities as would inevitably overwhelm vegetation so situated; but there is an extensive class of the flower-loving community, whom the hitherto heavy price charged has precluded from its use, and even where considerations of this nature are not positive hinderances, it must still be desirable to reduce the necessary expenditure as far as is practicable with the proper working of the establishment, and therefore any improvement in the manufacture which will maintain efficiency, and at the same time bring it more easily within reach, must be regarded as deserving our best offices. Of this nature is the syringe offered to the public by Mr. Biertkumpfel, of Albany Street, Regent's Park, which we have had the opportunity of examining, and can pronounce quite equal in power to any other we have yet seen. The great difference in this instrument and those usually sold consists in the material of which they are made, this new syringe being manufactured in white metal instead of brass, which admits of a very large reduction in price. The valves are of metal, and the workmanship equal in every respect to the best; yet, by the happy thought of employing this material, the maker is enabled to sell them fully two thirds cheaper than are the brass syringes. As regards their durability we have authority to state, the first one made has been in use nearly fifteen years, and it must be remembered that the incorrosive nature and hard surface of the metal would warrant this assertion, and with fair usage they may reasonably be expected to last the term of an ordinary life. We have therefore

much pleasure in cordially recommending them, feeling confident of their satisfactory action, which, with the reduction in price, must cause them to be very generally adopted as soon as they become known.

In connexion with this subject we have to mention another article, which, if not positively of so useful a character, yet possesses considerable interest as an artistic improvement on that indispensable appendage to every plant, the label. The objectionable forms employed for these have long been matter of regret, and on one occasion the Royal Botanic Society, impressed with the general desire to effect some improvement, offered considerable prizes for the production of something superior to those in ordinary use, but nothing calculated to meet the wishes of the promoters or the public resulted from the very liberal measure. To be of general utility the design must be of such nature as to admit of the labels being made by those who use them, as it is quite out of the question to expect the thousands that are annually required in every garden of any pretensions can be otherwise provided, and they must be of a material that will readily receive and retain the desired impression. This is a fatal objection to those made of iron and glass, materials that seem much in favour with commercial manufacturers, but not at all suited to the purpose, the first because of its liability to corrode and the difficulty of marking it, and the latter from its brittle character and the increased trouble of writing on it. Wooden and zinc labels have not sufficient durability to allow of their being used as permanent marks, without incurring a deal of unnecessary trouble in renewing them, which may be entirely obviated by the employment of lead. The well-known lasting character of this metal led to its adoption for the labels we are about to describe, and there does not seem another so easily converted or likely to answer the desired end, against which so few objections can be urged.

The form of these labels is that of a scroll, which was selected for two reasons: the first, because it appeared by associating the means with the end, to be the most appropriate; and secondly, because it could be so placed in a pot as to be entirely out of the way. They are made with a tail, in the ordinary way, which is thrust into the mould, and the upper end or face of the label,

instead of standing erect in the usual manner, is curved downwards over the rim of the pot, and, by rolling up the lower edge, the visible part assumes, with very little trimming, the form before mentioned. Thus the label fits closely to the pot, in fact, clasps it by the outer and inner surfaces, is consequently safe from removal by accidental causes, and offers no obstruction in handling the pot. The name may either be painted on the lead, or, what is preferable, the letters may be punctured in, and then painted, or numbers may be struck on it, and the name entered in a book. They may be easily adapted for any purpose, and will last for a century.

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#### REMARKS ON A FEW PAPILIONACEOUS PLANTS.

IT has long been a matter of surprise to me that this very handsome section of the ornamental portion of the vegetable kingdom should suffer so much neglect, and the more so since the encouragement offered for their adoption by one of the principal metropolitan societies. I am quite unable to account for the apathy with which they are regarded, and as a probable means of removing at least some part, beg to hand you the following brief remarks on a few of the most deserving.

Among those which belong strictly to the sub-order *Papilionaceæ*, the following are conspicuous :

*Chorizema*, among whose species the most beautiful are *varium*, *Henchmannii*, *cordata*, and *Dicksonii*, all remarkably free flowering subjects, among whose blossoms red of various shades and yellow prevail.

*Gompholobium*, the best of which are *polymorphum*, *venustum splendens*, and the varieties of *versicolor*; these are neat little climbers, requiring a trellis attached to the pot, their flowers are of various shades, of reddish purple and orange, excepting those of *splendens*, which are bright yellow.

*Daviesia*, whose species *latifolia* and *virgata* are extremely pretty on account of their numerous small yellow flowers, borne on dense spikes, and having on the upper portion a blotch of deep red.

*Pultenæa, biloba, stricta,* and *retusa,* are very handsome when well managed; *stricta* requires to be frequently stopped while young, but *biloba,* under any management, will come covered with its pretty yellow and red flowers every season.

*Dillwynia.* All this genus well deserves to be grown in every greenhouse, but to particularize, such as *floribunda, glyciniflora, cinerascens,* and *ericifolia* should never be omitted; these are all yellow, with a blotch of red in the upper petals.

*Oxylobium pultenæa* is the only species worth growing, but that is a real beauty, the dense heads of large bright, entirely yellow flowers make it particularly desirable.

*Mirbelia* is composed of several very pretty species, well deserving attention, more especially *reticulata, floribunda, pungens,* and *speciosa,* because of their free habit of blooming, and for the prevailing purple which distinguishes them from the majority of the class.

*Burtonia conferta,* or *violacea,* as it is commonly called, is a lovely little plant with somewhat the habit of a heath, and beautiful bright, deep blue flowers.

*Eutaxia myrtifolia* is another old plant that has been thrown out of cultivation, because, I presume, of its inclination to ascend; but this may readily be corrected while the specimens are young, and then few plants exceed in genuine loveliness.

Of those not botanically called *Papilionaceous,* but included in other allied sub-orders, and possessing the same general characteristics, I would mention, as calculated to meet the tastes of most cultivators, the following:

*Hovea celsi, pungens,* and *chorizemæfolia.* The only objection to be urged against these plants is their tendency to get up, as it is called, but if we were to confine our attention only to such as grow in the desired manner, much of the credit due to superior cultivation would be thrown away, and the merit of management considerably lessened. The beautiful blue, purple, and white flowers of these species will amply repay any trouble that may be taken with them.

*Goodia lotifolia* is a pretty growing and extremely free flowering plant, that only requires to be known to ensure it a place among plants of the kind; its flowers are large, pale yellow, and faintly marked with red.



*Crotalaria purpurea*, purple; *pulchella*, yellow; *cordifolia*, deep purple; *vitellina*, deep yellow; and *floribunda*, yellow, are all handsome subjects, that only require to be well pruned annually, and stopped once or twice in the early part of their growth to make them all that can be wished.

Many other genera might be named, such as *Bossiaea*, *Templetonia*, *Indigofera*, *Swainsonia*, *Inga*, and others, was it necessary to the object in view, but I trust the mere fact of having their attention called directly to the class, will be sufficient with those who really care for the state of their collections, and the selection must be left to individual taste. A similarity pervades the management of the whole order, and therefore those who can grow one portion may venture with assurance of success on any other; they all delight in a soil composed of peat, loam, and sand, want plenty of air both winter and summer, and to secure it at the latter period, are usually placed out of doors. All or nearly all require to be often stopped while young to induce a neat, bushy growth, and those which grow very strong should in addition be cut closely back in the autumn; as regards the stopping in spring, it should be discontinued on all that produce their flowers in a terminal manner and on the young wood, in time to allow them to form a sufficient length before the season of blooming arrives. In short, they form a large portion of that class of plants, which though they will not brook neglect, are among the easiest to manage with timely attention.

W. ROBERTSON.

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#### CALENDAR OF KITCHEN GARDEN OPERATIONS, AUGUST.

MAKE sowings of the early and successional varieties of cabbage during the first week, for the general winter and spring crops, and also for coleworts to be transplanted thickly, for use during the same periods. An east or north-east border is an excellent station for a crop of cabbages to come in early in spring, as, if the weather prove severe, the sun, during the short days, seldom acts sufficiently strong to thaw the plants, and they escape the alternate freezing and thawing, which generally does more mischief among the crops than the intensity of the frost alone.

Continue to transplant successions of cabbage, broccoli, &c., watering those newly put out copiously should the weather prove dry. Make sowings of cauliflower during the second and fourth weeks, choosing a light, rich, sheltered spot, and watering when requisite.

Supply advancing and bearing crops of peas with manure-water occasionally, and stake and protect where requisite. Make a full, thick sowing of onions for a winter crop on trenched and moderately rich ground. Pull the full-grown crops as they show signs of decay in the tops, and expose them to the sun until well dried, protecting them carefully from rain. A last and full crop of turnips should be sown during the first week, and another in the second, but not later, if the first is thin or fails altogether. Hoe and thin the other crops, leaving the ground as light as possible about the plants. Sow carrots in the first and third weeks, to come in in winter and spring, and keep the other crops clear of weeds.

Make sowings of radishes every ten days or fortnight, choosing light, rich ground, and watering freely in dry weather. Two or three sowings of lettuce should be got in, and fresh plantations made, to maintain a regular supply. A full crop of endive should also be put out, and such as is sufficiently advanced should be tied up or otherwise blanched. Also continue to transplant celery, and to earth up the advancing crops. Large sunk beds, similar to the ordinary trenches, but wider, may be made, in which the plants may be put in about six inches apart, and earthed as they advance. They will be found very serviceable for kitchen use, and can be easily protected, if necessary. Continue to sow the various small salads about every ten days. A large sowing of parsley should also be made in various situations, under walls as well as in the open ground; also chervil, where wanted. Make two sowings of spinach during the month, choosing a sheltered spot, and weed and stir the ground among the other crops. Keep the tomatoes thin in leaf and fruit, so as to allow a free access of sun and air. Cut and dry the various herbs as they come into flower, and make fresh plantations of such as are in small quantity. Keep every crop clean and free from weeds and insects as far as possible, and allow no old crops to stand after once out of bearing, as they only harbour enemies to all the other plants in the place.

D. M.

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RHODODENDRON VAR.

## THE RHODODENDRON.

WITH AN ENGRAVING OF R. BUTLERI.

THE noble family to which our present subject belongs is one distinguished pre-eminently by the imposing aspect of its several members at all seasons : its vigorous style of growth, branching in every direction till a dense mass of robust shoots is formed, clothed throughout with ample, richly coloured, evergreen foliage, render it conspicuous and interesting at all times ; but it is in the vernal season that Rhododendrons lend a charm to our gardens, which, however well known, is quite indescribable : their splendour then is quite unequalled by that of any other tribe, and justly entitles them to the epithet, "Glory of the Hills."

Rhododendrons are natives of alpine regions throughout the greater part of the world, many of them occurring at the extreme limit of ligneous vegetation; and all of them affecting exposed situations. From their wide geographic range there are species among them which, when collected together, as in our gardens, require a marked difference in their management; yet they so easily accommodate themselves to circumstances, that the culture of the whole can in no part be considered difficult. A trait in the natural character of these plants, which the observation of many travellers, with whom we have spoken on the subject, almost invariably confirms, is their predilection for damp places; even on the highest mountain ranges, where the Rhododendron is common, the soil is found to be, though not positively retentive of water, yet constantly moist, and one of their usual stations is the margins of the small pools common to such places. This circumstance should be borne in mind, as it forms a leading feature in their successful management, and, properly observed, will go far to obviate the disappointment frequently attending their introduction to unfavorable positions.

In a cultural sense, the genus may be divided into two classes : the European and North American species and their varieties forming one, which in our climate is quite hardy, capable of resisting the severest weather, and therefore suitable for ornament-

ing out-of-doors scenery, to which purpose they are very generally applied; and a second, composed of the Indian species and varieties produced directly from them, which are more tender, requiring to be protected at least from frost. The last possess the most vivid colours, and are well deserving the additional care necessary to have them in perfection. There is also a third section, formed of such varieties as have been bred from parents belonging to both of the preceding classes, the members of which are extremely variable in their habits, according as they partake more or less of the nature of either of their progenitors. It may not be positively necessary to the existence of the plants of either class to protect them at all, but from the early habit of flowering natural to the Asiatic species, their beauty is likely to be spoiled in most seasons when exposed, in consequence of its development taking place too soon, and therefore the attention of the cultivators of this tribe has been turned to the production of hybrids, that should partake of the rich colouring of the tender species, and the retarded habit of the other portion. The success attending past endeavours in this respect has been most gratifying, and promises well for the ultimate realization of all that can be wished.

The management of what is commonly called the hardy class is confined entirely to the planting. If this is done aright, no further attention is required, unless to restrain a straggling or rampant shoot. The essential conditions to be provided on the establishment of Rhododendrons in any garden are those pointed out by their natural positions. It matters but little what the exact description of the soil is, so that it is of a kind which, though never dry, is free from excess of an opposite character. We have seen as fine specimens growing in strong loam as could be desired, and we have been cognizant of an immensity of trouble being taken to provide peat-beds, in which the plants have died for a succession of years, though it is generally supposed that the latter kind of earth is essential to their living, and by many that they will grow in nothing else. That they succeed in peat is well known, but only when it becomes closed in texture, so as to prevent the escape of moisture, in which condition it is perhaps the best material for them, as it is hardly possible for peat to retain an excess of moisture, unless com-

pletely enveloped by some less porous body. On the other hand, peat of a very open nature is less adapted to their support than loam, because the admission of air among the numerous interstices which distinguish the peculiar kind spoken of carries off its moisture by evaporation, and the minute silky fibres of the plant suffer in proportion to the extent of this action.

That portion of the genus which, for the reason before mentioned, require to be protected in winter and their blooming season, are usually grown in pots or planted in the borders of the conservatory; sandy peat is usually employed for them, and perhaps no better soil can be recommended. We would, however, add about a third of loam when the staple of the peat is very fibrous and light. The pots should be well-drained, and it is advisable to mix with the soil pieces of potsherds, charcoal, or stones, in a manner that shall disperse them throughout the mass. Whenever it becomes positively necessary to re-pot the plants, a rather liberal shift should be given, for they do not require, nor are, indeed, benefited by frequent removals. The circumference of the ball of roots should be loosened with the hand in the operation, and, when duly stationed, the space between it and the pot should be filled as tightly as it can be pressed with the knuckles, and after a gentle watering the work will be complete. Re-potting is best done immediately after the plants have flowered, as it is then that they begin to grow, and the assistance of the fresh earth is most beneficial.

From this period up to the following August the plants will require more attention than at any other time. It will be found that they make their first growth very rapidly, and, to encourage them to a vigorous development, plenty of water must be given, and the plants continued in the house till it is completed, which will occupy from four to six weeks. As they approach the end of this first seasonal action, considerable care and watchfulness must be exercised, lest they start again into another, instead of forming flower-buds, especially with such as are planted in the borders of the erection, where no other means of affecting them can be exercised but in the application of water, which in such a position should be withheld altogether till the blossom-buds are plainly visible. Plants in pots may be more effectually checked by removing them to the open air and limiting their

supply of water, when it is seldom they fail to "set for bloom" at every point. This check, however, must not be given till the young wood is fully developed to its entire length, or the heads of flowers will be small and unsatisfactory.

It is by no means an unusual occurrence for the plants to start into the dreaded second growth, when, unless they are timely stayed, the production of flowers will be prevented for an entire season. When this happens, they should be kept in with a very short allowance of water till about two joints of the new wood is visible, when it is advisable to remove them to an exposed spot in the open air, that time may be secured to mature this and form the bloom-buds. By the end of August these buds will be swelled to a considerable size, and their future management resolves itself into merely keeping them moderately moist and the supply of plenty of air, which is best afforded at this season by placing the plants within the shade of a north wall, the direct action of the sun for a lengthened period having a tendency to disfigure the foliage. In such a position they may remain till it becomes necessary to remove them into their winter quarters, where they should still receive plenty of air and light.

Rhododendrons are very suitable and handsome objects for forcing. For this purpose the common kinds are usually employed, and it is only necessary to select in the autumn such plants as have been potted at least a twelvemonth, and are well furnished with bloom-buds, and introduce them gradually to heat as early as may be convenient. The object in having them potted in the previous season is to hasten the development of the flowers, for those which are taken from the ground in the same season, though they bloom as well, are much longer about it. Plants that have been once or twice forced, and are carefully tended in the maturing of their wood, beget a habit of early flowering, which materially assists the operation in future years.

The subject inducing the present paper is a hybrid, obtained by impregnation of *R. arboreum* on one of the hardier kinds, *R. ponticum*, if we remember rightly. The plant partakes largely of the character of its male parent in its manner of growing, and the flowers retain much of the splendid colour which distinguishes that species, while their production is retarded till even later



than those of the seed-bearing plant. It does not blossom till May, and therefore, when danger from frost is entirely past, the opportunity of testing its hardihood beyond ten degrees of frost has not yet, from its scarcity, transpired, though we do not doubt its capacity to withstand the severest weather; for, as before remarked, it is only in the blooming season we apprehend any danger to these plants, with the single exception perhaps of the Nepal species just mentioned, *R. arboreum*. This plant, if subject to severe frost, loses its foliage, but it is not so with any other that has yet come under our notice.

With regard to the accompanying plate, we regret exceedingly that our artist has failed to catch the peculiar velvet stiffness and substance which belong to the flowers. Their petals more closely resemble in form and consistence those of a lily than the wavy representation given; but they had been cut some time when he received them, and hence his usual felicity was unavailing.

The name attached to this variety is intended to convey a sentiment of esteem and respect to a gentleman (J. Butler, Esq., of Woolwich), whose spirited exertions in the cause of horticulture are justly valued by all who have the privilege of knowing him.

EDITOR.

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#### A FEW SCROPHULAREOUS PLANTS.

FOLLOWING the example of your correspondent of last month, Mr. W. Robertson, and appreciating his endeavour to rescue a few really deserving plants from oblivion, I would beg, in furtherance of so laudable an idea, to mention some belonging to the handsome order Scrophularineæ, which appear to me well calculated to repay our best attention, though but seldom met with in ordinary collections. What could have banished from our greenhouses such plants as *Pedicularis*, *Isoplexis*, *Manulea*, *Castilleja*, and some others of like character, I am at a loss to understand. It is true we retain some representatives of the

order, as *Besleria*, *Achimenes*, *Maurandya*, and *Mimulus*; but there can be no doubt in the minds of those who happen to know the best species of the genera first mentioned, of there being at least a full equality between them and those of the genera commonly grown. For the present I will confine my remarks to those already mentioned, and as they happen to have fallen under my care, I will give you the particulars of their management, that if any lover of plants for their own beauty should feel disposed to adopt them, he may have at least a basis for future operations.

The species of *Pedicularis* are what is commonly called frame perennials, which implies that they are capable of withstanding all the vicissitudes of our climate with the exception of frost, from which they must be protected either in good pits or the greenhouse; in summer they are eminently ornamental either in the open air or in the greenhouse.

There is one species, the *P. sceptrum carolinum*, which on account of its large masses of brilliant yellow flowers should always be grown for flower-gardening purposes, and as it possesses much of the character of the *Salvia*, is well suited for grouping with them, and as its colour is not present in that genus, or but very rarely, the advantage of adding this plant for variety will be evident; the greater part of the species are of the same colour, though a few have the more common tints of the order, purple and pink; the peculiar blending of all these colours in *P. flammea* is well expressed in its name, for it has exactly the vivid shades of fire.

Their culture is by no means difficult; propagation is effected by seeds and division of the plants; the principal matter to be attended to is their careful preservation from frost and damp in winter.

*Isoplexis* is but a small genus, containing two species, *canariensis* and *sceptrum*; both have deep orange-coloured flowers, produced on densely-filled large spikes; they are from Madeira and the Canaries, and consequently with us require the treatment of greenhouse plants, bearing to be placed in the open air through the middle of summer. They partake more of a shrubby character than the former genus, and grow considerably larger. They

delight in sandy loam and peat ; the young plants should be kept in the dormant season in small pots on a warm light shelf in the greenhouse, and early in spring should be shifted at once into large ones ; they grow away rapidly, and by June become filled with their immense flower-spikes. While growing they may be treated liberally with manure water, but at other times must be carefully guarded from excessive moisture, especially of a stagnant nature.

The genus *Manulea* contains five or six species, far too good to be suffered to lie in obscurity ; those I would particularly recommend are *rubra* and *tomentosa*, dwarf-growing shrubs, and *rhynchantha* and *violacea*, evergreen herbaceous perennials, all of them ranking among greenhouse plants. The first-named species rises about two feet high, its bright red flowers are produced in rather remote racemes, but sufficiently numerous to form an elegant object when well grown. *M. tomentosa* has a more decumbent habit, not attaining more than a foot in height ; its flowers are similarly produced, but the spikes are more dense ; the blossoms are yellow. Both these grow best in very sandy, well-drained peat, with rather limited pot-room ; they should have a warm position in winter, and plenty of air and water in the growing season.

Of the two herbaceous species, the first mentioned has yellow flowers, and those of the latter are violet ; the soil for them should have an addition of one third loam, and in winter they should be kept rather dry. In general management they may be assimilated with *Calceolarias*. With respect to *Castilleja*, you have recently shown what a handsome object the old and almost forgotten *C. lithospermoides* may be made, and at least the same may be said for the closely-allied *C. coccinea* ; nor is it mere fancy to suppose the yellow-flowering *C. sessiliflora* may be made to contribute almost equally to our summer's display, it can only be requisite to point out omissions in these days of determined perseverance and enterprise to have them corrected.

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## PROPAGATION OF BEDDING PLANTS.

THERE are a few plants, quite indispensable to the flower-garden, which often cause considerable trouble in providing a sufficient stock when their propagation is deferred till spring, that, however, may be increased to almost any extent with the greatest facility if attended to at the present season; a hint directing attention thereto may consequently be useful. The plants alluded to are such as the shrubby *Calceolarias*, the varieties *viscosissima*, *integrifolia*, *aurantia multiflora*, and in fact most of them are, it is well known, extremely uncertain in striking any time through the spring, in consequence of their liability to become rotten, or "damp off," as it is called. The reason appears to be the susceptibility of their then very soft tissue to injury from confined moisture, and as it is impossible to impart any appreciable amount of maturity or ripeness to the shoots at that season, disappointment must continue to follow the practice of depending on the spring growth for the supply of plants to form the summer's decoration.

Scarlet Pelargoniums, too, can never be had of sufficient size or properly established, unless they are at least struck in the autumn; when neglected at that time, they must either be forced from Christmas onwards, or it is the middle of March before a cutting can be got; the produce of the first method are weak watery things, that require an infinitude of nursing to preserve them, and those from the latter make no appearance in the flower-garden till quite the close of summer; besides which, it is always far more difficult both to obtain the cuttings and strike them in spring than it is in the autumn, the one requiring hot-beds or bottom heat of some sort, with stove temperature above, and all the paraphernalia of a propagating house, while in the other a common handlight in the open ground, or even the corner of a shaded border is sufficient to ensure the speedy rooting of nearly every cutting put in. For the same reason, the dwarf *Lobelias*, such as *L. erinus*, and especially its variety *compacta*, the creeping *Campanulas*, and a host of other similar things, should all be increased to the full extent of the anticipated requirement of the succeeding season.

Autumnal sown annuals are too often passed over as not worth the trouble attending their preservation through the winter ; but they will be found most efficient stopgaps in the beds immediately after the removal of the spring-flowering bulbs, and before the subsequently introduced plants can be got into bloom. Annuals that have been well kept, and are consequently in good condition if planted alternately with the permanent occupants of the beds, will, in all probability, be in blossom at the time of their transplanting, or if not then will be immediately after, and can be removed as soon as the other plants begin to require more space.

I need not go on particularizing the several plants that are benefited by the treatment I advocate, but will proceed to meet the objection most likely to be urged against it in the additional room required for the plants so increased through the winter ; and, first, I would beg to remind cultivators or their employers, that large attempts with limited means are usually abortions, by which I mean that no one ought reasonably to expect a large flower-garden can be kept in proper order without corresponding appliances ; that more space will be required cannot be denied, unless the extent of beds to be ultimately filled is reduced, and where the winter accommodation cannot be enlarged, it would certainly be the most advisable course to reduce the requirements proportionate to the existing means of meeting them, because, as in everything else connected with gardening, it is better to have a little done well, than a greater quantity only attempted. At the same time, many of the plants propagated in autumn, will stand very well several together in the pots in which they are struck, in the manner of the nurseryman's stores, which will economise the standing room through the worst part of the season, and if these are repotted about the time that under other circumstances the cuttings would be taken, there is not a doubt of their being at least a month in advance.

While on this subject, I may mention the stock of Verbenas to be preserved through the winter should be provided without delay, I have invariably found the cuttings taken off the first week of September form plants which stand better than those of any other age ; the earlier plants grow too large, and being filled with young wood, are very likely to suffer from mildew, while the later ones

are not sufficiently established before the winter sets in ; those recommended should, however, be struck as quickly as possible, and after potting, should be placed in a sunny position out of doors as long as the weather will permit, in order to harden their tissue and prepare them for the severities of the coming season.

HORTULANUS.

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### CULTURE OF IRIS XIPHIODES.

It is somewhat remarkable, amid the thirst for novelty which now prevails, that florists do not turn their attention to the easily-managed, showy, and variable English Iris ; it is a class already of sufficient magnitude to afford a rich display, were some little pains taken to collect the varieties, and with attention there can be no doubt of a very great improvement being effected. It contains naturally more colours of a primitive kind than most other classes adopted as fancy flowers, the blending of which appears to be as easily effected as can be desired, and though the present outline of the flower is widely different from the regular figure to which the florist usually reduces his subjects, it has all the advantage of elegance unconstrained, and would come with a degree of freshness on the notice of the flower-loving public. All or nearly all the present varieties (certainly the best of them) are of German origin, and though called the English Iris, appear to have been hitherto sadly neglected in our country, and though an old flower, there are hundreds of even professional gardeners and florists who never saw the species except in its normal character, or may be in the shape of one or two of the earlier deep blue, narrow-petalled varieties, which, from their constitutional hardiness, have lived in the borders despite the annual exterminating efforts of the spade.

Its appearance on a show table is certainly unsurpassed by that of any other family, and the relief with which the eye rests on their cool tints after gazing on the bright glaring colours which distinguish the florist's flowers of the same season must be felt to be fully appreciated. Red, white, and blue are the prevailing colours of the class: the last is most common and the first the most rare,

white is seldom absent ; and the variations of the three may easily be rendered indefinite ; the mixing is almost at the pleasure of the cultivator, for they are easily operated on in the way of cross-breeding, are certain to produce abundance of seed, which is always of a sportive character as regards the future plants.

Their culture is of the easiest description ; with a few simple directions the merest tyro may manage them, and moreover, they will grow in any situation that is not immediately under trees and that has moderately good soil. The seed is usually ripe about the middle of August, which may be known by the capsules splitting ; it should be gathered when perfectly dry, and kept in bags till the following March. A bed of light rich earth should then be made up in a rather warm position that will be slightly shaded at noon in the middle of summer ; if this bed is not of a naturally light loamy soil, it should be brought as near as possible to that condition by artificial means ; into it the seeds are to be sown not later than the middle of the month, distributing them thinly in drills about an inch and a half deep and six inches between the rows ; rake the ground level after sowing, and press it pretty firmly. No further trouble need be taken with them beyond the necessary weeding, and the application of water if the summer prove very dry, till the autumn of the second season after sowing, when they will have attained a sufficient size for removal, and may be expected to bloom in the following summer ; their treatment after this is that of mature bulbs.

The best ground for them is rather strong loam of a slightly retentive nature, which should be further enriched with a liberal allowance of manure put on and dug in some time in September ; the earth should be well pulverized, and the manure buried at a regular depth, full six inches from the surface, or it is likely to turn up again in the planting. As a rule, the bulbs should not be kept out of the ground beyond six weeks on any consideration at any time, more especially when only of the age of those described ; a contrary course so materially injures them that many do not survive it, and few bloom in perfection. English Iris kept dry till spring, as we so often see them in shops, are scarcely worth planting, for it is only by the merest chance that any vegetate again after such treatment. I would impress this on the

attention of all who purpose growing them, for it is the most and almost only particular point in their management.

The middle of October should be the latest period for planting the blooming roots: these should be placed in rows four inches from each other, and about twice that distance between the rows, burying them about four inches, reckoning from the base of the bulb. The planting is best done by removing the entire surface of the bed to the depth required, and after placing the roots, return the soil carefully, and they will want no further attention, unless to shade the flowers, beyond the ordinary cleansing common to all flower-beds. The roots may again be taken up, separated in the next October, or they may remain two years before they are again disturbed.

J. T. L.

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### THE MANAGEMENT OF AUTUMN STOCKS.

THERE are few things more truly useful in the early part of the floral season than well-managed Stocks, which, blooming in profusion from March till the end of May, or even longer if required, make a return far exceeding that of ordinary subjects, when the trouble of their respective culture is compared. The sort best suited for autumn sowing is that known as the Scarlet Intermediate, a kind partaking of the strength and size of the Brompton Stock, and the precocity of the German or ten-week varieties; in colour, though called scarlet, it is a light rosy crimson of untarnished brilliancy, and being hardier than most others, and at the same time attaining the largest size that would be manageable in pots, is almost universally selected for the purpose. In its absence the next best sort is the similarly coloured variety of the ten-week kind; this differs from the other in being smaller and rather more tender.

The seed should be sown about the end of August or beginning of September, either on a warm border or in pans to be placed in a frame, care being taken to sow thinly, so that if the extra business of autumn should render it difficult to attend to them immediately they require it, the young plants may not be spoiled



by drawing up weakly, as would be the case if they stood thickly together.

The potting should not be deferred beyond the early part of October ; in doing this it is usual to put three plants into a three-inch pot, though it is preferable to place but one plant in each pot, if sufficient room can be spared to accommodate them through the winter. The soil should be sandy loam alone ; this suits them best, because, though never excessively wet, it retains moisture for a long time in a moderate quantity, and thus precludes the necessity of frequent applications of water, than which nothing is more injurious : Stocks will bear a great degree of cold when the foliage is dry, but stagnant moisture is positively fatal to them. After potting they should be left out of doors on a warm sunny spot, as long as may be considered safe, and if precaution is taken to hoop them over, that protection may be given from the autumnal frosts, they may in dry seasons be left out till the middle of November : by this time they will have rooted well and grown considerably ; being divested of dead leaves, and the surface of the mould and the pots thoroughly cleaned, they should be placed in the frames that are to guard them through the remainder of the winter. It is not positively necessary that they occupy the best frames, as almost any make-shift affair will keep them, though, as a matter of course, the more carefully they are preserved, the better they will look in the spring, and unless they are not wanted till time has been given for them to grow at that season, it would be unwise to subject them to much frost ; those required to bloom early must be nursed more particularly than the late flowering ones. An excellent protection may be given to the most forward by means of turf-pits covered with spare lights, while for the later plants a mat thrown over in severe weather is usually sufficient.

In February they should be repotted, each one by itself into a four-inch pot, using on this occasion rich soil, composed of equal parts loam and thoroughly decomposed manure ; on the strength of this mixture depends much of the future display. Most persons have heard of the ancient infallible method of determining the double ones from the single by means of the roots ; all those with branching fibrous roots, says the recipe, are certain to produce double flowers, while those with a descending tap root are

equally sure to prove single. This is positive nonsense; for if a tap-rooted plant be taken and placed in rich soil and properly attended, while one with the divided fibrous root be planted in poor soil, in nine cases out of ten it will be found the first is double and the other not so; it is the quality of the earth that determines it chiefly, for of thirty plants taken promiscuously and put out in strong rich soil, this season, twenty-seven proved double, and from the same number of the same sort, planted in a hot hungry soil, only nine were double. The subsequent management of the plants will have to be determined by the period at which they are desired to bloom, those required in March and April must be covered with lights and carefully protected at night, while those for May will only need to be guarded from the severities of the season; water must be given to both in very moderate quantities.

J. T.

*Bermondsey.*

## DESCRIPTIVE LIST OF NEW PLANTS.

### CAPRIFOLIACEÆ.—*Pentandria Trigynia*.

*Viburnum macrocephalum* (Fortune). This beautiful plant exists in the garden of the Horticultural Society, where it has flowered, having been received in June, 1844, from Mr. Fortune, who found it in Chusan and in Shanghae. In the 'Journal of the Horticultural Society' it is described as "a deciduous bush, covered all over with coarse, starry, scurfy hairs. The leaves are about three inches long, very exactly ovate, very blunt, on short stalks, slightly toothed, quite flat, and not unlike those of an apple. The flowers grow in large, compound cymes, which, in the neuter state (that in the garden), are as much as eight inches in diameter, not, however, globose, like those of a Gueldres rose, but rather pyramidal. Each flower is full  $1\frac{3}{8}$  inches in diameter, snow-white." Mr. Fortune speaks of it thus:

"This noble species was also found in the gardens of the rich in the north of China, and will probably prove perfectly hardy in England. There is a tree of it in a garden in the island of Chusan, at least twenty feet high, which, in the month of May every year, is covered with its snow-white blossoms."

When grafted, it blooms on small plants in pots, and is not unlike a white Hydrangea, by which name it is known amongst the Chinese. It is certainly one of the finest hardy shrubs that have been introduced. Even in the greenhouse, and in a pot, its hearty bearing is conspicuous. Hitherto it has been grown in a mixture of sandy peat and loam.—*Bot. Reg.* 43-47.

CAPRIFOLIACEÆ.—*Pentandria Monogynia.*

*Lonicera discolor* (Lindley). Among the plants collected under the common name of *Lonicera* is a set of species remarkable for the ovaries of contiguous flowers so entirely growing together, that to the eye there seems but one; and when they fruit, the berry which they bear has all the appearance of being simple, until the eye rests upon the calyx, which is found to be double. These curious shrubs Adanson separated from *Lonicera* under the name of *Isika*, and it is, we think, to be regretted that his views have not been followed. We shall not, however, disturb the existing nomenclature, which may serve the purpose. The plant now mentioned is one recently imported from India, through the East India Company, by whom the seeds were presented to the Horticultural Society.

It is a fine, hardy, deciduous shrub, from four to six feet high, and flowering about the beginning of June. In September and October it has a profusion of large black berries.—*Bot. Reg.* 44-47.

FABACEÆ.—*Decandria Monogynia.*

*Gastrolobium villosum* (Bentham). This fine orange-flowered shrub is a native of the Swan River Colony, where it would seem to be common. It was first found by Mr. James Drummond, from whose specimens it was described by Mr. Bentham.

Its introduction to notice in the gardens of this country is owing to Messrs. Low and Co., by whom it was flowered in May last. It promises to be a very pretty greenhouse plant, and will require the same kind of treatment as *Chorozemas* and similar plants.—*Bot. Reg.* 45-47.

CYRTANDRACEÆ.—*Didynamia Angiospermia.*

*Liebigia speciosa* (Endlicher). This is a lovely plant, well

deserving the name of "*speciosa*," and in its genus equally worthy to bear the name of the most distinguished chemist of the present day. It was discovered in Java by Blume, and by him published as a new genus under the name of *Tromsdorffia*; but, there being already a genus of Martin's bearing that appellation, that given by Endlicher is here adopted. The species was imported from Java through the means of that zealous collector, Mr. Thomas Lobb, and it was flowered by Messrs. Veitch, of Exeter, in February, 1847.

It is an herbaceous plant, with a stem rising a foot and a half to two feet high, terete, rough, with harsh down. The leaves are large, opposite, petiolate, rough on the upper side, with rigid hairs, the form between ovate and elliptical, acuminate, serrated, penninerved, and reticulated. Peduncles axillary, aggregated, much shorter than the leaves, forked or dichotomous, the upper ones almost paniced or corymbose, the pedicles bracteated. Flowers drooping, calyx tubular, subcylindrical, tapering at the base, the mouth cut into five erect, nearly equal teeth. Corolla tubular, limb spreading, oblique, of five nearly equal lobes, pale yellow-white, with a purple tinge above, near the base. Filaments four (with an imperfect fifth), of which two are abortive, terminated each by a lax tuft of hairs; the longer ones are fertile, and have also a short tuft of hair beneath the anthers.—*Bot. Mag.* 4315.

PROTEACEÆ.—*Tetandria Monogynia*.

*Dryandra carduacea*, var. *angustifolia* (Hooker). A Swan River species of *Dryandra*, discovered by Mr. Drummond, and reared in the Royal Gardens of Kew, from seed sent by that indefatigable and most successful botanist. Our living plants in the proteaceous house only differ from dried ones in having narrower leaves. It flowers in the spring months. It is a branching plant, with rather distant, linear-lanceolate, rigid leaves, armed with broad decurrent teeth. The flowers are yellow, and here, as in most other parts, the plant bears a thistle-like appearance; and hence its very appropriate name.—*Bot. Mag.* 4317.

LABIATÆ.—*Decandria Monogynia*.

*Salvia leucantha* (Cavanilles). This rare and remarkable *Salvia*

possesses in its numerous flowers, in the rich violet or lavender-coloured tomentum of the calyx, and the pure white of the corollas, a beauty which cannot well be represented. It is a native of Mexico, and has now been first introduced to the greenhouse of this country, from a garden at Nice, by Lady Smirke, Great Stanmore, in whose collection it flowered in June 1847.—*Bot. Mag.* 4318.

SCROPHULARIACEÆ.—*Didynamia Angiospermia.*

*Penstemon Gordoni.* For the opportunity of figuring this charming species of *Penstemon* I am indebted to Edward Leeds, Esq., of Manchester, who raised it from seeds given him by Mr. Shepherd, of the Botanic Gardens, Liverpool, and which had been collected by Mr. Gordon in the valley of the Platte River, on the east side of the Rocky Mountains. In many respects it approaches the *Penstemon speciosus*, an inhabitant exclusively of the Oregon territory, west of the Rocky Mountains; but that has much narrower leaves, a less leafy panicle, deeper coloured flowers, a larger calyx, and, above, all, the anthers and sterile filaments glabrous. The present species seems to be quite hardy, but, Mr. Leeds observes, is impatient of too much moisture, and it should be kept quite dry from November to February. It flowers in June, when the large sky-blue flowers render the plant a beautiful object.—*Bot. Mag.* 4319.

CYRTANDRACEÆ.—*Didynamia Gymnospermia.*

*Æschynanthus speciosus* (Hooker). This, in our opinion at least, was the most charming of the many fine plants exhibited at the Regent's Park Garden show in May 1847, and is unquestionably the most beautiful species yet known to us, of a genus eminent for the rich colouring of its blossoms. Judging, however, from the dried specimens of another kind (*Æ. longiflorus*), which has yet flowered but imperfectly with Messrs. Veitch and Son, we shall soon have the opportunity of figuring one which will vie with the present, if it does not exceed it, in the size of the flowers and in depth of colouring. Mr. Thomas Lobb, from whom the seeds were received by Messrs. Veitch and Son, detected this plant in Java, on Mount Asapan, near Bantam, attached to the trunks of forest trees. The flowers are produced

in terminal fascicles of from six to ten, and even twenty, between three and four inches long, full orange, with the extremity scarlet, the tube clavate, curved downward at the extremity, and there convex at the back, concave or caniculate beneath (within glandular); the mouth oblique, four lobed, the lobes patent, rounded, the upper one bifid; each lobe bears a lunulate black line, forming the boundary between the orange and red colour.—*Bot. Mag.* 4320.

RUTACEÆ.—*Octandria Monogynia*.

*Correas*, seedling varieties, raised by Mr. Gaines, nurseryman, of Battersea:

1. *Brilliant*. A large, rich, crimson flower, the segments of the limb margined with green.

2. *Rubra*. Large; the upper portion of the tube bright red, the lower part and segments dull brown.

3. *Curiosa*. Resembles the last, except that the bottom of the tube and mouth is olive green.

4. *Rosea alba*. A long, slender tube, bright rose colour, fading at the extremity to pure white.

5. *Pulchella*. A short, thick flower, spreading almost to a campanulate form; very bright red.

6. *Magnifica*. Very large cream-coloured flower.

7. *Delicata*. Short tube and patent limb; rose colour.

8. *Viridiflora alba*. A long, slender flower; the upper portion of the tube for nearly three parts of its length pure white, terminating in a very bright green at the mouth.—*Pax. Mag. Bot.*

PASSIFLORACEÆ.—*Monadelpia Pentandria*.

*Passiflora Kermesina Lemicheziana*. This very handsome hybrid is said to have been raised in Paris, by a nurseryman of the name of Lemichez, whose name it bears. It was introduced by Messrs. Rollison to this country, in whose collection it flowered in October 1846. As a stove climber it certainly is well deserving of extensive cultivation, being of luxuriant habit, with moderately strong stems; beautiful, shining, dark-green foliage; and producing great abundance of fine deep-crimson flowers, after the manner of *P. Kermesina*.—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria*.

*Cattleya bulbosa* (Lindley). Brazil is supposed to be the pa-

rent of this exquisite little species, but it is not certain. We are indebted for it to Mr. Rucker, with whom it flowered in May last. It belongs to the same section as *C. Aclandiae*, from which it differs in its having much larger lateral lobes to the lip, a very differently formed middle lobe, and flowers of quite another colour. It may also be compared with *C. pumila*, which should be placed in the same section with the latter. Indeed, it accords in its stems, resembling pseudo-bulbs, and its colour, but the flowers are much larger, and the lip flat, not rolled up and crisp.

The flat, shovel-shaped lip is of an intensely deep crimson, which gradually melts away till it loses itself in the imperfect lateral lobes, which are pink, bordered with crimson. The sepals and petals are also pink.—*Bot. Reg.* 42-47.

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#### FLORICULTURAL HINTS.

*Hybernation of Auriculas.* This subject will shortly engage the florist's attention, and to beginners is often a troublesome question; the recommendations of authors are as various as they are numerous: some advise their exposure to ensure hardiness, others tell us they should never know what frost is; a medium course I think the safest, and this is how it may be managed:—the first indication of winter we usually receive is about the middle of October, by which time the plants will or ought to have become re-established in their pots, the roots having spread through the new soil, and the foliage of autumn become fully developed, consequently the next epoch in their existence should partake largely of the dormant character so beneficial to vegetation of all sorts; I say largely, because it cannot be exclusively so, on account of the ever-growing habit induced by high-breeding to the fancy varieties of this flower; this being their nature, it is evident we shall commit an error in encouraging further development at so late a period, because by this course we increase their susceptibility to injury from cold at another and still more severe season; to obviate this, I set the plants into frames about the first week of October, or a little earlier if the weather prove excessively wet, standing the pots on a trellised platform, and elevating the frame at least six inches from the earth, in addition to

which the lights are constantly off, except a probability of wet occur, and then they are tilted three or four inches at the back ; this is the course pursued till Christmas, with one further exception, which is at the time the autumnal frosts occur, they are shut close at night. As this period seldom extends over a fortnight, the plants are in effect merely sheltered from excesses ; they often get slightly frozen at this time, which I regard as rather favorable to them than otherwise, as inducing dormancy ; but after December I am as careful as any one to preserve them unscathed, especially in February, when the bloom stems are rising, as a check of the kind then is sure to be evinced in the form of crumpled petals.

*Planting Tulips.* I really wish I could induce some public grower to plant his bed in the Dutch method, with only five roots in a row instead of seven ; the superior advantages it gives in the arrangement of the classes more equally throughout the bed, the extra freedom allowed the plants, and the additional ease with which each may be examined, would, I am sure, render its adoption very general, were they once made known in the manner suggested ; to a beginner with only a limited stock it is far the best, as he may thus increase his display by what will appear so many additional rows.

To the same individual I would say, in planting avoid the use of recent manure, and any excessive application of even that reduced to its best form. The tendency of too much manure is to flush the flowers ; you may frequently observe the strongest bulbs will have foul blossoms, which may justly be attributed to an undue supply of food ; on the other hand, enough must be given to maintain the requisite degree of vigour, still it is safer to err on the minimum side, for a small clear flower must ever be preferred to the largest in bad condition. The beds should be got ready as soon as convenient, as the offsets and small seedling roots should be planted early next month.

*The preservation of Polyantheses* is yet an unsettled question, whether it is better to keep them in frames or leave them to the mercy of the winds, remains undetermined, for what evidence we have oscillates most wonderfully ; under the contradictory management they often receive, the problem to the plants is in reality "to be, or not to be," and the negative most usually prevails.



Much must depend on position and the state of the plants ; strong specimens with a firm hold of the ground I think may be safely trusted, but to leave small plants exposed to the vicissitudes of the weather appears to be asking too much of them, such I would pot immediately and treat them like Auriculas. Seedling plants are usually more robust, and as the chances are scarce one in ten thousand of their being worth frame-room, they may be left to enjoy their present position.

FLORISTA.

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LITERARY NOTICE.

*Manual of Fruits.* By GRAY, ADAMS, and HOGG, Nurserymen, Brompton Park Nurseries, London.

THE improvement of the ordinary trade catalogue of nurserymen is a matter which the present state of horticulture imperatively calls for ; the mere enumeration of the plants on sale is not now sufficient, the trade-list should supply to the intending purchaser the means of discriminating, that his requirements may be met without exacting a previous acquaintance with the subject, or the chance of disappointment. The array of unmeaning names, and the frequency of error which characterises the majority of the catalogues of the present day, render them objects of repugnance to a cultivated mind, and none but the enthusiastic devotees of Flora care to suffer the infliction of reading them. Why nurserymen permit this injury to their interests to exist we are at a loss to conceive, as its removal can only require a trifling exertion of the mind in planning a new list, and a careful revision of it in its progress through the press. In the catalogue before us, however, we are presented with a most pleasing contrast to the usual form ; it is confined to the enumeration of the fruit-trees grown in the Brompton Park Nurseries, the number of which includes every variety of note cultivated in British gardens ; these are so fully, tersely, and, withal, so accurately described, that it seems next to impossible for misconception to arise. It should serve as a model in this respect to the other catalogues of the trade, and to every fruit-grower is indispensably necessary.

GLOSSARY OF TERMS USED IN BOTANICAL  
DESCRIPTIONS.

- ROTATE.** Applied to a monopetalous corolla, which is remarkable for a very short tube and flat, spreading limb.
- ROTUNDO-OVATE.** An abruptly rounded egg-shape.
- RUDIMENT.** An imperfect development.
- RUFIOUS.** Orange-colour, stained with red or brown; rusty.
- RUGOSE.** Rough, either with short hairs or wrinkles.
- RUGULOSE.** Indented with very small wrinkles.
- RUNCINATE.** Applied to lyrate and other leaves, when the acute points of their lobes are presented towards the base, or hooked backwards.
- RUNNERS.** Creeping shoots, which root at intervals of their length, or at the extremity.
- SACCATE.** Formed like a bag or pouch.
- SAGITTATE.** Shaped like an arrow-head.
- SAMARA.** A winged seed-vessel, commonly called a key, as those of the ash and other trees.
- SAPID.** Of an agreeable, pleasant taste.
- SAPONACEOUS.** Of an oleaginous nature, like soap.
- SARMENTA.** Small, procumbent, rooting shoots or runners.
- SARMENTOSE.** Producing sarmenta.
- SCABROUS.** Covered with little, rough protuberances.
- SCALES.** Small leaf-like processes, common at the articulation of the branches of soft-wooded plants, and the involucrem of *Compositæ*.
- SCANDENT.** Climbing.
- SCAPE.** A flower-stem which rises directly from the root.
- SCION.** A small branch intended for grafting; a graft.
- SCROBICULATE.** Indented with little hollows or pits.
- SCUTATE.** Buckler-shaped.
- SECUND.** Proceeding from one side only, as the flowers of *Dendrobium secundum*.
- SEGMENTS.** The natural divisions of a leaf or flower.
- SEMINAL.** Belonging to or originated from seed.
- SEPAL.** The segments of a calyx. \*
- SERRATED.** Cut like the teeth of a saw.
- SESSILE.** Devoid of footstalks.

SETACEOUS. SETOSE. Formed like, or covered with, bristles.

SETÆ. Stiff pointed hairs; bristles.

SHEATH. The lower part of a stem-clasping leaf; the portion which enfolds the stem.

SILICLE. A small round pod, or seed-vessel.

SILIQUE. A long taper pod, both common to Cruciferae.

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### CALENDAR OF KITCHEN GARDEN OPERATIONS FOR SEPTEMBER.

THE early part of the month, if the weather prove showery, should be occupied with getting out all the remaining winter crops, as the sooner this is done the better chance the plants will have of becoming established before winter. Plant out more cabbages, late brocoli, and coleworts—the latter should be run out whenever there is a bit of vacant space not likely to be wanted before the spring. All the advancing crops, both of this tribe and others, such as dwarf beans, &c., should be earthed up as they seem to require it. The main crop of onions should be got up in fine weather, and spread out to dry preparatory to their being stored for the winter. Carrots, also, will be fit for removal by the end of the month, and at the same time the beet and parsnips may be taken up. None of these roots should be allowed to lay about previous to storing—let them be taken up, the tops trimmed, and the roots placed in layers with sand between, in some shed or other place that will secure them from frost. This keeps them crisp and full flavoured. The first crops of the late kinds of potatoes will also be coming ripe, and may be got up at convenient times, though, where they have been well earthed up, the roots will be safe in the ground for some weeks yet. Jerusalem artichokes are now fit for use, and may be taken up as required. Advancing turnips will require their last thinning some time in the course of the month: they should be left not less than eight inches apart. Where any failures appear the spaces may yet be filled by sowing. Salad plants require considerable attention. Celery must be earthed to blanch as it grows, keeping the mould just below the spread of the leaves. The later crops should be got out without delay. Endive should be tied up or covered with a flower-pot to blanch as it arrives at

its full size. Succeeding crops should be planted in sheltered situations: the same remarks apply to lettuces.

A good deal of sowing has to be done this month. Cauliflowers occupy the first attention—those sown last month will want pricking out on a warm border, and a second crop should now be sown, for if the others are a little too early, they produce no heads. Two sowings of lettuce should be made, the first immediately, for winter use, and the other at the end of the month, to stand over till spring. Onions for transplanting should also be sown on a warm border, and along with them a few frame radishes, together with corn and small salads. If the previously sown spinach does not wear a promising appearance, it will be best to sow again, rather than run any risk as regards the supply. Where such things as angelica, chervil, dill, and borage are grown, the seeds should be sown now; and plantations of all pot-herbs may be made with better success than at any other season. The existing plants of this kind should be cut down and their tops dried for winter use.

A further succession of leeks should be put out, and the first planted may be earthed as they become large enough. A prejudice appears to exist against this plant without any real foundation. Many persons fancy them to be strong flavoured, though they are decidedly milder than the onion, and for soups or other dishes of the kind are greatly to be preferred. Tomatoes must be kept well thinned, and the shoots secured in their places, that the fruit may be encouraged to ripen. Capsicums in the open ground must have every assistance towards the same end. The ridge cucumbers appear to be suffering this season from some inexplicable disease, whose first symptoms are the sudden and entire death of the plant. Several have come under our notice in various places that have been apparently in excellent health in the morning, and by night have presented nothing but a shrivelled mass. The cause is not understood, but we would use extreme caution in the application of water. The branches must be spread as far apart as possible, and the foliage kept moderately thin.

The press of business at this part of the year is generally great, but it must not cause any neglect in the extirpation of weeds, many of which flower in this month, and, if not carefully removed, will create an immensity of labour in the following spring.





1. CHOROZEMA VARIUM. 2. GOMPHOBIUM POLYMORPHUM VAR. SUPERBUM.

*A. Adlars*

## NEW HOLLAND PLANTS.

WITH AN ILLUSTRATION OF THE GENERA CHOROZEMA AND  
GOMPHOLOBIUM.

By the general term we use for the heading of this paper, gardeners designate an extensive and very ornamental group of plants, which constitute an important section of the vegetation that in our climate requires to be cultivated in the greenhouse; under the same term, however, it is common to include not only the plants of New Holland, but also those of Australasia generally; and when the fine climate and character of that quarter of the world is thought of, it is by no means surprising they should form so considerable a portion of our choicest floral treasures. The group is numerically large, and, as may be supposed, contains subjects varying from each other in nearly every character; the entire habit, and the form and colour of the several parts of each are changed in numberless variations; the strongest contrasts may be found among them, which are again merged by the many and almost imperceptible gradations that find a place between; every transition is present, from the lofty *Dacrydium Mai*, by whose side our forest trees would appear mere pigmies, to the humblest form that arborescent vegetation can assume: yet in two respects they are identical, they are all evergreen, and may be all cultivated by the same management.

In their native positions most of these plants are found more often in isolated patches than in any great quantity together; large tracts of country being thinly scattered over with clumps of under shrubs, and remarkably destitute of tall trees, a circumstance which also marks the vegetation of the Cape of Good Hope, whence are obtained another highly ornamental class of plants, the Heaths; and in an artificial position both classes exhibit the same love of bright, clear light and fresh, moving air, that a knowledge of their habitats would lead us to suppose necessary, and hence we may gain a correct idea of the leading feature in the management; they are so strictly "children of the free air," as to refuse existence in an impure atmosphere, and consequently on the manner in which they are supplied in this respect depends much of the success attending their culture.

The erection in which these plants are to be grown should, if possible, be devoted to them alone, on no account admitting any tribe but of the same indurated hard-wooded character among them. Heaths are commonly grown along with New Holland plants, but the latter like to be kept a little warmer, or at least to avoid the chilling breeze which appears to invigorate their hardier fellows, and would therefore be better alone; the difference required, it is true, is not much, but on trifles depend many great results, and though, by a careful arrangement, each may be suited, and the whole kept together, we repeat, they would be more easily and certainly managed were the two classes separated. Soft-wooded plants must not be tolerated among them at all, where high culture is designed with either, except as an occasional ornament when in bloom, as the amount of evaporation proceeding from them would be highly injurious to the more feeble organs of assimilation of their neighbours, while the necessary admission of air to dry these vapours would prove more than the latter could bear, and thus both would suffer. The best form for a house intended for these plants is a parallelogram, with a low span roof, standing so that the *ends* may face to the north and south; the main body of light, entering by the sides from the east and west, is more equably distributed among the plants, they are protected to a great extent from the overpowering influence of a mid-day summer's sun, and by the admission of air the temperature of the house can be kept down in summer far more efficiently than when, with a southern exposure, the powerful sun-rays dart directly through the glass upon the plants; besides which, the difference between the summer and winter seasons is in a peculiar degree lessened by this arrangement, for though there is less heat and light in summer, there is more of the latter and less positive cold in the winter, in consequence of the smaller surface exposed to the direct northern blasts, and the larger space offered to the morning sun. It is essential, where the culture of these plants is desired to be carried as far as excellence, that due attention be given to the form and capabilities of the erection in which they are to be grown, as experience shows they thrive considerably better when retained in the greenhouse always, than they do if turned out of doors in the summer, as is the usual practice with plants of the class. But to do this, we must



have a house that is equally manageable in one season as the other, for though, as before remarked, they are greatly improved under favorable circumstances by this protection at all times, it may be readily imagined they will not bear the roasting of a southern exposure to the fervid heat of a July sun.

Where accommodation of the kind cannot be afforded, the plants must be removed to the open air from the time when the increasing heat of the season begins to make it a matter of difficulty to keep them cool enough, until its decline permits their return; during this period, however, they are subject to such sudden and extreme fluctuations of heat and moisture, that their summer management, instead of being the easy thing some suppose it, is by far the most troublesome of the whole year, and hence the advantage of having them constantly under protection, where it is of a kind that will allow their requirements to be attended to. A "New Holland house," as it is called in gardening phraseology, should be built as light as possible, standing in the position named; the roof should be brought near to the plants, which we hold to be a better direction than that which recommends the elevation of the latter near to the roof, inasmuch as in the one case there is a great saving of heat, and, in the other, there is a waste of it necessary to warm a considerable unfilled and useless space; the whole of the sashes should be made to move, or, at any rate, very efficient means secured for ventilating, that a full and free supply of both light and air may be ensured for the time when both are required in an unlimited quantity. The means of heating should be of a character at once ample and easily controlled; it matters little what system is employed, so that the desired object is attained in a simple and inexpensive manner, which is merely to guard them from a depression of temperature to a point below  $35^{\circ}$ . True it is, they will bear several degrees of frost without apparent injury at the time, but it is not good management which allows them to become frozen at all, and where this tribe is cultivated by itself, the minimum temperature they should ever experience is far more safely stated at  $40^{\circ}$  than lower; they do not indeed evince any impatience of cold to an extent of  $5^{\circ}$  or  $6^{\circ}$  of freezing at the time it occurs, but in most cases its effects become apparent when the plant's seasonal action should commence; instead of then breaking vigorously and ex-

tending its branches in a healthy desirable manner, it is soon evident the plant is out of order, the old leaves turn brown at the edges, and the young ones wear a crumpled sickly appearance, which often continues through an entire season, by no means unfrequently terminating in dissolution, especially if any little error is committed in the regulation of the supply of water; the least overdose to a plant in this condition is fatal. At the same time it is necessary to observe, a high temperature is equally objectionable; in fact, its effects are sooner made known in the shape of weak, spindling shoots, which, after struggling for a time, take a yellow, sickly hue, are attacked by mildew, and die.

The most proper temperature for these plants for the entire year, is a range between  $40^{\circ}$  and  $55^{\circ}$ , the latter being the summer maximum; in winter it should not exceed  $45^{\circ}$  or  $48^{\circ}$ ; whenever, by force of the sun's rays, or other circumstances, there is a rise about the first-named point, the house should be opened for the admission of air to an extent proportionate with the power of the increasing temperature, taking care to avoid cold draughts and the entrance of chilling rains.

The soil in which New Holland plants delight, is a mixture of two parts peat, and the remainder turfy loam, sand being added in proportion to the texture of the other ingredients, and the age or condition of the plant. The peat should contain a considerable quantity of vegetable matter, though not to an extent sufficient to render it spongy, while the loam cannot have too much; the sand should be of the fine, sharp, white kind, commonly known as silver sand, and when either of the other materials are of a close stiff nature, as much as a third of the whole mass may be added; and when young plants, or those at all out of order, are to be potted, sand may be added till the mixture assumes a gray tint.

Potting is rather an important operation, and to be done well requires much care; these plants are remarkable for the minute silky character of their fibres, which renders them peculiarly liable to injury when handled with any degree of roughness, and on their preservation, it is almost needless to observe, depends the plant's future progress; for, though there certainly are cases in which it is advisable to reduce their number, as when they form a matted wig round the exterior of the ball of earth, yet it

is far more advisable to repot before they become so numerous, than to suffer them thus to waste the energies of the plant, a state arising from a species of neglect, or want of attention at an earlier period.

It is impossible to fix any time for the repotting ; it should be done whenever requisite, so that it is not in the winter season, to shift them then would be worse than useless ; but any time between February and August, or a fortnight later, may be regarded as proper, so that the plant is in a growing state, and requires it. In the early part of the season, a considerable change may be given when repotting, that is, several sizes may intervene between the pots they are taken out of, and those intended to receive them, but, on the approach of autumn, it is well to restrict the shift to a single size larger, as the object is to have the pot well filled with roots by the winter, or, more correctly, to supply only so much soil as it seems probable the plant will be able to assimilate before called on to resume its dormant state, and thus to prevent an extension of its action into the winter months.

In the operation, after the removal of the plant from the pot it has been growing in, the roots should be carefully separated, the ball of earth moderately loosened, and, having well drained the pot it is intended to occupy, fill with the earth prepared to a depth sufficient to receive the ball of the plant, so that its upper surface is just level with the rim of the pot ; a few pieces of broken freestone or potsherds may be mixed with the soil, if a large quantity is required for the plant, or, in the case of a tender, shy-growing kind, this keeps the soil porous, and is of much assistance to the spread of roots ; having properly stationed the specimen in its new abode, fill in the sides, pressing the mould moderately tight with the hand, give a gentle watering, and the job is complete. It is sometimes necessary to place newly-shifted plants into a close shaded place till they have recovered the removal ; for this purpose a pit is necessary, and care must be taken that it does not get too hot, and to preserve an agreeable humidity in the atmosphere while the plant is there.

Watering, if not the most important feature in their management, is one of very great consequence, for if this is not properly attended to everything else fails as a matter of course ; they will not bear extremes of any kind. The supply must be regulated

chiefly by the state of the weather, the season, and the condition of the plant. It is next to impossible to lay down rules for the guidance of this part of their culture, to understand the application of water well constitutes the chief qualification of a gardener, and it is only by experience any one can properly attain the knowledge; however, as an approximation to a rule, we may state, the supply in winter must be small, just enough to keep the mould moist, increasing the quantity as the growing season advances, and taking particular care the plants do not suffer from drought in summer; it is always better to give a good soaking even in winter, when the plants may not want it again for several days, than to be continually giving a little, for it often happens this small quantity is entirely absorbed by the upper part of the mould, and by the frequency of the application this becomes sodden, while that at the bottom of the pot is comparatively or quite dry, a state in which no plant can exist long.

Our illustrations may be regarded as typical of the family to which they belong; they are both seminal varieties of species that have long been established favorites. The *Gompholobium* emanated last spring from the nursery of Messrs. Knight and Perry, King's road, Chelsea, where there are some of like character which appear highly promising. We are indebted to Mr. Ayres, gardener to J. Cook, Esq., Brooklands, Blackheath, for the specimen from which our drawing was made, who had the plant in beautiful condition; its superiority over the original state of the species is evident in its larger size and deeper and richer colours. The *Chorozema* is of like origin, and of equal pretensions; any one who will be at the trouble to compare the present with the normal character of the parent species, cannot fail to observe the improvement effected. We propose for this the trivial name of *Splendens*, to distinguish it from other seminal varieties in existence. The original plant is now in the possession of — Huggins, Esq., Dulwich,

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## GROUNDWORK AND PLANTING.

THE season is at hand in which the gardener is likely to be engaged in alterations of established gardens or founding new ones ; the period for groundwork has arrived, and planting will be the order of the day for the next six weeks in most places, a little time given to the consideration of how it may best be done, may therefore be regarded as a saving of much that is valuable when the work is in hand. The person who, previous to commencing a lengthened operation of any kind, thoroughly settles not only the leading features of what he is going about, but also arranges the detail, will invariably accomplish more, and in the most satisfactory manner, than he who plunges without consideration probably into the midst of what is required, and whose after efforts are often unavailing to extricate him from the confusion his own precipitancy and want of method has caused. Let all who contemplate work of this kind, whether it be little or much, first fully and determinately settle how it shall be done, and then set about it in earnest. I greatly prefer autumn for planting all sorts of trees and shrubs, providing it can be done before the expiration of the present month ; the reason I prefer October is, that I believe the downward passage of the sap is most favorable to the formation of rootlets ; this touches on a physiological question, about which I am aware there are divers opposite opinions, to enter on which is not my present purpose, and shall therefore let what I have said rest as only the expression of what experience leads me to suppose is correct. The practical part of the business is what is intended to be conveyed, and the first thing requiring attention is the preparation of the ground.

To say this should be properly trenched and drained is easy on paper, but often insuperable obstacles prevent the latter being carried out in practice, and without it the former is but a temporary measure ; there are often spots, even on estates of moderate size, that are of a character to defy cultivation—complete eyesores, that will thrust themselves forward to the annoyance of any proprietor who cares for the improvement of his property ; what can be done with such places, but plant them out of sight ? This at least is the usual remedy, and then comes the operator's

query of, will trees grow there? the soil is wet, springy, and sour, descending into a hollow too deep to permit an outlet to drain it, or it is a barren gravel, lying on the summit of a rise open alike to the burning influence of the sun in summer and the irresistible rush of the wintry blast; the planter's hopes are paralysed in such places, yet they may be clothed. To alter the character of the soil would entail an expense beyond the value of the improvement, to change the nature of the locality, impossible: we must therefore select such trees or shrubs as are known to affect situations of the kind: if the place intended to receive the trees cannot be rendered what is desirable, we must take it as it is, and plant accordingly. Alder, Ash, Poplar, or Willow will grow in the first-named position, while the Fir tribe offers the best chance of clothing the latter. This is what may be termed consideration the first: where are we going to plant, and what is the object sought? and is instanced here to show the necessity of some deliberation ere we begin.

In positions more of an ordinary character, where a mixture of trees and shrubs is required, it is of the first consequence to attend to draining and pulverizing. The condition and quality of the soil should be carefully examined, not only at the surface, but to a depth equal to that it is likely the trees will thrust their roots in their after progress; those who plant anything larger than an under-shrub should remember what they are doing is intended to stand as monuments of their care or negligence perhaps for ages, and to an observant eye speak as plainly as would "graven plates of brass;" it is, therefore, worth while to do it well. Fortunate are those who find both surface and subsoil suited to their purpose without further preparation than the mere trenching necessary to loosen the staple for the reception of the first-formed roots; in by far the greater number of cases it is diametrically opposite, and usually too wet; this may, however, be regarded as even preferable to a hungry, dry soil, whose constituents are either stones or sand: the wet land may be reclaimed, but in the latter we can do no more than assort the occupants to its sterile nature. The drains for plantations must be proportionate in size and number to the state of the land; as a matter of course, more are wanted where it is very wet than where the excess is only of a moderate character; but in either case, the

drains should be placed as low as the outlet will permit, both because they are more effective, in consequence of the greater pressure forcing the water downwards into them, because they thus operate on a larger body of soil, and because they are more out of danger of being disturbed by the descending roots.

Trenching is so common, so well understood, and nothing offering when executed for this purpose of a nature differing from the usual mode of performing it, that I may pass it over without other observation than a recommendation to have it done well, and when the land is dry, and come now to the act of planting. If all the previous work can be finished in an efficient manner in due season, there can be no better time for commencing to fill the ground than the month we are entering on ; but rather than neglect or improperly hurry the preparation of the land, I would defer the planting till spring ; so much importance do I attach to this part of the matter, that I would rather give up my favorite period for the removal of the trees than have it slighted. But if all is ready, then let the work be proceeded with as quickly as possible, that it may be finished by the first week in November, beyond which it should not be protracted on any account. The first thing connected with the operation is to have the subjects carefully taken up ; the roots should be preserved as safely as the utmost care will allow, and on no account should they be suffered to lie exposed to the wind or become dry ; let them be put in their places as quickly as it can be accomplished, and should it be unavoidably necessary to keep them out of the ground for a day or two, let them be covered in some way that will preserve humidity about them ; the points and parts which have been lacerated in the removal should be cut smoothly over, and as they are stationed endeavour to give an equal spread to the roots on all sides, that the tree may be secured as much on one side as another, keeping them as near to the surface as may appear advisable, at any rate not burying them lower than they were before removal. Avoid trampling the ground after planting, but shake the tree gently as it is done, that the earth may fall into the spaces between the roots ; tie each specimen likely to require it securely to a stake, and there will remain but little danger of failures.

SYLVANUS.

## HYBRID SHRUBS.

LOOKING over the recently-issued schedule of prizes to be given at the Horticultural Society's exhibitions in 1848, I have been much pleased with one or two very novel additions made to it, their tendency being so directly to the encouragement of a portion of the ordinary occupants of a garden that have hitherto, and but too generally, been deemed of only secondary value. I allude to those offered for the production of new, hardy hybrid shrubs and herbaceous plants; of how far the latter will answer expectations of their culture in pots we cannot yet pretend to speak, both subjects are so entirely new, at least near the metropolis, that few can boast of experience in the matter. The idea of inducing the origination of hybrid shrubs I regard as particularly felicitous; coming, too, from a Society evidently desirous of adopting the initiative in these matters, and possessed of ample power to carry it out to the advantage of those who turn their attention to the subject, it cannot fail of being met in the spirit which seems to have suggested the offer.

Hardy hybrid shrubs, if we except "azaleas, roses, rhododendrons, and the like," as is done in the schedule, are at present rarities, and the Society or the visitors to the shows must not expect they will form, by any means, a prominent feature, perhaps for a series of years; yet, to attain the object so very desirable, they must continue to offer these prizes, and should only one or two thoroughly good hybrids turn up in even a long period, their endeavours will be well repaid, our ordinary garden shrubs being so comparatively restricted in number, that any addition possessing but medium claims to beauty will be highly valued. A fact of some consequence, because intimately connected with this subject, has been remarked by most who interest themselves in the spread of hybridizing: it is, that in inverse proportion to the length of time required to determine the result, so is the number of those who adopt a particular family; thus, for instance, we may in one year sow and cause to flower, the pelargonium, the fuchsia, the pansy, and several others, consequently they are adopted by hundreds; while those which require a longer term of attention, as the rose, ranunculus, tulip, &c., find but a comparative few who will be at the trouble of growing for so long a



time what may ultimately prove worthless. This will have an effect on the production of hybrid shrubs ; it will occupy at least three years to determine if any be worth a permanent place, and where the value of the plant is dependent on its flowers, perhaps a much longer period ; besides which, they occupy a considerable space in the garden, so that it does not appear likely any great number of persons will enter on the pursuit. The nurseryman, if he can give the necessary attention to crossing the flowers in order to obtain seed, seems the most likely one to engage earnestly in the matter ; to him it will come as a matter of routine business, he must propagate in this manner, and may as well sow hybrid seed when he gets it as any other, and should the plants fail to differ from their parents, he is not thrown back by the circumstance, as his stock is increased in the manner it would have been under the ordinary mode ; to him then it seems we must look principally for what may be done, and amply will it repay him. There are, besides, a few amateur growers who, from a pure love to this class of vegetation, will doubtless attempt it, and from them, in all probability, will emanate a few of the most extraordinary results.

In the schedule we are told, " It is certain that much may be effected by hybridizing plants in common cultivation, such as lilacs, honeysuckles, &c., &c. ;" and if we are to look for valuable additions among such every-day forms, what may not occur from among the more curious ? I should imagine there is an endless field open to the persevering cultivator. Besides this positive hybridizing, it has often occurred to me how acceptable variegated varieties would prove of some of our common shrubs, and am rather surprised they are not more generally grown ; there are even now numbers existing that are only occasionally met with, and yet their appearance is most enlivening among masses of plain green. It is certain there has been too little attention given to this matter, and we have now an opportunity and an inducement to amend it.

With respect to the exhibition of herbaceous plants, which I perceive are to be exhibited in twenties, an opportunity is given to growers of the most humble pretensions ; they will be on a footing with others who may boast the most extensive conveniences, as any one may grow this class ; the only point in which

an exercise of judgment will be requisite is in the selection, to ensure a sufficient number to be in bloom at the same time. Herbaceous plants are regarded by the great mass of gardeners as mere matter-of-course things, that have only to be put in the ground, and except to tie them to a stick when blown down, it is but seldom they are thought of. From the ease with which they accommodate themselves to circumstances, no trouble is occasioned in their management, and hence the neglect with which they are generally treated.

It will now, however, be different, and I am much deceived if, in a few years, this article does not form an important one in the schedules of most horticultural societies. In the present state of the matter, when we have abundant time before us to make the selection, it would be useful to invite your readers to forward lists of such as they deem best suited to the purpose, namely, twenty to bloom in May, June, and July, the only conditions insisted on by the Society being that they are hardy and dwarf. The subject interests all who have gardens, whether they contemplate exhibiting or not, for to know twenty of the *best* herbaceous plants, which flower in the three principal months of the summer, must be a matter of consequence, and to ensure them it is likely a greater number must be collected than commonly falls to the charge of a single individual; therefore, among the whole it is most likely there will be some strangers to most of us, and be it remembered, none but the best, that is, such as combine dwarfness with neat compact growth and free habit of blooming can be accepted. I shall endeavour to refresh my recollections of the tribe, and forward my quota by next month, when I may have something to say on their management in pots.

HORTULANUS.

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#### LITERARY NOTICE.

*The Rose Garden.* By WILLIAM PAUL. (Second Notice.)

WE have before us Parts II, III, IV, and V of this excellent work, and are much pleased to find an increasing interest with each successive portion. The plates, of course, arrest the first attention, and in this department an evident improvement on the

figure in Part I is observable: we have in those under review five representations of the types of as many classes, the later ones drawn with much taste and freedom, and all richly, yet correctly, coloured, conveying an idea, not only of the individual flower, but of the manner in which the plant produces its blossoms—a matter so essential in the selection of varieties. In this respect, however, Mr. Paul's descriptive list will leave little to be desired, his account of each really good kind being so succinctly accurate as to furnish every necessary particular.

After some entertaining gossip relative to the history of the Rose, or rather to that of its cultivation, we arrive at a chapter on Soil and its adaptation to the growth of Roses, which, for sterling sense and sound advice, has never been surpassed. We cannot refrain from transferring part of it to our columns, as it is of a kind to interest all who have gardens, whether professed rose-growers or not:

“If we were called upon to select a spot as best suited for the cultivation of roses, we should seek one at a distance from large towns, that we might secure the advantages of a pure air. It should be open to the south, and be so far removed from trees of every description, that their roots could not reach the soil of our rose-beds, or their tops overpower us with shade and prevent a free circulation of air. If, in addition to this, we could choose our soil, that preferred would be a strong loam—if rich, so much the better; if poor, we would enrich it by the addition of manures. It is generally known that the dog-rose delights in a stiff, holding soil; and it is on the dog-rose that the choice garden varieties are usually budded. We do not intend by this to recommend soils commonly termed clayey, for in such there is often too great a deficiency of vegetable substances; lighter soils, too, are found better suited for such kinds as thrive best grown on their own roots; but this may be managed by the addition of a little light, turfy loam, peat, or leaf-mould, at the time of planting. An open, airy situation and a stiff loam are, we say, what we should prefer, was our choice of locality and soil unlimited. With these at our command, we should expect to carry rose-culture to perfection.

“‘But,’ says the amateur, ‘all gardens must have roses, and how few are thus favorably circumstanced! Many are close to

large towns, where the air is rendered impure by the clouds of smoke constantly steaming into it. Others are of small size, and are often hemmed in by trees on all sides—on this with a neighbour's favorite chesnuts ; on that with a group of sombre-looking firs ; and on another with a row of towering elms. And although we may think it not right that our less majestic denizens should suffer at their hands, we have no help for it. They have their pets, as we have ours. They find as much pleasure in the blossoms of their chesnuts, in the agreeable shade of their elms during the sultry months of summer, or in the privacy afforded them by the impenetrable darkness of their fir trees, as we do in the perfect form and varied tints of our roses. We cannot rid ourselves of their shade ; we have no right, indeed, to wish to do so. But we might not hesitate to dock their roots, should they, in their perigrinations, enter our domain to gormandize on the provision made for our favorites. This, we think, would be justifiable ; we are acting in self-defence. They are robbers and deserve punishment, although it must not be such as to do them permanent injury. Then, again, as to soils : some are sandy ; others are clayey, wet, cold, and altogether uncongenial to vegetation. In a word, we cannot always suit our gardens to your roses ; your roses must therefore be brought to suit our gardens.'

“The number of complaints of this kind received from amateurs possessing small gardens satisfy us that they are great. It must be admitted, that localities are often unfavorable and hardly capable of improvement. With this, then, we must endure, and seek the remedy in the choice of varieties, selecting such as our own experience or that of our friends point out as succeeding best under such circumstances. It is well known that some kinds will grow and flourish where others will scarcely exist. Were this fact taken advantage of by those who plant in unfavorable situations or unkindly soils, doubtless less failures in rose culture would ensue. But, it may be said, some of the most delicate in habit are the most beautiful of roses ; and how can we dispense with such ? That the varieties possessed of the most bewitching forms and tints are most difficult of culture is, to a certain extent, true ; but we opine that a rose which will flourish and blossom in a doubtful situation or in an unfriendly soil, is greatly to be preferred for such, to one which would only exist

there as an unhealthy plant, though the latter were greatly its superior in point of beauty. I have known instances in which varieties of the most delicate growth have been selected, time after time, to occupy the most unfavorable situations, and this against all remonstrance and the knowledge of the cultivator, bought by experience, that they will not succeed. Varieties are often chosen and planted, without paying sufficient attention to their aptitude for the purpose or position they are wanted for : they are chosen because admired most—because they are the *most beautiful*. Now, what are the consequences ? That which should yield pleasure produces, by constant failure, indifference or disgust, and their culture is abandoned. This is to be lamented ; for, if circumstances are unfavorable for the cultivation of particular varieties, others that are likely to succeed should be chosen : and the amateur need not be altogether without his favorite kinds. If unsuited for out-door cultivation in some places, they may be grown to perfection in pots under glass.

“An unfavorable locality or soil should never deter the lover of roses from entering on their cultivation ; for such is the diversity of character of the varieties belonging to the genus, that some may be found suited to or capable of flourishing in the least desirable localities ; and the soil may be improved or dug out, and the beds refilled with prepared soil.”

Following this are some excellent directions for preparing new soils, and the modes best adapted for ameliorating the several kinds likely to engage the attention of those planting roses, among the ingredients for which Mr. Paul mentions with great praise burnt earth, made by charring with weeds and other rubbish some of the stiffest soil the locality affords, which, he says, “has been found beneficial in every instance where applied.”

On the subject of manures as applied to the beds of established roses, we find the following :

“But let it be remembered, that if the soil is wet, manures are of little value ; often, indeed, they sour in the soil, and are worse than useless. In all such cases, then, the first effort must be to lay the soil dry. After this, add such manures as the character of the soil may point out as likely to prove most beneficial. Animal and vegetable manures of all kinds may be used, but not in a fresh state—they should be well pulverized ; for roses, though

delighting in a rich soil, dislike green manures more than most plants. In heavy soils a good dressing of chalk, peat, burnt earth, or sand may be used, not to the preclusion of, but in addition to, the animal or vegetable manures. In light soils, especially such as are of a gravelly or sandy nature, stiff loam may be applied to advantage; these substances being thrown on the surface of the beds with the usual manures, and forked in at the same time. We would remark here that stable manure, which is excellent in most cases, and the kind in general use for roses, is not of the best description *for light soils*: its tendency is to render them still lighter, and, if it can be dispensed with, we think it desirable to do so. Manures should be applied here in a more concentrated form; cow-dung is excellent, especially for the tea-scented roses, and pigeon or rabbit-dung and night-soil are all great improvers of light soils.

“It may be thought that guano should be a good manure for roses on cold and poor soils. It probably might prove so if used sparingly, and in conjunction with vegetable manures. I do not, however, think guano the best thing for roses in the generality of soils. It certainly increases the vigour of a plant, but seems to act more favorably on the foliage than on the flowers. It may be said, that this is due to the use of it in excess; but this I am not disposed to grant. In the spring of 1846 I scattered guano *in variable quantities* over some newly forked beds of roses, just as the buds were pushing forth. The soil where this experiment was made is a dry loam, rather stiff, of excellent staple, but poor; the subsoil to the depth of twelve feet is yellow loam or brick-earth; below this is gravel. In every instance where the guano was applied the growth was more vigorous, and the foliage developed of extraordinary richness and beauty; *but mark! it was at the expense of the flowers.* Such were the consequences attending its use to plants in full health on one soil; on soils otherwise constituted the results might be different.”

The next chapter is on the Formation of the Rosarium, and is very complete, containing several woodcuts of existing rose-gardens, including those so justly celebrated in the Jardin du Luxembourg, at Paris, and designs for others; and Part V contains a chapter on Arrangement and Planting, followed by the commencement of another on Pruning, both composed of obser-

vations and directions of the most valuable kind ; in short, Mr. Paul has so admirably united the *utile* with the *dulce*, that while the book is got up in a style suitable for the drawing-room, it contains matter of so thoroughly practical a nature, as to convey all the information that can be necessary to the most successful cultivation of the queen of flowers.

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 DESCRIPTIVE LIST OF NEW PLANTS.

 MELASTOMACEÆ.—*Octandria Monogynia*.

*Medinilla speciosa* (Blume). The genus *Medinilla*, remarkable for the beauty of the foliage and the delicacy of the flowers, was established by Gaudichaud, in the botany of Freycinet's voyage, in honour of Don José de Medinilla y Pineda, Governor of the Marianne Islands, in which group the first species (*M. rosea*) was discovered. Blume has since increased the number of species very considerably, and no less than twenty-five stand recorded by Walpers. *M. speciosa*, as its name would imply, is among the most beautiful, and perhaps exceeds them all in the fine panicle of delicate rose-coloured flowers gracefully drooping from among the rich green and ample foliage. It is an inhabitant of Java, and is among the treasures of that island sent home to Messrs. Veitch and Son by Mr. Thomas Lobb. The plant attains a height of four or more feet, with erect di- or trichotomous angular stems ; the leaves are large, entire, nearly sessile, oval-acuminate, and generally placed in whorls ; the flowers are produced on a terminal dense panicle or thyrsus ; the main peduncle and its branches are red, as also is the calyx of the flowers, while the petals themselves are delicate rose colour, from among which proceed the remarkable large, deep red, curved anthers.

The species is No. 836 of Mr. Cumming's specimens from the Phillipine Islands.—*Bot. Mag.* 4321.

 RUBIACEÆ.—*Pentandria Monogynia*.

*Gardenia longistyla* (Hooker). Another beautiful *Gardenia*, as I consider it to be, rather than a *Randia* (De Candolle) from tropical western Africa ; for the introduction of which our stoves

are indebted to Mr. Whitfield. It bloomed with Messrs. Lucombe, Pince, and Co., of the Exeter Nursery, in June 1847, for the first time, we believe, in this country. It is a handsome and most distinctly-marked species, with long greenish-white flowers, produced in terminal clusters of fifteen or twenty, and a style twice the length of the corollas, terminated by a large globose stigma. It requires, we need hardly say, the heat of the stove for its successful cultivation, and does not seem shy of flowering.—*Bot. Mag.* 4322.

TROPÆOLEÆ.—*Octandria Monogynia.*

*Tropæolum speciosum* (Endl. et Poepp.) This is a charming addition to our species of the handsome genus *Tropæolum*, imported by Messrs. Veitch and Sons, of Exeter, through the intervention of their excellent collector, Mr. W. Lobb. Being a native of Chiloe, no wonder it bears our climate through all the summer months; but whether it will endure the winter in the open air in England remains to be ascertained. It will probably prove equally hardy with, and more ornamental than most of our *Tropæola*. The plant is of medium habit, and produces its large, brilliant, vermilion-red flowers very freely.—*Bot. Mag.* 4523.

RUBIACEÆ.—*Tetandria Monogynia.*

*Ixora Griffithii* (Hooker). The ample foliage, the large compact cyme of very rich yellow and orange-coloured flowers, with the long slender tube of the corolla and the almost orbicular segments, together with the blunt and short-toothed calyx, distinguish this from the numerous species, hitherto known to us, of the present genus. It was introduced from Singapore, by the son of Mr. Low, of the Clapton Nursery, and has been, we believe, disposed of by him under the unpublished and scarcely appropriate name of *I. hydrangeiformis*. Its present name serves to commemorate its first discoverer, the late Mr. Griffith, from whom I possess specimens gathered at Mergui. It is a really noble species, and will prove invaluable to our stoves, where it requires the same treatment as our favorites *I. coccinia* and *striata*, to both of which it is superior in size of the inflo-



rescence and the leaves, some of which are a foot in length.—*Bot. Mag.* 4325.

THYMELACEÆ.—*Octandria Monogynia.*

*Edgworthia Chrysantha* (Lindley). This shrub was found by Mr. Fortune in Chusan, and by him was sent to the Horticultural Society in April 1845. It flowered for the first time in February 1847, in a greenhouse.

In the Journal of the Horticultural Society it is described as “a dwarf soft-wooded plant, throwing up rod-like dull green stems from its base, and bearing the leaves exclusively near their ends. The leaves are about eight or nine inches long, oblong-lanceolate, stalked, very dull green, and covered with fine hairs, so small and closely pressed to the surface that the naked eye fails to discern them. The flowers have not yet been produced in England, but Mr. Fortune’s Chinese drawings and specimens show them to be bright yellow, something less than an inch long, covered with exceedingly thick hair on the outside, and collected into balls about two inches in diameter at the ends of the shoots. He adds, that they are sweet-scented, and appear in Chusan in July. The species is allied to *Edgworthia* (or *Daphne*) *Gardneri*, a Nepal plant, with a similar habit, from which it differs in having longer and more slender flowers, larger flower-heads, and a much more silky hairiness on the outside of the flower.

It is a greenhouse plant, growing freely in sandy loam and peat, and though it requires an ample supply of moisture in summer, for a few weeks in winter very little water is required, as it is liable to damp off; in order to induce it to flower, the Chinese bind the stems so as to form a loop, and this practice has been followed with success in the garden of the Horticultural Society, where it has now flowered in the month of May.—*Bot. Reg.* 48-47.

CAPRIFOLIACEÆ.—*Pentandria Trigynia.*

*Viburnum plicatum* (Thunberg). This, which is another of the plants procured by Mr. Fortune for the Horticultural Society, is described in their Journal “as a handsome deciduous bush, bearing some resemblance to the North American *Viburnum dentatum*. The leaves are broad, coarsely serrate, somewhat plaited, dark green, narrowed to the base, and furnished with an abrupt point

(cuspidate). The flowers are white, in round heads, of the size and with the appearance of the 'double' Gueldres Rose."—*Bot. Reg.* 51-47.

ZINGIBERACEÆ.—*Monandria Monogynia.*

*Amomum vitellinum.* The history of this plant is unknown. It flowered in the garden of the Horticultural Society in May last, and is supposed to have been received from the East India Company. In the Society's Journal it is described as a plant about two feet high, with oblong leaves, a little wavy, pale green, slightly stalked above a broad thin-edged petiole, whose upper free end is rounded. The flowers are deep yellow, strongly veined with red, and grow in a short close spike, sessile among the upper leaves. The back petals are short, with sharp teeth, the lip is oblong, coarsely and irregularly toothed, and slightly three-lobed; the crest of the anther is three-parted and jagged; the lateral divisions being about half the size of that in the middle. The anther itself is spurless. It requires a shaded position in the stove.—*Bot. Reg.* 52-47.

TERNSTROMIACEÆ.—*Monadelphia Polyandria.*

*Camellia japonica miniata* (Low). This variety was raised by Mr. Low, of the Clapton Nursery, from seeds saved on a plant of *C. myrtifolia*, which produced some imperfect blooms a few years ago; and Mr. Low has every reason to think that it was fertilised with the pollen of a sickly *Lady Hume's Blush* which stood beside it, and produced very irregular and imperfect flowers; the resulting plant resembles *Myrtifolia* in its very finest condition; and when nearly full blown, it has some of the beautiful blush-white of *Lady Hume's Blush* in its centre. The colour of its flowers during the early part of the season is the finest crimson; and later in the spring, each has three or four rows of petals of a blush-white, having the crimson in the centre. On the whole, it is one of the best Camellias, both as to form, regularity, and constancy; the habit is also good, having short, medium-sized, dark green leaves, and is an abundant bloomer.—*Pax. Mag. Bot.*

SCROPHULARIACEÆ.—*Didynamia Angiospermia.*

*Penstemon M'Ewani.* This hybrid was raised two years ago

by a gentleman of the name of M'Ewan. It is of dwarf bushy habit, a very fine bloomer, and makes a conspicuous object in the flower-border. It is several shades paler than *P. gentianoides*, the flowers are larger, the tube stouter and more swollen, the limb more equally divided and less spreading, and the blossoms are borne in dense terminal clusters. The stock is in the possession of Messrs. Young, Nurserymen, of Epsom, in whose nursery it flowered profusely last September. It propagates freely by cuttings, and requires only the management usually adopted with the well-known *P. gentianoides*.—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria.*

*Dendrobium Kuhlii* (Lindley). This handsome plant is not unworthy to be placed by the side of its near ally, the beautiful *D. secundum*, from which it differs in having larger flowers, in short, lateral, few-flowered, horizontal racemes. They are of a bright rose colour, and retain their freshness longer than is usual in this genus. For its introduction we are again indebted to the enterprise and good management of Messrs. Veitch and Sons, of Exeter, to whom it was sent from Java by Mr. Thomas Lobb.—*Bot. Reg.* 47-47.

*Epidendrum pyriformi* (Lindley). This very pretty little species was imported from Cuba by Messrs. Loddiges, with whom it flowered in January last. The leaves are unusually thick and fleshy, about four inches long, on little pseudo-bulbs, which look like inverted pears. Notwithstanding its diminutive stature, the flowers are fully  $2\frac{1}{2}$  inches in diameter, with reddish-yellow sepals and petals, and a pale straw-coloured lip veined with crimson.—*Bot. Reg.* 50-47.

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GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

- SINUATE. SINUOSE. Wavy; bending irregularly in and out.  
 SINUS. The hollow formed by the receding margin of a lobed leaf or other body.  
 SOBOLIFEROUS. Increasing by means of young plants which proceed from the root; differing from suckers in having a main radicle, furnished with fibres.

- SOREDIFEROUS.** Bearing sori.
- SORI.** That particular fructification of ferns which has the appearance of small brown patches on the back of the leaves.
- SPADIX.** A flower-spike, issuing from a spatha.
- SPATHA. SPATHE.** A leaf rolled round the flower-spike, so as to completely envelope it while young, through which the latter eventually protrudes near the top.
- SPATHULATE.** Shaped like a spatula, or broad, straight knife.
- SPHACELATE.** Having a dry, withered, or dead appearance.
- SPHERICAL.** Round.
- SPHEROIDAL.** Almost spherical.
- SPIKE.** A kind of inflorescence, in which the flowers are usually sessile, and arranged one above the other round a rachis or central stem.
- SPINES.** Hard, woody, pointed processes, of more than annual duration.
- SPINOUS.** Bearing many large spines.
- SPINULOSE.** Covered with small spines.
- SPIRAL.** Circularly coiled, like a corkscrew.
- SPORULES.** The vegetating atoms or seeds of cryptogamic plants.
- SPURS.** A lengthening of the floral envelope in the manner of a horn, common in the genera *Delphinium* and *Tropæolum*.
- SQUAMOSE.** Formed of imbricating scales, as the bulb of the lily.
- SQUARROSE.** Set rigidly at or near right angles, as in the foliage of the *Proteaceæ*.
- STAMEN.** The male or pollen-bearing organ of a flower.
- STANDARD.** The erect segment of a papilionaceous flower.
- STELLATE.** Resembling the form of a star.
- STELLULATE.** Having the appearance of several little stars.
- STIGMA.** The female organ of a flower.
- STIPES.** The stalk of fungi.
- STIPITATE.** Having only a short stalk.
- STIPULES.** Small, scale-like processes attached to the base of the footstalk of some leaves.
- STOLONIFEROUS.** Increasing by means of underground stems or roots, which extend to a distance from the parent, and there break through and become foliated.
- STOLONS.** Root shoots.

- STRIFE. Small furrows or streaks.  
 STRIATED. Having several nearly parallel bands of colour.  
 STRIGÆ. Small, irregular, rigid hairs.  
 STRIGOSE. Clothed with short, rough hairs, or strigæ.  
 STRUMA. A rounded swelling or protuberance, like a wen.  
 STYLE. The connecting stalk between the ovarium and style, supporting the latter.  
 SUFFRUTICOSE. Partaking slightly of the character of shrubs.  
 SULCATE. Deeply and distinctly furrowed.  
 SURCULI. Young shoots.

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### CALENDAR OF KITCHEN GARDEN OPERATIONS FOR OCTOBER.

THIS month may be regarded as the termination of all, or nearly all sowing and planting, and as this work should be completed as expeditiously as circumstances will permit, every fine day should be devoted to it until finished. Cauliflowers for next season are perhaps the most important among this class: from among those pricked out last month select the strongest, and plant them, nine together, under handlights stationed about a yard apart, upon a south border of rich soil: nine plants will fill each glass, and in spring six of these will require to be removed; the object in putting so many together now is to economise space; the remainder of those in the beds should be pricked into a cucumber frame, or pit, filling the earth up to within a foot of the glass, and allowing the plants to stand about four inches one from another. In either position they must have abundance of air whenever it can be given, as all that is required is to guard them from excessive frost and wet. The crop of August-sown cabbages will require thinning; the strongest may be planted out at once, and the others pricked into beds, or any spare ground may be filled with them. Lettuces will require similar treatment, the largest should be put out on a warm border, to come into use through the winter and spring, the later sown ones should be pricked into a frame or on some very sheltered place, as they are intended to stand entirely till spring; the slugs will want constant watching about these, or they commit much mischief.

Asparagus beds should be dressed about the middle of the month. Cut down the stems, spread a good coating of old hot-bed manure over the bed, and, with a line, mark the sides of the bed, and then cut the mould down, throwing the earth from the alleys on to the beds, until the dung is covered about three inches. The bottom of the trench should then have a similar dressing of manure, to be dug in.

Celery should be earthed up as it advances, and the last crops should be ridged out without loss of time. Leeks also require similar treatment.

The principal crop of potatoes will now be fit for digging, and should be got before danger from frost occurs.

The late turnips should be finally hoed, thinning them to the proper distance one from another.

Towards the end of the month a few early peas should be sown for the first crop of next year. It is by no means certain that these will succeed, but, if they do, a week will be saved. They are best sown on sloping banks, made by throwing two ordinary ridges into one, giving them a southern or western aspect. At the same time, and in the same manner, a few broad beans may be got in. Both will require some nursing, and a constant watch to prevent the ravages of mice.

The beds of winter spinach will require weeding and a moderate thinning, leaving them about six inches apart. The autumn-sown onions must also be kept clear of weeds.

Salad articles, such as radishes, mustard, and cress, may still be sown on warm borders, or under handlights or frames. The advancing endive should be tied up or covered over with a garden pan to blanch, and a succession may be got out on a warm, sheltered spot. Herbs of all sorts may be separated and transplanted.

Get up the main crops of carrots and parsnips, and see that the onions are properly dried, carefully removing any that appear unsound; and, as the ground becomes vacant by the removal of summer crops, let it be well dunged and dug or trenched, as may be required, leaving it as rough as possible, that a greater surface may be exposed to the ameliorating<sup>g</sup> action of frost and the air.





IRIS

1 JENNY LIND 2 VOLTAIRE



## THE IRIS.

WITH AN ILLUSTRATION OF *I. XIPHIODES*.

THE beautiful genus to which the subject of our accompanying plate belongs is composed of an assemblage of herbaceous, tuberous, and bulbous-rooted plants common throughout Europe, and sparingly known in America. In cultivation, the greater part are of the hardiest character, thriving under the drip of trees, and, in fact, requiring more trouble to keep them within bounds, than to encourage them to grow. Such as these are highly useful for ornamenting outlying shrubberies, and, from the circumstance of most of them delighting in damp situations, are appropriate occupants of the margins of lakes or other pieces of water; this group of the family is distinguished by rather large flag-like foliage and tuberous roots, or rather rhizomas; their flowers are, for the most part, large and gaily coloured, and are produced in rapid succession for a considerable period. The common *I. germanica* and *pallida* may be regarded as the type of this portion of the genus, though it contains some others of a more valuable character. The highly curious and very beautiful *Iris susiana*, must be classed with them, as also the pretty little *biflora*, *subiflora*, and *cristata*, together with some others of similar habit highly deserving introduction to the flower garden as aids in the beginning of summer.

A second portion of the genus consists of a smaller number of bulbous-rooted plants with rigid channeled leaves, more rush-like than the former, and fully equal to them in the beauty of their flowers, possessing, at the same time, a far greater diversity of colour, by reason of two or three of the species having the habit of yielding seminal varieties which differ one from another, and from their parent; to this class *I. xiphioides* belongs. A third, and still more limited number, have the habit of the first-mentioned group, but are tender, or, at least, require to be grown in a greenhouse to cause them to flower well; these are *I. chinensis*, *orientalis*, and *imbriata*. *I. persica*, though a bulbous species, and naturally hardy, from the early period at which it blooms, is usually cultivated in a pot, and esteemed as an orna-

ment in the greenhouse through March and April. As spring and early summer-flowering plants, the whole are valuable, and, with some discrimination in the choice of species, may be made effective in almost any situation. In most flower gardens a sort of interregnum prevails from the end of April to the beginning of June, or between the removal of the spring-flowering plants and the establishment of those of summer; flowers are then more scarce than at any other period of the vernal season, and the few we possess are either red or yellow: blue and white are almost absent; they may, however, be supplied from this genus, nor do we observe anything to militate against the free use of several species for the purpose; the richest deep blue, combined with a neat dwarf habit and tender green foliage, is offered in such as *subiflora* and *pumila*, while others of paler colours and different stature are readily found, and, as regards management, they may easily be grown in pots and plunged where they are wanted while in flower, and afterwards removed to make room for their successors, which would entail but little trouble, for any shaded place might receive and would suit them well while growing, and in winter.

Of the bulbous-rooted class, those best known are *I. xiphium* and *xiphioides*, or, as they are usually called, Spanish and English Irises; these, from their sportive habit among seedlings, and the care bestowed on them chiefly by the continental growers, have risen to become "florists' flowers," and the varieties of both are now both numerous and beautiful; those of the English Iris claiming precedence on account of their larger and more gaily coloured flowers. The Spanish Irises are smaller in every respect, and are remarkable for a livid tint pervading, more or less, the flowers of nearly every variety known; this circumstance, from rendering them rather less attractive, has given to the varieties of *xiphioides* the advantage in general estimation, and, as a matter of course, has induced more attention to them than to their less fortunate rivals, a distinction they certainly merit, and one which the prolonged care of the florists must necessarily tend to confirm.

The culture of this class of the genus is marked by a few peculiarities, which we shall proceed to mention. They delight in rich, deeply-pulverized soil, which should be prepared for them

in September by thoroughly trenching the space allotted to them at least a foot in depth, placing in the bottom of the trench a layer of three inches of half-rotten stable manure or cow dung; the latter is most suitable on gravelly soil, though the first is preferable for stronger earths of a loamy, retentive character. The bed or beds intended for them being thus made ready and marked off, the soil, to a depth of six inches over the whole surface, should be removed and the bottom raked level, on which the roots are to be placed, at a distance of four inches one from another, and six inches between the rows; by entering the number of each root belonging to the several rows in a book, according to the manner practised with tulips, it is easy to retain their names without the trouble of labels, and, indeed, is more correct, for the latter may be accidentally removed. After all the roots are properly stationed, the mould is to be returned and finished off, when they require no further attention beyond weeding, till just before the blooming season, when, if the weather prove dry, means must be adopted to supply them with moisture; a layer of partly decomposed manure should be spread over the bed (which, if objected to for its unsightly appearance may be covered with moss), and very liberal supplies of water given twice or thrice a week till the flowering is over. This is highly essential to secure good flowers and retain the foliage; for if suffered to become dry at this time, the blooms are meagre, and the leaves shrivel, when the bed, instead of being redolent of beauty, will present a very opposite appearance.

There is scarcely another subject belonging to the florist's class of flowers which possesses the unconstrained elegance of this. Its pleasing freedom renders it particularly striking when present on the exhibition table, where, for the reason just stated, and the contrast it offers both in form and prevailing colour, nothing is more effective. The refreshing coolness and brilliancy which appears to surround a box of these flowers placed in juxtaposition with roses, pinks, and pelargoniums is surprisingly rich and gratifying; and, as they become better known, we anticipate their very general adoption.

When the blooming season is over and the leaves begin to shrivel, the stems of all such as are not desired to bear seed should be cut off about half the length from the ground, and,

when the remaining part is dry, the roots may be taken up. This, though not positively necessary, is advisable, because some of them may get out of their places, or others, by dying, cause a blank in the bed next season; while, in some light soils, the roots have a habit of running downwards, which has been proved to be very detrimental to their future vigour. But it must be borne in mind, though beneficial to remove them annually (never deferring it beyond two years), the roots should not on any account be kept out of the ground more than a month or six weeks, and during even that time they should be laid upon the ground in some shaded, damp spot. To dry them is most injurious, and few survive a continued exposure to the atmosphere beyond the period mentioned.

Increase of established sorts is readily offered by the offsets produced yearly, which only require to be planted in the manner of the parent bulbs; and new varieties are almost as easily obtained from seed, which is abundant in most seasons. It should be saved only from the largest and best coloured flowers, and when fully ripe, which is known by the pods splitting, may be cut, and, being wrapped in paper, preserved till the following March, when it should be sown in pans or boxes of light, rich earth, and kept in a cold frame till the young plants have grown an inch or two. To prevent them becoming drawn after this, they should be placed out of doors, and constantly supplied with water till the end of June, by which time they will have completed their season's growth; but, from being yet too small to be trusted in the open ground, had better be grown in the same box through the succeeding year, and, as this may hardly afford them sufficient nourishment, the bottom may be taken off, and, in spring, the mass of little bulbs can be plunged into a bed of rich mould, where they will attain strength sufficient to enable them to bloom in the next season; after which their treatment will be that of mature bulbs.

The varieties of the Spanish Iris require precisely the same treatment, as indeed do all the bulbous-rooted species. *I. persica*, however, being usually grown for forcing, should be potted early in autumn, and may afterwards be treated in the manner usual with hyacinths and other bulbs intended for the same purpose.

The tender species, as *I. fimbriata* and *chinensis*, should be grown

in pots of rich loam, and, to cause them to flower finely, it is advised to remove the suckers as soon as they appear, and, in summer, to place the pots in a shaded place out of doors, taking care to supply them well and regularly with water while in an active state, and in winter to give them an airy position in the greenhouse, and to keep them rather dry till the return of finer weather. They may, however, be readily forced at almost any period, by merely taking the necessary preparatory step of resting them for about a month before. The elegance and delicacy of their flowers make them very general favorites for the purpose. The remarkable *susiana* also forces well when strong roots can be obtained, but, in the open ground, does not bloom unless planted in rich loam on a warm south border, and suffered to remain undisturbed for three or four years.

## LIST OF FIFTY OF THE BEST VARIETIES OF ENGLISH IRIS.

Agamemnon ; red spotted.	Elphinstone ; dark purple.
Adele ; flamed blue.	Elegans ; blue and white.
Achilles ; blue and white.	Fingal ; porcelain and light
Atropurpurea ; very dark.	blue.
Albo perfecta ; pure white.	Grand Sultan ; dark blue,
Alciabes ; mulberry.	spotted.
Angelica ; variegated.	Goliah ; white, light rose spots.
Admiral Anson ; dove colour,	Grisi ; rich purple.
spotted with red.	Hebe ; light blue, indigo spots.
Burns ; indigo.	Hannibal ; dark blue.
Brutus ; pale blue, spotted with	Hero ; pale blueish white, red
red.	spots.
Belle Marie ; lilac and rose.	Innocence ; pale blue.
Bellissima ; purple, flamed	Jenny Lind ; see plate.
crimson.	La Superbe ; dove, spotted with
Clarissa ; white, var. pale blue.	rose.
Columbine ; porcelain.	Les Ténèbres ; blue and black.
Clito ; red spotted.	La Tendresse ; dove colour.
Cerito ; light rose.	Leucantha ; white.
Defiance ; blue, spotted with	Mrs. John Gott ; white, bright
darker.	red spots.
Duchess of Kent ; light blue.	Magnet ; lilac, tinged with
Dorothea ; red spotted.	yellow.

Melbourne ; dove, deep red and purple spots.	Psyche ; white, rose spots.
Marquis of Salisbury ; porcelain spotted.	Queen Victoria ; velvet blue.
Nimrod ; porcelain.	Queen of Iris ; red spotted.
Orion ; pale blue.	Sappho ; lilac.
Pluto ; fine indigo.	Theron ; lilac, mottled with red.
Peau de Tigre ; porcelain, rose spots.	Tyrian Purple ; large and rich.
	Voltaire ; see plate.
	Vulcan ; large, mulberry.

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### CULTURE OF LOBELIAS.

HAVING been very successful through the last two or three seasons in the cultivation of the taller species of *Lobelia*, I forward you an account of my manner of growing them, that others may enjoy the beauty of these truly brilliant plants. From the unanimous concession of all who saw them, I may without egotism affirm they were splendid objects, of which the commonly stunted aspect of the plants will give but the faintest idea ; those of which I speak being at least four times the size of what they attain under ordinary circumstances. The bed in which they were grown was prepared in April, by taking out the existing soil to a depth of eighteen inches, and as the aspect was one open to the full influence of the mid-day sun, the first object was to ensure the plants an abundant supply of moisture ; this was effected by puddling the sub-soil of the bed (naturally a stiff loam) till it became almost water-tight, on this bottom was laid a stratum of nearly a foot of old hot-bed manure and fresh cow-dung, and the remainder of the space was filled up with loam and the rotten manure before spoken of, mixed together in nearly equal quantities ; lest the young plants should suffer from the accumulation of water likely to take place in the early stages of their growth, the middle of the bed, or, in fact, all the space they occupied, was elevated four inches above the margin, by means of short piles or stakes driven into the mould, and the additional depth thus obtained filled up with the same kind of earth of which the main part of the bed was composed. On this elevation the plants were stationed early in May, the most central having only

a single crown, while those towards the front had three and four each ; the advantage of this was apparent when they came to flower, for the single stem proceeding from the plants in the middle of the bed, having the entire benefit of all the roots, rose some inches higher than those whose vigour was divided among a number of stems, and thus formed a crown to the mass. The kinds planted were all scarlet, but, to relieve them and cover the piles and margin of the bed, several of the creeping species were planted beneath, and they answered the desired purpose effectually. The tall ones, from the richness and moisture of the soil, combined perhaps with the warmth of the situation, grew away amazingly, and in September were from two feet and a half to four feet high, with nearly half their length clothed with brilliant scarlet, the individual flowers partaking of the general vigour, and but for the relief afforded by the circle of blue would have been, in the words of a lady who saw them, "painfully dazzling." I have now cut them down, and potted the stools for the winter, and found, on taking them up, the roots had penetrated completely to the bottom of the bed, and were there matted together among the moist debris. Water was given liberally after the plants began to grow, and through June and July they received a great quantity, but afterwards, thinking it might prejudice their blooming, it was withheld.

The varieties employed were *atrosanguinea*, *cardinalis*, *fulgens*, *multiflora*, *propinqua*, *splendens*, and *ignea*. The dark crimson foliage of the last having a most beautiful effect. The supporting piles of the centre of the bed were covered with the creeping *L. erinus*, chosen for its spreading habit, and round the flat margin of the bed the neat little *L. compacta* displayed its myriads of deep blue flowers ; the whole forming for nearly three months a most effective and brilliant group. With regard to the preservation of these plants through the winter, the most essential point in their management is to keep them rather dry, as they are very subject to rottenness, arising from damp stagnant air ; they should stand near the glass in a cool pit or greenhouse, where air can be freely given, and receive but very limited supplies of water till the return of the spring. Next year I contemplate growing them even finer, as I intend to take advantage of an earlier part of the season, so as to have them stronger and further advanced when

placed in the bed. With this view I purpose about the end of March to repot the stools into good rich soil and rather large pots, and by placing them in a rather elevated temperature, such as that afforded by an early potato hot-bed, to induce a vigorous start, and thus get them well furnished with roots, and progressing fast by the time the weather will permit of their removal to the open air. Of course, from this hot-bed there must be a gradual transition to the lower temperature of the open air, but this may be easily managed; and I think the advance of a month thus obtained will go far to render them still more beautiful objects than before.

SAMUEL MARTIN.

*Woodlands, Elmham.*

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#### FLORICULTURAL HINTS.

THE florist will do well to examine his stock of picotees and carnations very closely through this month, for with a continuance of the present dull damp weather they are extremely liable to attacks from mildew: when this occurs the foliage becomes rotten, fogging, as it is called, about the middle of its length, and, unless timely removed, the disease spreads till it reaches the heart of the plant. This is one of its mildest forms; when it attacks the centre first all hope of remedy is at the best but futile. The preventive is a more complete circulation of air; this *must* be attained at whatever trouble, or a very considerable loss will inevitably result. Set the pots on elevated shelves, keeping the bottom of the frame several inches from the ground, that a draught may pass upwards among the plants; let the lights be removed daily when it does not rain, and, if the weather can be depended on, they are also better off at night, and at such times as it is indispensable to put them on, they should be tilted at the back as much as four or five inches, that a moving current of air may continually play over the leaves. Much caution is necessary in watering; do not give any till positively wanted, it is far safer to err by giving too little now, than to fall into the opposite mistake. Where the plants enjoy pure air in abundance they are this season growing with extraordinary vigour.



The China, Tea-scented, and Bourbon roses in pots will also require some care just now ; many of them exhibit an inclination to continue blooming, which had better be checked by keeping them rather dry, or they will be filled with soft wood, which is certain to require much nursing in January, or the loss of some of the best may have to be regretted ; besides, if the vigour of the plant is expended now in the production of puny flowers, and the best of them are no more, it is not reasonable to suppose it will break so strongly in the spring as would be the case with those that are now sinking into a state of rest. Do not prune any of the branches now ; indeed so fearful am I of this very common practice, that I do not even cut a stem to the flowers that it becomes necessary to remove, merely plucking them off close to the seed-pod, for when a branch is shortened it has a tendency to induce the protrusion of another from one of the lower eyes, which, as just remarked, is a matter to be avoided as far as possible ; plenty of air and but little moisture must be the maxim, not only with these but every other description of florist's flower preserved in a pot, through the entire month.

Owing to the damp state of the atmosphere, worms are very troublesome in the beds of pinks and early-planted anemones and ranunculuses, thrusting up the soil and overturning the plants. The best remedy is lime-water, made by throwing half a peck of fresh lime into four or five gallons of water, and allowing it to stand till clear, when a couple of sprinklings will usually drive out the greater part ; tar- or gas-water has the same effect, but is not so safe, as there is a possibility of its being too strong, which is not the case with lime-water.

Auriculas and polyanthuses may be referred to the general directions given for picotees ; they will require plenty of air and but little water, with protection only from heavy rains. Should any of the pots appear to retain moisture longer than those beside them, the drainage is most likely defective, and should be examined. Where polyanthuses are grown in the borders, it is advisable to set about them some small sprayed sticks, to break off the roughest winds and to guard them from the worst frosts.

The removal of standard and other hardy roses may now be got on with most successfully, and stocks should be procured and planted, where an increase is required. With regard to these a

great error prevails in the supposition that they will bear to remain unplanted for a considerable time; depend upon it, their roots cannot be exposed to the air without injury to an equal extent with any other hardy shrub, and those who desire to ensure success should be careful that the stocks are planted again as quickly after their removal as may be possible; the half-hardy roses standing in the borders of the flower-garden will require less trouble to protect, in case of severe weather, if they are taken up and planted or "laid in" close together, when one covering will serve for the whole, and they will be somewhat benefited by the change, as it induces at each removal the multiplication of small fibrous roots.

Tulip-planting will now engage the attention of all who grow them, and sorry I am the patrons of this splendid flower are not more numerous; any account of the manner of planting these bulbs must now be superfluous, it having been repeated so often. I would, however, advise the beginner to defer the operation with any kinds he may possess that are not in their proper condition; foul or *gruf* roots, as the Dutch florists call them, may often be rectified by keeping them out of the ground for three or four weeks, as its effect is to throw out the superabundant colour, and thus reduce them to the required purity. Offsets and young bulbs, on the other hand, should be got into the ground as early as convenient, in order to give them strength.

The dahlias have had a trying season, at least in low-lying districts; with me they were cut off by the middle of September, completely blackened and dead, then succeeded mild damp weather, causing them to burst into a second growth, which I much fear will render them troublesome to keep through the winter, and if not started very early next season, it is not improbable that many will die; they will be left in the ground as long as possible to mature their tissue, but in a week or two they must come up, and then will want a great deal of drying to preserve them at all.

FLORISTA.

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## HARDY HERBACEOUS PLANTS FOR EXHIBITION.

IN conformity with my intimation last month, I send you a rather crude list of what I think suitable for the purpose proposed in that paper, premising it to be rather an attempt to assist those who may intend competing, than any positive enumeration of what is or is not the best. I think, however, that any or all the following plants may be had in bloom for nearly the whole course of the three shows, and that they may be cultivated to have a pleasing appearance in pots. The subject, on consideration, does not wear so easy an aspect as the first glance would lead one to suppose, and the Horticultural Society or their judges will have to exercise some leniency at the beginning, if they desire to see the matter carried out to what I still think it capable of becoming. In the absence of definite limits, I have left out several that appear objectionable for their habit, and bulbous-rooted plants are omitted altogether, though it seems only reasonable that they should class with the herbaceous, in which case several beautiful and interesting species will remain to be added to the list; and, as with these plants but little opportunity to correct natural deformities by training will be presented, I should think it will be advisable to dress the surface of the pots of such as become naked below, or "leggy," as it is called, with some of the smaller saxifrages, sedums, or similar plants.

1. *Adenophora*. Almost any of this genus seem calculated to suit the purpose; but, to make a selection, I would name *stylosa*, pale blue; *marsupiiifolia*, same colour, flowers rather later than the preceding; *Gmelini* and *Fischerii*. From these four, two would be certain for each show.

2. *Alstræmeria*. The greater part of this genus, though usually catalogued as tender, will be found quite hardy, and therefore admissible among plants of the present class, and certainly none more beautiful or better suited are likely to be found. The species *pelegrina*, *psittacina*, *aurantiaca*, and *Neillii*, with any of the Ghent varieties, will furnish a fine display through June and July.

3. *Alyssum*. Although somewhat common, there will perhaps

be few more effective than *A. saxatile*, in May ; and for June and July the pretty little *A. montanum* may be grown.

4. *Anemone japonicum* will make a fine plant for the purpose, and will continue flowering through the entire period.

5. *Aquilegia*. Several species of this genus appear desirable, particularly *canadensis*, *glandulosa*, *Garnieriana*, and *Skinnerii*. They will be good for June and July.

6. *Armeria cephalotes* is a pretty plant, that has already made its appearance on the exhibition table, and therefore we know it to be good.

7. *Astragalus*. This genus, though rather coarse, contains such free-flowering plants, that I think it ought not to be omitted. It is probable, too, when grown in pots, its usual vigour will be restricted. Species like *tenuifolius*, *caryocarpus*, *microphyllus*, and *carolinianus* promise to have the best appearance.

8. *Calendrinia speciosa* and the pretty new *umbellatus* are just the kind of plants required ; but we must hope the sun will shine upon them, or their flowers do not open.

9. *Campanula*. From this genus we may select an almost indefinite number. The blue and white varieties of *pumila* in pots are familiar to every one. *Zoysii*, *carpatica*, *nobilis*, *mollis*, *alpina*, and *speciosa* are all good ; and, as back-row plants, I should think the double varieties of *C. medium*, or Canterbury Bells, would not be objected to.

10. *Delphinium*. Here also we are presented with several very beautiful subjects. The new varieties *Iveryana* and *Peckhamensis* will tell among a collection with great force, while some of the older kinds, such as *grandiflora*, *Barlowii*, *chinensis*, and others, will add lustre to the whole.

11. *Gaillardia aristata* is a very showy, free-flowering plant, which would be in fine order by July.

12. *Globularia vulgaris*, in May and June, and *nana* or *nudicaulis*, in June and July, would be certain to be in admirable condition.

13. *Gnaphalium arenarium* and *sanguineum* would form two good plants for our purpose.

14. *Iberis*. Like the *Alyssum*, this genus is recommended alone for its beauty, in the estimation of some it may be regarded as too common ; but such plants as *saxatilis*, *gibraltarica*,

*pubescens*, and *sempervirens* will be found highly useful, because they are certain to present a mass of flowers at the time they are wanted.

15. *Linum*. From this genus there are two or three species to be selected, which are very beautiful when well managed; those I prefer are *flavum*, *perenne*, and *tenuifolium*.

16. *Phlox*. A few species suitable for pots may also be got from this genus; such as *Murrayana*, *Lorainii*, *Prince Albert*, and *ovata* I should prefer.

17. *Saponaria*. The pretty free-flowering *S. ocymoides* and *cæspitosa* will also be found of assistance in June and July.

18. *Silene*. In this genus we have an immense assemblage of just the sort of plants required, many of them very pretty, and so that we select free-flowering kinds, or rather those which are most dense, we cannot go wrong. *Acaulis*, *Gypsophila*, *quinquevulnera*, *bellidifolia*, *pendula*, *Schafta*, *virginica*, *regia*, and *longiflora* all appear likely to succeed and wear a pleasing appearance.

19. *Statice*. A few species may be drawn from this genus, of which there can be no doubt of their successful application; *latifolia*, *speciosa*, and *tartarica* are those I select.

20. *Veronica*. Here is another large number of free-flowering hardy plants, from which we have only to select the dwarfer kinds: *spicata*, *alpina*, *hirsuta*, *prostrata*, *latifolia*, and the variegated variety of *Chamedrys* will afford a sufficient selection.

From the species enumerated, there will be little doubt of twenty being secured for each of the Horticultural Society's shows of next season.

#### HORTULANUS.

To meet your correspondent's views expressed in last month's Journal, I beg to hand you a list of twenty hardy herbaceous plants likely to bloom simultaneously in June, which I believe to be the best month for them. May being rather too early for the best, and by the arrival of July the heat of the weather usually destroys their beauty. Of course, when grown for exhibition, these things will have to be thought of, and, as is practised with other plants, means must be adopted to forward or retard the flowering of particular individuals, while the main body progresses under its natural impulse.

When cultivated in pots, herbaceous plants will require rather stronger and richer soil than they have been accustomed to in the borders of the garden, for being limited in quantity, the difference must be made up to them in the quality of the earth employed, and I have no doubt of loam proving the best staple; it will probably require lightening and enriching with some nearly rotten hot-bed manure, but this must be used with caution, or there will exist a great chance of the plants, or, at least, some of them, assuming a more leafy character than may be desirable. Yet we must not suppose, because we have free-growing subjects to deal with, that they are to be managed without a due share of attention; we must remember they are going among plants which will display the highest culture, and, unless our hitherto unpretending little plants are marked by some appearance of care, they will be absolutely and deservedly despised; the foliage must be clean, whole, and healthy, the plants well bloomed, and the whole neatly arranged. Beginners may, perhaps, be benefited by a hint that little bits of plants will be next to useless; masses will be required of most things, so that each individual may be a specimen.

*Acynos grandiflorus*; a purple flowering trailer.

*Agrostemma Bungeana*; large scarlet, rising a foot and a half.

*Anemone japonicum*; purple, attaining about a foot.

*Argemone mexicana*; bright yellow, about the same height.

*Betonica incana*; flesh colour, rising about six inches.

*Campanula muralis*; light blue, trailer.

*Chelone barbata*; carmine, a branching plant about two feet high.

*Crucianella stylosa*; deep rose, trailer, rather common, but pretty.

*Delphinium Barlowii*; deep blue, rising a foot and a half.

*Dianthus Hendersonii*; crimson, one foot, very handsome.

*Gentiana Catesbæi*; deep blue, one foot.

*Geum coccineum*; scarlet, two feet in height.

*Gypsophila repens*; white, attains about six inches.

*Hapalostephium grandiflorum*; yellow, a foot and a half.

*Hesperis matronalis*; either the double white or double red, a foot and a half.

*Iris subiflora* ; violet, scarcely a foot.

*Liatris heterophylla* ; purple ; about the same height.

*Oenothera macrocarpa* ; yellow, large flowers, trailing habit.

*Oxalis Bowiei* ; deep rose, about six inches in height.

*Potentilla Hopwoodiana* ; orange and crimson, one foot high.

A SUBSCRIBER.

Rochampton.

### EARLY TULIPS.

UNDER this name a very interesting group of the showy family of tulips is generally known in gardens, springing I suppose originally from the *Tulipa præcox*. Though they do not possess the regularity in form and marking of the late tulips, and have consequently but little or no interest for the florist, there are few flowers more useful to the general gardener than are these. Their gaily-coloured blossoms are developed almost before the retirement of the nipping winter's cold, the first vernal breath seeming sufficient to warm them into life and beauty, and ere April's smiling, weeping course is half run, a galaxy of rich and varied hues is presented by the bed of early tulips. Why they are not of more frequent occurrence I am at a loss to conceive ; their management is simple, they are vigorous and hardy in habit, possessing a constitution far more robust than the late flowering kinds, and therefore, when once procured, are easily kept, and for a display of pleasing colours, which is the flower-gardener's chief aim, are very far in advance of any other bulbous-rooted plant known to us that blossoms at the early season natural to these, when even the simplest of floral forms, the lowly snowdrop, is prized. Perhaps, like many a worthy member of society, they require but to be known to receive the cordial welcome their merit entitles them to ; but while this introduction is pending, society suffers in both cases, and therefore when the opportunity offers, let us do our best to remove the incubus ; and now that the planting season is at hand, I beg to introduce to the notice of such of your readers as may not have hitherto enjoyed the beauty of a bed of these flowers : the following very handsome kinds, which possess the very enviable qualification of pleasing wherever

they are met with. Adding, in parenthesis, that to grow them requires only a bed of moderately good soil, into which they are to be planted, four inches from the surface, and as much from each other, as soon as they are procured, and after they have bloomed, to be taken up and kept as is usual with the more common kinds.

Belle Alliance; deep vermilion.	Golden Star; yellow and vermilion.
Condé Brabant; vermilion and yellow.	Thomas Moore; brown.
Lac van Rhyn; lilac and gray edge.	Royal Standard; deep rose and white.
Bride of Haarlem; crimson and white.	Cerise Parfaite; cherry and white.
Vuurberg; deep scarlet crimson.	Eendragt; white vermilion edge.
Claramond; deep rose.	Pax Albo; large white.
Drap d'Or; vermilion and yellow.	Canary Vogel; bright yellow.
Pottebakker; yellow.	Duc Victor; rosy lilac, gray edge.
” white.	Duc de Holstein; yellow and crimson.
Reine des Cerises; rose and straw colour.	Violette Blanche; white and cherry.
Bizard Pronkert; crimson and yellow.	Samson; deep vermilion and yellow.
Superintendent; lilac and white.	Globe de Riga; lilac and white.

J. T. L.

#### LITERARY NOTICE.

*English Botany, or the Plants of Great Britain; arranged according to the Linnæan System, with their Descriptions, Synonymes, Places of Growth, &c.* Second edition. Reissue in parts. London: Judith Sowerby, 3, Mead Place, Lambeth.

It is no inconsiderable task to chronicle and describe the plants which inhabit an extensive country, but to produce figures of them all is a much more herculean labour, and few countries can boast of any tolerably complete collections of delineations of



their native plants. In this respect no country is so much honoured as our own; the labours of two departed worthies have raised to their memories a lasting monument of fame, for the names of Sir J. C. Smith and of Sowerby, as associated in the production of 'English Botany,' are honorably inscribed on the roll of botanic history. The 'English Botany' of these authors is a most admirable publication of plates of our indigenous flora, engraved by Sowerby, and described by Smith. The original edition was published in thirty-six octavo volumes, the present, or second, or, as it is also called, the small edition, is a reissue of the original plates, with the descriptions much condensed. This small edition has passed through one issue, commencing in 1832 and ending in 1845. Its reissue has again commenced, and its completion is to occupy about seven years.

The plates themselves may be described as admirable delineations of the plants they are intended to represent, characterized by a degree of boldness and honesty in their execution, which has secured them a long course of approbation. The work is essentially from its nature a costly one, as all books consisting chiefly of plates must necessarily be; but in its present form it is brought within the reach of persons of moderate means—now therefore is their opportunity.

M.

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## DESCRIPTIVE LIST OF NEW PLANTS.

### ASCLEPIADACEÆ.—*Pentandria Monogynia*.

*Hoya campanulata* (Blume). This very curious plant is a native of Java, where it was found by Dr. Blume, who describes it as an inhabitant of mountain thickets in the west of the island; it is called by the natives *Tjunkankan*, and flowers all the year round. Its introduction is due to Messrs. Veitch, of Exeter, to whom it was sent by Mr. Thomas Lobb, and with whom it flowered in April, 1846. Its habit is altogether that of a thin-leaved *Hoya*, but its peculiarly-formed corolla gives it a different appearance; on this account M. Decaisne removes it to the genus *Physostelma*, but as he does so doubtfully, and as it wants the bladderly coronet which is proper to that genus, giving it its name, it does not seem desirable that the current nomenclature

should be disturbed. It requires the same treatment as *Hoya carnosa*, and its flowers are of a similar colour.—*Bot. Reg.* 54-47.

GROSSULARIACEÆ.—*Pentandria Monogynia*.

*Ribes Menziesii* (Pursh). This little-known plant is a hardy shrub, inhabiting various parts of California. In gardens it grows from four to six feet high in any common soil, strikes freely from cuttings of the ripe wood in autumn or spring, and flowers in May. It has not fruited in this country, as far as we know. Sir James Smith, who published it under the name of *R. ferox*, without remembering that Pursh had already given it the name it bears, described it thus: "A very remarkable species, whose branches are thickly covered with tawny, setaceous, prominent prickles, about a quarter of an inch in length, and armed under each bud with three very strong and pungent ones, an inch long, having sometimes lesser reflexed prickles at their base. The leaves are not unlike those of our common gooseberries, but more rugose, and densely downy at the back; flower-stalks solitary; flowers drooping, large, and handsome; calyx three quarters of an inch long, funnel-shaped, downy, and bristly, a fine crimson; its segments lanceolate, ribbed, erect, full twice as long as the tube; petals half the length of these segments, erect, pale, obtuse; stamens the length of the calyx; anthers large, pointed; germen covered with prominent glandular bristles, which harden as the fruit advances into stiff sharp spines, so that whatever its flavour may be, it seems perfectly inaccessible in the common way of eating gooseberries."

CRASSULACEÆ.—*Decandria Pentagynia*.

*Echeveria retusa* (Lindley). We learn from the 'Journal of the Horticultural Society' that this species was "raised from seeds received from Mr. Hartweg in February, 1846, and said to have been collected on rocks near Anganguco, in Mexico.

"This is a dwarf species, not unlike a contracted form of *E. Scheerii*. Its leaves are originally closely imbricated, but are never truly roseolate, and by degrees separate as the stem lengthens; they are broad at the point, but acute when young, but when old are extremely blunt and irregularly crenated, as well as bordered with purple. The flower-stem is from nine inches to a foot high,

and bears at the summit a compact panicle of handsome crimson flowers, covered with a delicate bloom, and orange-coloured inside. It is a pretty greenhouse, half-shrubby plant, and grows freely in a light mixture of sandy loam with leaf-mould and plenty of silver sand. It is easily increased by the leaves, rises from one to two feet high, and flowers freely from November to April, that is to say, throughout the winter."—*Bot. Reg.* 57-47.

CACTACEÆ.—*Icosandria Morogynia*.

*Echinocactus cinnabarinus* (Hooker). A neat species in regard to the form and arrangement of its tubercles, and very striking when in flower, from the numerous rich cinnabar-coloured petals, which spread to a diameter of three inches. The species is among the many rare ones from Bolivia purchased for the Royal Gardens from Mr. Bridges. It flowers in a cool greenhouse in July. Our specimens grow solitary, and are globose, but depressed and umbilicated in the centre, six to seven inches in diameter, and three or four inches in height. The surface is formed of copious dark green *mammillæ* or tubercles, closely packed and arranged in spiral oblique lines; they are four-sided at their base, and dilated at the back into a deep, vertical, rather short keel, on the top of which the *areola* is situated; this areola is small, woolly, and bears a cluster of about twelve, pale brown, narrow, subulate or acicular, but rather strong *aculei*; those of the circumference are nearly equal in length, and form a circle  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch long; the central one is longer and stronger than the rest, all slightly curved. The lower sepals of the calyx are short and acute, the superior one and the petals are spatulate, and alike of a rich cinnabar colour.—*Bot. Mag.* 4326.

DIDYMOCARPEÆ.—*Didynamia Angiospermia*.

*Chirita Walkeriæ* (Gardner). Mrs. General Walker detected this fine species of *Chirita* in Ceylon in 1830. It remained for Mr. Gardner, the able director of the Botanic Garden, Peradenia, Ceylon, to send the seeds to us in 1845, and to establish it as a new species with a full and accurate character. In 1846 our plants bloomed, and proved the species to be well worthy of a place in every collection, from the beauty of the flowers and their continuing long in perfection. Indeed there is scarcely a month

throughout the year that it does not produce blossoms. With bottom heat it becomes a luxuriant plant, and it must always be considered an inhabitant of the stove. The plant is shrubby but succulent, clothed with rather large, ternately whorled, soft, downy leaves. The flowers are produced on slender, drooping peduncles, singly, from the axils of the leaves; the calyx is downy, and divided into five long pointed teeth; the corolla is twice as long as the calyx, between infundibuliform and campanulate; the tube downy, pale; the limb spreading, deep purple, two-lipped, wavy; the upper lip two- the lower three-lobed; the lobes subrotund; within the mouth, below, is a deep yellow line.—*Bot. Mag.* 4327.

CYSTANDRACEÆ.—*Didynamia Angiospermia*,

*Æschynanthus longiflorus* (Blume). When describing the *Æschynanthus speciosus*, we gave our readers reason to expect that another species would soon be represented, which would vie in beauty with that eminently handsome plant, and we now keep our pledge. Closely as are the two species allied, they are unquestionably distinct; and the differences are equally apparent in the dried native specimens as in the living ones.

Much of the beauty of *Æ. speciosus* is due to the varied colour (red and yellow) of the corolla; in the present, to the uniform puce of the entire flower. Here the mouth of the corolla is much contracted, with the segments or lobes erect, the style scarcely exerted beyond the corolla, the stamens very much so: in *Æ. speciosus* the style is very much exerted, the stamens scarcely so at all. Messrs. Veitch and Son, of Exeter, have equally the credit of introducing this as the one last mentioned, through their East Indian collector, Mr. Thomas Lobb, from Java; it is probably derived from the locality mentioned by Blume, "mountain woods," province of Bantam. It flowered with Messrs. Veitch in August, 1847.—*Bot. Mag.* 4328.

MALVACEÆ.—*Monadelphia Polyandria*.

*Hibiscus glossulariaefolius* (Miquel). Australia does not seem eminently rich in species of Hibiscus; but some of them are very beautiful, and the present is no exception. It was raised in the Royal Gardens of Kew, from Swan River seeds sent by Mr. Drummond, and has this character to recommend it—that in

summer, if planted against a wall, it makes a beautiful open border plant, flowering frequently during the summer months. It assumes the character of a shrub, growing from three to four feet high, with terete branches, the younger ones, leaves and calyx (the latter more copiously), clothed with tufts of stellated patent hairs; the leaves resemble those of the gooseberry, and the flowers are large and handsome, rich blueish purple, slightly downy in a broad line outside on each petal.—*Bot. Mag.* 4329.

GESNERIACEÆ.—*Didynamia Angiospermia.*

*Columnea crassifolia* (of the Gardens). This is the largest flowered and most beautiful of this beautiful genus, of which I regret that I know nothing more concerning its history than that it was sent us by Mr. Makoy, of Liege, under the name of *Columnea crassifolia*; which appellation, being unexceptionable, I gladly adopt. It is probably a native of Mexico, and extremely different from any species hitherto described. It requires the heat of the stove, and is readily increased by cuttings, which are exceedingly tenacious of life; a specimen under pressure for the Herbarium, continuing to push a green shoot at the extremity two months after being gathered. Our plants are scarcely a foot high, disposed to throw out fibrous roots at the joints, terete, fleshy, suffruticose, scurfy, with brown scales, which give them a spotted appearance. The leaves are four or five inches long, narrow, lanceolate, acuminate, fleshy, nearly entire, dark glossy green, and quite glabrous above; beneath paler yellowish-red, and very slightly hairy. The flowers are borne on short, thick, axillary peduncles; they are erect and very large calyx; nearly an inch long, brownish-green, cut almost to the base into five, erect, lanceolate segments; the corolla is between three and four inches long, bright scarlet, shaggy, with long red hair; tube curved; limb, with the upper lip galeate, entire; the mouth very open, the lower lip having the two lateral segments short, and appearing rather to belong to the upper than to the lower lip; the intermediate segment is deflexed.—*Bot. Mag.* 4320.

LOBELIACEÆ.—*Pentandria Monogynia.*

*Siphocampylos glandulosa* (Hooker). A handsome species of Pohl's genus *Siphocampylos*, from Bogota, of which seeds were sent to Sion and to the Royal Gardens of Kew by Mr

Purdie in 1845. Our drawing was taken from a fine specimen in the greenhouse of his Grace the Duke of Northumberland. It grows freely and flowers abundantly during the summer months, when its pale purple blossoms are very pleasing.—*Bot. Mag.* 4331.

PROTEACEÆ.—*Tetandria Monogynia*.

*Isopogon sphaerocephalus* (Lindley). A free-growing greenhouse shrub, with terete downy branches, pale green, linear, or linear-lanceolate leaves, and terminal heads of deep yellow lacinate flowers. It was sent from Swan River by Mr. Drummond, to the Royal Gardens, Kew, where it flowers in the spring months, and attains a height of three or four feet.—*Bot. Mag.* 4332.

EPACRIDACEÆ.—*Pentandria Monogynia*.

*Epacris Tauntoniensis*. This very pretty free-flowering hybrid *Epacris* was raised a few years ago by Mr. Ball, nurseryman, of Taunton, as we believe betwixt *E. grandiflora* and *E. impressa*. It is certainly a very ornamental kind, and deserves universal distribution, being a robust free-grower, a liberal brancher, and having a very prolonged flowering season. The flowers are larger and deeper in colour than those of *E. impressa*.—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monogynia*.

*Epidendrum alatum* (Bateman). Of this once rare plant the gardens now abound in varieties, owing to the large importations from Guatemala, of which it is a native. Its pale colour, and the peculiar markings upon its lip at once distinguish it. These markings consist of reddish warts, plates, scales, or elevations of various forms arranged upon the veins, and therefore spreading from the base. We find nothing among the variations of sufficient importance to deserve special notice.—*Bot. Reg.* 53-47.

*Saccolabium miniatum* (Lindley). This is one of the prettiest Epiphytes lately introduced, for the gay red orange of its flowers is as rich and pure as *Epidendrum vitellinum*. It is moreover so compact in its mode of growth that it can be easily moved from place to place. It is a Java plant, imported by Messrs. Veitch, and has flowered with both Mr. Rucker and Mr. C. B. Warner. Its blossoms grow in spreading racemes about ten together.—*Bot. Reg.* 58-47.

## GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

- TAP-ROOT.** The main root, which descends perpendicularly for a distance into the ground without dividing.
- TENDRILS.** Organs which have the power of twining themselves round another body, and by which certain plants attach themselves to their supports, as in the vine.
- TEREBINTHINATE.** Partaking of the nature of or containing turpentine.
- TERETE.** Long, round, and smooth.
- TERMINAL.** The top; or placed at the top.
- TERNARY.** Occurring in a series of threes.
- TERNATE.** Growing together in threes.
- TESTA.** The coat or skin of seeds.
- TESTACEOUS.** Of a pale, ochrous, brown colour.
- TETRACHOTOMOUS.** Branching constantly into four.
- TETRAPETALOUS.** Composed of four petals.
- TETRASEPALOUS.** Having four sepals.
- THROAT.** The orifice of a tubular flower.

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## CALENDAR OF KITCHEN GARDEN OPERATIONS FOR NOVEMBER.

VACANT spaces may still be filled up with cabbage plants, putting them in rows fifteen inches apart, and six inches plant from plant in the rows; in spring they can be used as greens, or every three out of four may be drawn and so used, and the remainder left to cabbage. Cauliflowers in frames or under hand-glasses should have air freely, never closing the lights entirely except in absolute frost; keep them clear of weeds and decaying leaves, and protect them from heavy rains. Brocoli fit or nearly fit for use, should be lifted before severe frost, and placed close together in an airy shed, or anywhere that they can be easily protected: sticking old pea-sticks thickly among them also protects them considerably from cold winds. Stir the soil deeply among this description of crops in mild dry weather.

Get in crops of peas and broad beans early or about the middle of this month, sowing on banks as recommended last month; as

soon as they are up, they should have a small ridge of earth drawn up nearly to them on the north side of the rows, and in very severe weather they should be further protected by being covered with sawdust, old tan, ashes, or similar material.

Finish the dressing of asparagus beds, and dung and fork over the quarters of sea-kale not intended to be forced : such of either as is wanted to be in use about Christmas should be covered in the first or second week, observing to force very gradually. Where a sufficient supply of roots are grown for the purpose, the cleanest and best way is to take up the roots carefully, and force them in frames or houses, thus saving the litter and unsightliness of the other method.

Earth up celery in dry weather, so as to have it blanched to a proper length before hard weather sets in. Cover the tops of the plants during frost with long litter, especially the rows for immediate use. Cardoons should also be earthed up early, and the tops covered, so as to protect the hearts from wet.

Continue to regularly blanch a proper supply of endive. A good plan before hard weather is to cover a large quantity with dry leaves, laying some pea-sticks over to keep them together. Take up and store a lot thickly in frames, putting the roots in rather dry earth, and giving air freely. The same with lettuce which are large enough ; those under frames or glasses should have plenty of air, but should be cautiously supplied with water.

Keep the autumn-sown onions clear of weeds, and shelter them by sticking fine spray among them. Manure and trench land for the next year's main crops, ridging the ground up as rough as possible. Go over those in store, and remove all decaying ones. It is a very good plan to take advantage of wet weather, and rope them in convenient quantities : they keep better hanging up. Examine all other roots in store where there is any chance of their suffering from rotting or other causes.

Small salad should be sown in frames or houses as often as necessary to maintain a regular supply. Dung, dig, or trench ground as it becomes vacant, ridging all that is not required for immediate crops. Commence any alterations intended to be done in the garden, as draining, rearrangement of walks, or turning and relaying them, renewing or making fruit-tree borders, &c.

D. M.







Alfred. Robert. Sc.

BEGONIA'S

1 ALBO COCCINEA. 2 FUCHSIOIDES.

## THE GENUS BEGONIA.

WITH FIGURES OF B. ALBO-COCCINEA AND FUCHSIOIDES.

WHAT the Daisy and Buttercup are to our own meadows and downs, or the *Ixia* and *Gladiolus* to the table-land of the Cape of Good Hope, the *Begonia* is to the woods and wilds of the Western Indies; their glory and continual ornament lighting up with their delicate and brightly-coloured blossoms the depths of umbrageous recesses, and reducing by their presence the savage aspect of unbroken solitudes. Transferred to our gardens, they fully maintain their characteristic unobtrusive but very decided ascendancy; they are there the chief ornament of our glazed structures in winter, with nothing to approach their pleasing neatness and long continued brilliancy.

The genus contains a very large assemblage of extremely varied forms, between fifty and sixty species being now included in those known to our collections, and it is likely there are yet many more to be introduced; among them are plants of every possible aspect, from the low-growing, stemless *hydrocotylæfolia*, to the suffruticose forms of *ulmifolia*, or the tree-like *dichotoma*; all are interesting in their peculiar foliage and manner of growing, and all possess a most profuse habit of blooming; in short, no stove is completely furnished with its winter occupants that has not a collection of these plants; and, thanks to the stimulus given by recent additions, cultivators begin to feel alive to the value of this truly beautiful family, and are now giving it the attention so long withheld yet so well deserved.

All the species which possess a branching habit (and they are the most numerous) are easily increased by cuttings, and the remaining few by separation of the root stock; the propagation and growth of both old and young plants must be attended to in summer, and from this circumstance, we believe, may be traced the neglect they have suffered, their possessors forgetting the useful and effective character of the group in winter, while surrounded by the splendour of summer-flowering plants.

As the mature plants usually begin to grow immediately after flowering, the cuttings will offer themselves in the early part of

summer, and should be taken off when from three to five joints long, according to their respective habits and strength ; the strong growing kinds will be more convenient with the smaller number, while the naturally dwarf species will require to be left till they have attained a sufficient length to handle ; after trimming a few of the lower leaves away, the cuttings are to be set in pots filled with very sandy peat, having a layer of half an inch of sand on the surface, and after a gentle watering they should be covered with a bell-glass, and plunged into a mild bottom heat, keeping them moderately damp, where they will protrude roots in a week or ten days, and after one or two days' exposure, by removing the glass, may be potted singly into small pots. Through the ensuing three months they should be kept in a temperature of about 65°, where there is abundance of moisture and some shade from the intense influence of the mid-day sun ; while they are small there can be no better place for their culture than the ordinary cucumber frame or pit, which in the beginning of the season usually supplies the exact atmosphere required ; here they grow rapidly, and in the course of a month will require to be stopped and repotted. The soil used at this and all subsequent shifting should be chiefly fibrous peat, broken rather roughly, and mixed with a small quantity of leaf-mould and silver sand ; into this the roots run freely, and the foliage receives a brilliant deep green. By the middle of August, the plants will have grown sufficiently to be placed in the blooming pots : these may be proportionate to the size of the plants ; they will grow on fast for another month, and in the course of that time require stopping once more, after which the branches should be tied out, and preparation made for the expected blooming season. The flowers of most of the species are produced near to the points of the new shoots, and hence the benefit of the repeated stopping recommended, as by it the number of shoots is increased, and consequently the display of flowers. After getting the plants established in the last-mentioned pots, and the last growths formed, moisture must be withheld from the atmosphere in which they are growing, and rather less given them at the roots ; a light shelf in the stove or greenhouse should receive them, and, according to the habit of the several species, the blossoms will begin to expand and continue onwards till April.

Although most of them insist on a warm, humid atmosphere to grow in, they do not refuse to bloom even in the windows of a sitting-room; and if we consider the amount of beauty which may be derived from half a dozen well selected species and properly grown plants, it does not seem extravagant to devote a single light of an ordinary garden frame to their culture through the summer; in a stove they are less difficult to manage, but with attention may be grown even to excellence with no other accommodation than that mentioned. The treatment of mature plants differs but very little from that we have detailed: after blooming, the stems should be cut closely back, and as they grow through the summer, should be stopped two or three times according to their habits; and thus each may be kept bushy and furnished with foliage to the margin of the pot.

The two species which form our plate are among the recently introduced members of the genus; *B. albo-coccinea* having been sent from India by — Strachan, Esq. to the Royal Gardens at Kew, in 1844; and the other, *B. fuchsoides*, still more recently has been received by the same establishment through their collector Mr. Purdie, from New Grenada.

The following selection, or part of it, should be included in every collection of miscellaneous plants.

*Argyrostigma*, with silver-spotted leaves, and pink flowers; *coccinea*, scarlet leaves and flowers; *Dregii*, dwarf, pink flowers; *heracleifolia*, white; *humilis*, dwarf, white; *hydrocolylæfolia*, very dwarf, flesh colour; *lucida*, white; *manicata*, with frills of crimson fibres on the stem, and white flowers; *Martiana*, pink; *Meyerii*, white; *reniformis*, for its curious leaves and white flowers; *ulmifolia*, tall, elegant habit and blush-coloured flowers; and those figured in our plate.

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#### THE PROGRESS OF AN APHELANDRA CRISTATA.

EARLY in February of the present year I procured a small-rooted plant of this beautiful thing, determining to try to what degree of excellence it could be brought in a single season, knowing that two or three years were generally consumed in forming

a bushy specimen; and having also observed in that time that the plant often became unsightly at the bottom, I entertained an idea that too much time was taken up in forming it, and therefore set to work at the period mentioned with a full intention to grow the plant as rapidly as its nature would admit. Accordingly, it was repotted immediately received, the plant then being about eight inches high. The terminal bud was taken off, and the pot plunged into a brisk bottom-heat of about 85 or 90°. The soil employed throughout was an equal mixture of turfy peat, loam from the surface of a common, leaf-mould, and silver sand. The first two ingredients had lain a twelvemonth in a heap, and the grass and roots had thereby become thoroughly decomposed. Mixing this well by hand, it was used in as rough a state as convenient, and offered a very open medium for the roots to range in. At the first shifting, just mentioned, the plant was placed in an eight-inch pot, and for the first month had very little water given it, the time of the year and the humid state of the atmosphere in which it grew rendering the application unnecessary more than once in a week or ten days. By the end of March it had filled the pot with roots, and had formed three branches, each having four to six leaves, and above six inches in length. It was then again stopped by taking out the terminal bud of each shoot, and at the same time repotted, placing it on this occasion into a twelve-inch pot. This large size was adopted for two reasons—first, because of the very active condition of the plant, which promised in the next two months to do far more than it yet had effected; and further, because April and May are well known to be very busy months, in which I was desirous of restricting the labour as far as possible. One large shift was, therefore, equal to, and applied as a substitute for, two smaller ones, and the result proved of a satisfactory nature; for, at the end of April, the plant required to be again stopped, and in June had formed ten strong, healthy shoots; and, being carefully tied out, formed a specimen fit for immediate removal to an eighteen-inch pot, into which it was at once placed and set to work to complete its season's action. Thus in five months I had obtained a plant, which, if it went no further, was at least equal to many I had seen which had cost two, and some three, years' attention. There was now some danger to be apprehended, from the altered

character of the weather, that in the next and terminal stage of the plant's progress, injury might ensue from the attacks of red spider and other insects, which are usually most abundant in dry weather, and make their advances with most effect when the condition of a plant hastening to maturity prevents the application of any certain remedy. Being aware, then, of what in all probability awaited the plant if it was allowed to sink into a state of rest, I determined on again stopping the branches and inducing another growth, which would have the effect of deferring the evil period till the intensity of the summer's heat should have declined somewhat, and also of increasing the beauty of the plant, providing sufficient time would still remain to perfect the additional branches and permit the formation of bloom-buds. It was therefore very desirable to hasten the next development as much as possible, that it might not entrench on the remaining fine weather of autumn; and accordingly, as soon as shifted, the plant was placed in a deep pit, which had held succession pine plants, but was at the time unoccupied. Here, without artificial heat, I contrived, by keeping the lights rather close, to obtain a temperature of  $70^{\circ}$ , preserving the requisite humidity by shading in the middle of the day, and liberally watering both the plant, at the roots and over the foliage, and the floor of the pit, morning and evening. The consequence was another vigorous and perfectly clean addition of branches, making now a total of eighteen terminal shoots, of sufficient strength to produce flowers, and the smaller ones, by a little management, were brought down, so as to furnish the bottom of the plant with an abundance of healthy foliage. The plant had now a circular outline, was three feet through the branches, and twenty inches high, and needed only to be kept rather dry to ensure the production of its blossoms. A month of fine weather determined the point, and, by reducing the quantity of water given to the earth in the pot, everything was finally accomplished by the beginning of October. The floor of the pit had been kept damp, in order to preserve the foliage in a healthy state, and when the plant was taken to the stove it was admitted to have reached the exact state desired. It is now a really splendid object, all the strong branches having produced each a large head of the peculiarly brilliant flowers which distinguish this species.

Along with it was grown a *Luculia gratissima*, and under exactly the same treatment: that is now, in the greenhouse, what the plant just described is in the stove, "the gem of the collection;" and I feel certain, from observation made during the progress described, that there are many other winter-flowering plants which would become equally beautiful did we begin their culture at an earlier period than is usual; and by taking a little extra trouble with young plants to commence with, we should seldom have to complain of "leggy specimens."

HORTULANUS.

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### BORONIA SERRULATA.

THIS, the most beautiful of the genus *Boronia*, I believe was introduced from New Holland some three or four years anterior to 1820, but was not grown into anything like a handsome specimen, so as to become an imposing object, until a more proximate date, when I presume cultivators became more practically conversant with the physiology of the vegetable kingdom.

In Nature there are certain established laws, and it is necessary that these fixed laws should be, in the fullest sense of the word, absolutely obeyed, for if infringed upon in any way, the object of Nature itself is defeated, and the efforts of the manipulator prove abortive.

I believe the first exhibited specimen of this plant was shown by an intimate friend of mine, Mr. R. S. Hastings, late of Portland Nursery, London, at one of the earlier meetings of the Metropolitan Society, in 1832, for which he obtained a large silver medal. This plant, although at that time considered a beautiful specimen, has been surpassed by those which grace the exhibitions of the present day. For instance, those shown by Messrs. Fraser, Lee Bridge, and Hunt, gardener to Miss Traill, Hayes Place, Bromley, which may be said to be the finest and best grown plants in the world.

The opinion of most, with reference to its general management, is, that it is difficult to grow, but for my part I do not conceive it to be so, providing the proper attention be given, which it requires in the rather extended details of its culture.



I have proved myself that it must not be neglected, neither is it necessary to lavish that care and attention on it usual to plants considered delicate. Many suppose that it requires a warm temperature throughout the winter months, that the temperature of a greenhouse is not sufficient, but when we take into consideration its native clime, whose summers are not excessively hot or winters intolerable, we may infer, independently of experience, that a warm part of the greenhouse is the most eligible situation during the almost inactive months of winter. Many plants are destroyed by what may be termed over-kindness, not satisfied with well doing, an attempt is made to push the growth of the plant to an extreme by subjecting it to heat, which, in my honest opinion, is highly prejudicial at any time; for although a plant seems perfectly at home in a sweet, moving, humid atmosphere, yet if good judgment be not exercised, it is brought eventually into a debilitated state, from which condition it rarely survives for any length of time, the fluid or life-blood of the plant becomes deteriorated, and the process of assimilation is but imperfectly carried out. I do not wish to deny that heat judiciously applied, and the plant very carefully inured to a lower temperature, will be under some circumstances of advantage.

But to simplify my practice in a cultural point of view, I recommend those who feel disposed to grow this plant to purchase small healthy plants of those nurserymen who have obtained some notoriety in their culture. Select them early in the spring, and see that they are thoroughly established in the pots; these may be at once shifted into pots a size or two larger, this entirely depending on the strength of the plants.

Endeavour to ascertain from where the most successful growers obtain their peat, having secured this, mix with it a good portion of sharp silver sand with a few small clean pebbles, charcoal, or potsherds broken small, blending the whole well together, reducing the roughest lumps, but not too fine; then, having put plenty of drainage into the bottom of the pot, with a few pieces of rough peat on the top, proceed to shift the plants, pressing the new soil as closely as possible in the pot; if the ball of the plants and the compost used be in that happy medium state, neither too wet or too dry, the application of water may be delayed for two or three days, when sufficient should be given, so as to nicely percolate through the whole mass.

After the operation of shifting, they should be placed on some warm shelf in a sheltered part of the greenhouse, and, in the continued application of water, be careful to avoid extremes, for should the ball of earth become either too dry or too wet at this stage of the plant's progress, the result would be inevitably fatal.

Should they go on well as the season advances, let them be removed to a frame where the air about them is free and pure ; I prefer the frame to stand full south, being careful to shade from intense sun during four or five hours at the meridian of the day ; and as the plants become established, and the weather propitious, let plenty of air be given night and day.

If they will bear a second shift by the middle of July proceed to do so, but observe particularly that they are well rooted and in entire health before this is determined on ; at each successive shift let the compost be a little coarser each time, paying attention to efficient drainage, rendering it equal throughout the ball ; if the weather is not very favorable, let the plants be kept rather close for a few days. During the summer months, as the sun declines in the after part of the day, syringe them over-head two or three times a week, and at any time when water is required at the roots, whether it be once in two days, a week, or fortnight, give enough to moisten the whole ball and no more, the little-and-often system is being repudiated and very properly so.

When they are growing freely, let the shoots be stopped, that they may become bushy and compact, but do not, under any consideration, perform this operation except when they are in an active growing state. At the latter end of summer, remove them to a warm part of the greenhouse, as near to the glass as possible, avoiding currents of air and sudden transitions from heat to cold at all times, but admit it freely in clement weather. In watering, use rain-water, as with it is associated ammonia, one of the convertible stimulants of vegetable life and matter. Should mildew make its appearance, dust the foliage with sulphur ; let the plants respire in a pure atmosphere, and treat them in conformity with Nature's code of laws, and the reward will be certain.

GEORGE FRY.

## VEGETABLES AND FRUITS.

NECESSITY AND ADVANTAGE OF AN AUTHORITATIVE RECORD OF  
THEIR CHARACTERISTICS AND MERITS.

ONE of the most useful labours undertaken by the Horticultural Society of London, and one perhaps, too, in which it was more successful than in many of its pursuits and objects, was the testing and permanently recording the qualities and characteristics of the different sorts of vegetables and fruits, of which numerous varieties existed in our gardens. To say that, in the execution of this task, no error was committed, would be imputing to it an infallibility, to which of course it can have no claim; but, taking a fair estimate of these labours in the aggregate, they must have been beneficial to gardening. Of one branch of these observations we have, indeed, a permanent and separate record in the 'Catalogue of Fruits,' published by the Society—a work of great importance, exceedingly well executed, and which, it is perhaps not too much to say, no other body corporate nor any individual could have surpassed or even equalled; and this because of the extensive series of materials from which it was compiled, and the diligent and undivided attention bestowed on it.

In providing these records the Society did well: its objects, and the cause to which it is devoted, could hardly have been rendered a more useful service in any other way. Why, then, has it abandoned its task? We cannot tell, unless more fashionable, though less useful engagements should have occupied its garden, engrossed its time, and drained away its resources. As it is, what was by it well commenced, and in the case of the fruits tolerably well sustained, stands now as a monument of its shame; for, while the Society has gone on flourishing and prosperous, these—the most legitimate and useful of its objects and operations—have been rendered useless from their incompleteness. The Society has progressed, but it has suffered these things to remain stationary.

At the present time, when the rationale of gardening is pretty well understood—when, in fact, a greater number of persons than at any former period know more or less of the principles

and practice of gardening, nothing would prove so beneficial to the science, or of such general individual utility, as a fair and honest record of the characters and qualities of all the numerous varieties of culinary vegetables and of domestic fruits which have sprung into existence since the vegetable lists and the fruit list respectively of the Horticultural Society were prepared. This the Society ought to do; for, according to the dictates of common sense and common right, the Society and these labours stand identified. If it does not fulfil them, it violates a sacred duty. This the Society ought to do, because it is *the* Horticultural Society—because these things are essential to be done for the promotion of horticulture—because no one person, nor any number of persons, can so well perform such a work—and because it is supported for objects and purposes of this very kind. We hope the attention of the Society will, through the press, be directed to this subject, and that ere long we shall see something of the kind accomplished.

It will perhaps be said that, in the case of new fruits or vegetables, gardeners can themselves make the trials, and reject such as are not found worthy of continued cultivation. But there is not one gardener in ten—no, nor one in a hundred—who has facilities for doing this; and with the great bulk of amateur cultivators it is quite out of the question. And what is the consequence of this? Why, really valuable additions to our gardens only come to be generally cultivated after they have gained so extended and general a commendation from those who can afford to try them, as to involve little risk in growing them; and that little, not in respect to their general qualities, but merely their adaptation to particular circumstances and objects. And while private gardeners cannot make the trials we are alluding to, so neither can the dealers, for their recommendations would always be open to doubt. The only alternative, therefore, would be for the public Society to make a general trial of all, to report fully upon all, and thus to furnish, stamped with its own respectability, an authoritative standard, on which all might rely.

We may add a few words as to our notions of how this ought to be carried out:

First, with respect to Fruits. The Catalogue now extant should undergo a general revision every few years, say every five

years, when all additions and corrections ascertained within the five preceding years should be embodied. To render the observation of the five years available, however, for the general good, before their publication in this consolidated form, an annual supplement should be issued, embracing the additional experience of each year. Every known fruit should have a fair trial.

Secondly, with respect to Vegetables. A catalogue should be prepared on the same plan as the Catalogue of Fruits; and this catalogue should, in the first instance, comprise all the Society's former recorded experience, with the result of a trial of every other known variety of vegetable up to the year of publication. This foundation laid, supplements to it should also be issued, and these supplements consolidated with the catalogue every five or more years. If some such plan as this were adopted, the public or subscribers would be in possession of the report on every known vegetable or fruit of the preceding year, and would be wanting only in the case of those of the current year, which should be supplied with all reasonable speed, at the close of the season.

There is no natural objection to the plan, but the want of inclination among the leaders of the Society. The thing could be *done*, and done well too without material expense. Or if it did involve some cost, would not the value of the information be a full compensation? If the Society can afford no additional outlay, is all that is now spent annually better employed than it would be in this way? We commend the question to the serious consideration of those who have a voice in the affairs of the Society. It is one of many reforms wanted; and we have throughout these remarks kept the Horticultural Society in view, because it is the Society to which the question nationally attaches.

ROMEO.

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## DESCRIPTIVE LIST OF NEW PLANTS.

### IRIDACEÆ.—*Triandria Monogynia*.

*Iris aurea* (Lindley). This *Iris* was raised by Messrs. Whitley and Osborne, of Fulham, five or six years ago, from Indian seeds, presented to them by Dr. Royle. It was communicated to us

last July with the following note: "It flowers very freely, with the habit of *Iris ochroleuca*, and grows as tall."

Possibly it is merely an Indian form of that species; but, if it be so, it presents points of distinction which render it at least a well-marked variety.

It differs from *I. ochroleuca* in the sepals and petals, being more lanceolate and wavy at the edge, and in its bright golden-yellow colour. In the former respect, it is more like *I. halophiloides*, but the flowers are much larger, and the base of the sepals not more than half as wide. It will be an acceptable addition to the list of showy, hardy perennials.—*Bot. Reg.* 59-47.

*Tritonia aurea* (Pappe). This beautiful plant is a native of Caffraria, whence it was brought by Mr. James Backhouse, the eminent nurseryman at York. He informs us, it is the *Tritonia aurea* of Mr. Pappe, who, however, does not appear to have published any account of it. It is a very fine thing, remarkable for the rich apricot-colour of its large Ixia-like flowers, and for the abundance with which they are produced. We are unacquainted with the foliage and natural habits of the species, but we presume that it resembles the African Gladioles in manner of growth, and in the treatment which it demands, except that, as it is a native of the northern districts of the Cape colony, it may be expected to be more tender than many of the Irids from the same colony.—*Bot. Reg.* 61-57.

#### RANUNCULACEÆ.—*Polyandria Trigynia.*

*Aquilegia leptoceras* (Fischer and Meyer). This very pretty plant has been raised in the garden of the Horticultural Society from seed, received from Dr. Fischer in 1846, and is thus described in the Society's Journal:

"A dwarf herbaceous plant, not growing more than nine inches high, with slender, purplish-green stems, thinly coated with scattered hairs. The leaflets of the triternate leaves are wedge-shaped, rounded, with about three lobes at the end. Each stem bears one or two flowers, on slender pedicles, rather more than two inches long. The flowers are bright violet, with the tips of the sepals greenish, and of the short petals a clear, bright straw-colour. It is a native of Siberia, beyond the Lake Baical, according to Messrs. Fischer and Meyer, who distinguish it from

*Aquilegia canadensis* by its dilated sepals, longer than the petals and stamens; from *A. Siberica* by its straight or oblique, but never hooked spurs; and from *A. parviflora* by the flat petals.

“It is found to be a hardy perennial, growing best in a mixture of light, sandy loam and a little leaf-mould, and is increased freely by seed sown as soon as ripe. It must be considered a neat and very pretty plant, well suited for rockwork.”—*Bot. Reg.* 64-47.

MYRTACEÆ.—*Icosandria Monogynia.*

*Eucalyptus macrocarpa* (Hooker). “One of the finest among the many fine plants lately sent by Mr. James Drummond from the Swan River colony is the present new species of *Eucalyptus.*” Our specimen is about five feet high, and the large and copious foliage, covered everywhere with glaucous white powder, and the bright red flowers nestling among the leaves, form a very striking object. The colour of the flowers is due to the stamens alone; for petals (as in the genus) there are none, and the calyx falls off like the lid of a box.

Drummond found it at “Guaugan,” an open, sandy desert, commencing about eight miles E. S. E. of Freemantle, and continuing for two hundred miles. This barren country is bordered by a considerable forest, consisting principally of two species of *Eucalyptus*, called by the aborigines “Urac” and “Morrall,” the latter is the plant now before us. The seed was raised at Kew in 1842, and our plant when five feet high, in the summer of 1847, blossomed in great perfection.—*Bot. Mag.* 4333.

ERICACEÆ.—*Decandria Monogynia.*

*Rhododendron Javanicum* (Bennett). On communicating this splendid plant to me for figuring in the ‘Botanical Magazine,’ Messrs. Veitch and Sons, its possessors, remarked that “it is one of the finest things ever introduced to our gardens.” And in this opinion we think all will agree who see, as we now do, the plant itself, with its beautiful, glossy, bright green foliage, and orange-coloured flowers (twelve on a bunch), here and there marked with red spots, and again spotted, as it were with the dark black purple-coloured anthers, which lie generally five on

each side of the mouth of the corolla. On a plant which previously flowered (equally sent from Java by Mr. Thomas Lobb), Mr. Veitch observes the flowers to be deeper coloured; again, Professor Blume mentions a citron-coloured variety, with smaller flowers. It is, as its name implies, an inhabitant of Java. Blume discovered it on the mountain Salak; Dr. Horsfield, "on the volcanic range extending through Java, at an elevation of 4000 feet above the level of the sea." Hence we are not surprised to learn from Mr. Veitch that it will succeed well under the mere shelter of a greenhouse, where, that able cultivator thinks, it may probably be brought to blossom all the year round.—*Bot. Mag.* 4336.

TROPÆOLEÆ.—*Octandria Monogynia.*

*Tropæolum umbellatum.* One of the most remarkable of all the *Tropæola*, which have been characterised as bearing *one-flowered* peduncles; here the flowers are umbellate, of a rich orange-red colour, tinged with green, and so copious as quite to overpower the foliage. For its first discovery the merit is due to Professor Jameson, of Quito, who gathered it on Pilzhum, a mountain to which, he observes, it is quite peculiar, at an elevation of 7000 feet. To Messrs. Veitch and Sons we owe its introduction to our gardens, through their collector Mr. W. Lobb, who probably collected it on the same spot as that above mentioned, and, from the nature of its locality, there can be little doubt it will prove to be among the most hardy of the genus. It flowered in the Exeter Nursery during the summer months of 1847.

ORCHIDACEÆ.—*Gynandria Monogynia.*

*Bletia gebina* (Lindley). This novelty is nearly related to *B. hyacinthina*, and, according to Messrs. Loddige's catalogue, is a native of Japan. It is described in the 'Journal of the Horticultural Society' in the following terms: "Leaves broad plaited, rising up the stem, from six to eight inches long, or more, and two inches wide; the uppermost acuminate, the lowest obtuse. The flowers are about as large as *Bletia hyacinthina*, from six to eight in a spike, two inches and a half in diameter, nearly white, with a faint tinge of blush. The lip is pale, delicate



violet, obtusely three-lobed, with seven plates upon its surface, of which two at the side are confined to the middle lobe, and the five others are extended to the base, which is a little stained with yellow."

It is a terrestrial orchid, which requires a slight protection from frost, and to be kept rather dry while in a dormant state; afterwards it should be well supplied with moisture and heat. It grows freely in a mixture of fibrous peat and half-decayed leaf-mould, and is increased by dividing the old plants when in a dormant state. It flowers in April.—*Bot. Reg.* 60-47.

*Dendrobium cretaceum* (Lindley). A very distinct species, remarkable for the dull chalky whiteness of its flowers, which are, nevertheless, neatly pencilled with crimson on the lip; this is owing to the whole surface of the lip, inside and outside, being covered with a short, close, white fur. It appears to possess the additional peculiarity of bearing its flowers singly, not in pairs, at least the wild specimens, which were communicated to us by the late Mr. Griffith, from Mergui and Khasiga hills, are in that state, as well as the cultivated plant. It was received by Messrs. Veitch among Mr. T. Lobb's Moulmein collections.—*Bot. Reg.* 62-47.

*Eria convallarioides*  $\beta$  *major* (Lindley). When we formerly published this species, it exhibited little of the beauty found in the variety now made known. The old sort is indeed hardly to be recognised in this beautiful thing. The oblong heads of flowers are of the purest ivory white, which is rendered still purer by the presence of small brownish bracts at their base. The surface, too, of every flower is so polished as to resemble that of white cowries or similar shells.—*Bot. Reg.* 63-47.

*Vanda tricolor* (Lindley). Under the name of *Vanda insignis*, a very different plant, this fine Javanese species has been brought into cultivation by Messrs. Veitch. It has quite the habit of *V. Roxburghii*, and its flowers appear in the same manner, but they are larger, have yellow and brown spotted sepals, and a rose-coloured lip, with the lateral lobes rounded, not acute, and colourless. It is nearer *V. Hindsii*, a New Guinea plant.—*Bot. Reg.*

*Odontoglossum maxillare* (Lindley). We have only seen one flower of this beautiful plant, which might at first sight be mis-

taken for *O. Cervantesii*. It is, however, readily known by its wingless column, and especially by the presence of a very large yellow appendage seated at the base of the lip, and scarcely shorter than the column. Such an appendage exists in all the Tooth-tongues, but it is usually inconsiderable, and never to be compared in size with this. We are unacquainted with the native country of this species, but its great resemblance to *O. Cervantesii*, *nebulosum*, *Rossii*, &c., indicates Mexico. The specimen now described, was received from C. B. Warner, Esq., in September last.—*Bot. Reg.*

*Malachadenia clavata* (Lindley). A Rio plant, in the collection of Mr. Bateman, where it bloomed first, in 1839. The plant is a very singular one, though it has little beauty to recommend it, and Mr. Bateman remarks "it is the only epiphytal orchidaceous plant I know which emits a positive stench, and that too at all hours, by night and day. In the stove it resembles the foulest carrion." It has a creeping, bulbiferous rhizoma, and small flowers, borne on a spike five or six together, green, richly spotted with brown.—*Bot. Mag.*

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#### GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

- THYRSE.** A dense panicle; a kind of inflorescence, like that of the lilac.
- TOMENTOSE.** Thickly covered with close hairs.
- TOMENTUM.** Dense, short hair.
- TOOTHED.** Resembling the teeth of a saw.
- TOROSE.** Undulated; irregularly swollen and depressed.
- TORTUOSE.** Bending in and out.
- TORULOSE.** Slightly twisted.
- TRAPEZIFORM.** An irregular diamond shape.
- TRICHOTOMOUS.** Divided or branching in threes.
- TRIPARIOUS.** Arranged in triple rank.
- TRIFID.** Separating into three.
- TRIQUETROUS.** Having three sides.
- TROPICAL.** Belonging to the torrid zone.

- TRUNCATE.** Terminating suddenly, as if bitten off.
- TUBERCULATE.** Covered with uneven knobs or protuberances.
- TUBER.** A fleshy, roundish, or oval root, like the potato.
- TUBEROUS.** Having or partaking of the character of tubers.
- TUMID.** Swelling.
- TURBINATE.** Rounded at one end, and tapering towards the other, in the shape of a top.
- TURGID.** Irregularly and largely swollen.
- UMBEL.** A kind of inflorescence, in which the individual flower-stems spring from a common centre, and form a round, flat head. An umbel differs from a corymb, inasmuch as the footstalks of the flowers in the latter proceed from a rachis, and not from one point.
- UMBILICUS.** The chord which attaches a seed to its covering.
- UNCINATE.** Curved backwards; hooked.
- UNCTUOUS.** Oily.
- UNGUIS.** A tongue or claw; the taper base of an organ, as the petals of the carnation.
- UNILATERAL.** Proceeding from one side.
- URCEOLATE.** Pitcher-shaped.
- UTRICLE.** A little bladder.
- VALVE.** In botany is the membrane which separates one seed from another in a many-celled pericarp.
- VARICOSE.** Swollen in continuous places.
- VASCULAR.** Tissue of an enlarged, succulent nature is so called.
- VENTRICOSE.** Inflated or puffed out in places.
- VERNAL.** Belonging to the spring.
- VERTEX.** The extreme point.
- VESICLES.** Little hollow excrescences or bladders.
- VEXILLUM.** Synonymous with standard.
- VILLOUS.** Clothed with long, shaggy hair.
- VIRESCENT.** Bright, shining green.
- VIRGATE.** Twiggy.
- VISCID.** Clammy; sticking.
- VIVIPAROUS.** Bearing young plants in the place of seeds.
- WHORLS.** Leaves are said to be placed in whorls when their bases form a complete circle round the stem.
- WING.** A thin, membranous margin, with which certain seeds are furnished.
- ZONES.** Stripes or belts.

## BOTTOM-HEAT FOR ORCHIDS.

THE surpassing elegance of this tribe of exotic plants, composed as it is of a combination of the most graceful or grotesque forms with gorgeous colouring or agreeable fragrance, has, since their management received the attention necessary to success and became reduced to a system, forced itself on the attention of all who delight in admiration of the extraordinary in nature, and rendered their popularity far above that of any other known family; and without doubt the number of those who find infinite gratification in the cultivation of Orchideæ will go on increasing as they become more and more widely known, and their management, through the extended researches of cultivators, becomes simplified and made certain. The difference which already exists in the results of the present method and those of the early days of Loudon and other writers of the same period, is enough to lead to the belief, that, though the progress made is already great, very much may yet be expected towards rendering them less exclusively the ornament of large establishments, and, by substituting a cheaper and still easier method of growing them, bring them at last to occupy similar places with the Geranium, the Fuchsia, and other popular tribes.

The expensive character of the plants and of the mode of culture generally thought necessary, have doubtless deterred many from attempting such an addition to their collections, and others, whom an unwithstandable desire urges on to their cultivation, find the commencement a serious affair; but I may venture to affirm, that those who have hitherto enjoyed but a small collection, have derived therefrom no very limited degree of pleasure, and feel anxious both to increase the number of subjects, and to add to their store of information, so as to carry on an easy and a successful management.

As regards the cost, both of the plants and their subsequent growing, it is decidedly a cultivator's question; for, though at present the demand far exceeds the supply, and, as a consequence, prices are high, as we can improve on their culture, a greater equality must prevail, and thus their adoption will become more general; and, as tending to this end, it is highly desirable that every advancing step in their management should be recorded,

for the assistance of all who feel interested in the matter. As my quota, I send you the following outline of the advantages to be derived from the employment of bottom-heat in the growth of these plants. Its effect on all that have hitherto been subjected to its influence is surprisingly beneficial; but, as might reasonably have been anticipated, is most evident in the case of Indian epiphytes, as instanced through the genera *Aerides* and *Saccolabium*. These are vastly improved in every respect,—a greater number of roots are protruded, the growth of the foliated parts is increased and rendered vigorous, and the subsequent flowering made more abundant and highly coloured.

In fact, I regret only that, owing to the limited space at command for the purpose, the entire collection has not had an opportunity of receiving the benefit which in every case tried has resulted. The improvement being so great, I would earnestly advise those who have not tried it, to devote a portion of the stove to the erection of a bed for the purpose. The exact formation of such an affair must necessarily depend upon the manner in which the house is heated, as I would in every case make the apparatus which maintains the temperature of the house subservient to this end also, rather than trust to fermenting materials, for the reason to be subjoined. Here the main dependence is on hot-water tanks, which are every way best suited for orchidaceous houses, and afford an easy opportunity of forming a bed for the purpose described, all that is required being, to run a slip of wood along the back and front edge of the tank, about four inches deep, and to fill up the space thus formed with the screenings of coal ashes or small pebbles, these proving the best materials, on account of their continued porosity, allowing the heat to rise freely, and at the same time affording the requisite drainage to the plants standing thereon.

Sand, though at first sight promising to be the best medium, was found in a little time to become covered with a thick, impenetrable coat of the smaller particles, which had become fused together, as it were, by the action of the heat and frequent waterings; and I would particularly advise that no bark, or tan, as it is called, be used, or any other fermenting material, as in the course of a short time they are filled with innumerable insects. The plants, when in a growing state, are merely placed upon

this bed, and remain there until near the completion of their growth, and are then removed to a cooler situation for their resting season. They are not, however, dried till they shrivel, as is sometimes practised, but kept moderately moist and cool.

The bed requires to be kept constantly damp, which is effected by the drainings from the plants themselves and by an occasional sprinkling of water. A constant, regular supply of vaporous moisture is consequently given off, which is peculiarly fitted to facilitate the emission of roots, and by an increase in this part of the plant, as a matter of course more nutriment is conveyed to the other portions, which are equally benefited; and, as an ultimate consequence, an increase in number, size, and brilliancy of the floral organs results.

It is becoming a matter of notoriety, that a considerable number of species now in collections, many of them very beautiful, too, are grown in a temperature far higher than is positively necessary; and, in my opinion, there are not a few which might be cultivated with no more accommodation than a close pit in summer, and the greenhouse for blooming and winter protection. On the first opportunity I will send you a brief list of such as promise to succeed in this way, and an account of how they may be managed.

H. PLANT,

Gardener to J. H. Schröder, Esq.,  
Stratford Green.

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#### SELECT PLANTS OF THE PAST SEASON.

*Six of the best new Stove Plants.* *Æschynanthus longiflorus*, *Echites Franciscea*, *Gardenia Malleifera*, *Ixora Griffithii*, *Leibigia speciosa*, *Raphistemma pulchellum*.

*Six of the best new Greenhouse Plants.* *Cereus Maynardii*, *Correa "Brilliant,"* *Erythrina Bidwillii*, *Epacris Tauntoniensis*, *Rhododendron Javanicum*, *Tropæolum speciosum*.

*Six of the best new Hardy and Half-hardy Herbaceous Plants.* *Aquilegia glandulosa major*, *Campanula nobilis*, *Dianthus Hendersonii*, *Penstemon Gordonii*, *Tigridia Watkinsonii*, *Tritonia aurea*.

*Six new Hardy Shrubs.* *Azalea squamata*, *Berberis ilicifolia*,

*Deutzia staminea*, *Forsythia viridissima*, *Spirea pubescens*, *Viburnum macrocephalum*.

*Six of the best Indian Azaleas.* Optima, Formosa, Murrayana, Lateritia formosa, Gledstanesii superba, Exquisita.

*Six of the best new Pelargoniums.* Beck's Centurion, Cruenta, and Gustavus; Forget-me-not, Miss Vincent, Jenny Lind—the last two fancy varieties.

*Six of the best new Calceolarias.* Refulgens, Holmesii, Duchess of Buccleugh, Conrad, Jenny Lind, Masterpiece.

*Six of the best Verbenas.* La Reine, Lilac Rival, Prometheus, Oberon, La Volupté, Benedict.

*Six of the best new Picotees.* Headley's King John, H. R. Headley's Venus, L. R. Headley's Ariel, M. R. Premit's Bendigo, L. P. Smith's Primo, H. P. Harison's Miss Johnson, H. P.

*Six of the best new Cinerarias.* Competitor, Alpha, Bijou, Jenny Lind, Incomparable, Victor.

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#### CALENDAR OF KITCHEN GARDEN OPERATIONS FOR DECEMBER.

THE principal work in the kitchen garden this month is confined to the preparation of vacant ground for the reception of the spring crops, by digging, trenching, and manuring. An excellent practice is to dig each piece of ground alternately one, two, and three spit deep, in the same number of years. Thus, the surface soil is removed one spit lower each year, till, in the fourth season, it comes back refreshed by its rest, and a pulverized body, filled with manure, is conveyed by the change into its place. The manure employed for the ordinary description of crops should not be buried lower than a foot from the surface, or it will be beyond the reach of most roots. This work should not be done when the ground is wet or covered with snow.

Before the occurrence of much frost, the crops of celery should be earthed up nearly to the points of the leaves. Cardoons and artichokes may be similarly treated or protected by other means from injury to their hearts, likely to occur in severe weather. Cauliflowers in frames and under hand-glasses must be carefully

covered in frosty weather, giving them all the air possible in mild weather.

A few peas, beans, and early radishes may still be sown if omitted last month, such of the former as appear an inch above ground should be earthed closely up, and all other work fallen in arrear, such as dressing asparagus beds, hoeing and earthing up the several crops of cabbages, brocoli, &c, should be forwarded as quickly as possible, lest the ground become locked up by frost.

Continue to tie up or cover the full-grown endive and lettuce plants now fit for use, and provide means to protect such as stand in exposed situations, that, in the event of such things being required in emergency, no time may be lost.

Keep the beds of young onions, carrots, spinach, and other similar things clear of weeds, and where small plants of cabbage are bedded out, it will be worth while to spread an inch of dry earth between the rows to keep them erect in case of snow falling. Look over and finish storing potatoes, carrots, parsnips, and onions for winter use.

Pruning may commence among the fruit trees, beginning with the standards and espaliers; gooseberries, currants, and raspberries may also be done, and the wall trees had better be unfastened, and as occasion offers they may be pruned, leaving the nailing till the spring, that the parts of branches next the wall may have an opportunity of ripening.

Planting and transplanting must be brought to a close as speedily as possible; the fine open weather we have experienced will, however, leave little to be done in this way when ordinary exertion has been used. Newly planted trees of all kinds must be securely fastened in their places by means of stakes or other contrivances, the consequence of any neglect in this respect being often fatal, as the roots by the action of the wind on the head of the tree become lacerated or torn off.



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