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MUSA VITATA.

NEW AND RARE
BEAUTIFUL-LEAVED
PLANTS;


CONTAINING ILLUSTRATIONS AND DESCRIPTIONS OF
THE MOST ORNAMENTAL-FOLIAGED PLANTS
NOT HITHERTO NOTICED IN ANY WORK ON THE SUBJECT.

BY

SHIRLEY HIBBERD, ESQ., F.R.H.S.

LONDON:
BELL AND DALDY, YORK STREET, COVENT GARDEN.

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TO

W. C. WILLIAMSON, ESQ., F.R.S.,

PROFESSOR OF NATURAL HISTORY IN OWEN'S COLLEGE, MANCHESTER,

WHOSE

EARNEST PROSECUTION OF SCIENTIFIC RESEARCH COMMANDS

UNIVERSAL ADMIRATION

THIS FASCICULUS OF BEAUTIFUL LEAVES

IS

MOST RESPECTFULLY DEDICATED

IN TOKEN OF THE SYMPATHY THAT COMMUNITY

OF TASTES ENGENDERS

BY

HIS CONSTANT FRIEND IN LIFE AND LABOUR

SHIRLEY HIBBERD.

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PREFACE.

THE increased attention paid to Beautiful-leaved Plants constitutes a distinct phase in the history of horticulture. It is but recently that the beauty of leaves has been fully recognised, and the passion that has arisen for collecting and cultivating "fine-foliaged plants" is one of the newest, but is not at all likely to be transient. We do now and then hear that ferns are less cared for than formerly, and perhaps we shall soon be told that Begonias, Caladiums, Palms, Cicads, and Yuccas have had their day. Fashion is certainly capricious; and in the cultivation of plants we are well accustomed to see this or that particular subject or class elevated for a time to the highest popularity, only to prepare the way for something else which shall take its place, and eclipse it in public favour. Nevertheless, we do not anticipate that a single plant figured in this work will be less interesting fifty years hence than now, for our purpose has been to select without regard to fashion, but with an eye to intrinsic beauty only, from amongst the thousands of beautiful-leaved plants with which the earth is adorned. Some of our friends suggest that by promoting the culture of fine-foliaged plants we discourage the cultivation of flowering plants; but this is a great mistake. Flowering plants will never lack admirers, and as many of them have beautiful leaves, we have been enabled to figure and describe many subjects that are as valuable for one feature as the other. But we have chiefly sought for leaves, and have considered flowers as secondary thereto; desiring to feed the large desire for information on the subject of leaf beauty that has now sprung up, and direct, if possible, the taste for the cultivation of such subjects.

In some respects leaves claim higher admiration than flowers: in regard to their peculiar beauty we will be bold to say that the most lovely flowers

do not surpass them. We know of no flowers, for example, to match against the leaves of an *Anœctochilus*; and a *Gymnostachium* or *Peperomia* may satisfy the most exigent eye for a season, without the aid of flowers. Not that we wish to discuss so absurd a question as the relative merits of leaves and flowers in general; all we wish to say here is this,—that we may find leaves so sumptuously beautiful that we may do better in admiring them than in discussing almost any question; and in one sense leaves are more to be admired than flowers, because their beauty may be considered permanent and ordinary, whereas the flower is more or less, and in a sense which all will understand, temporary and extraordinary. We have illustration of this difference between them in the parterre, where the moment a variegated-leaved *Geranium* is planted, the ground is enriched; but we must wait to see what the green-leaved *Geranium* will do, for it is of little value until it has attained to perfect inflorescence.

In times gone by a planthouse was thought well furnished if filled with flowers. But now, “we have grown expensive and hard to please,” and look for the relief which is afforded by an intermixture with the flowers of various forms of elegant leafage. The new taste is better than the old one: it is broader, and more catholic. Where there are many flowers monotony may prevail, but monotony is scarcely possible where there are many beautiful-leaved plants. We can imagine a cultivator filling a house with *Pelargoniums*, and indeed have actually seen such a thing; but we never have seen, and cannot imagine, a house filled with *Begonias* of the type of *Rex*. No: whoever has a great liking for *Begonia Rex* will likely enough love *Palms*, *Musas*, *Dracænas*, and many kinds of flowering plants, and will seek to produce in the conservatory a complete, various, and rich effect; to produce in fact a beautiful assemblage of many of the richest colours and most elegant forms which the vegetable kingdom offers us. Beautiful leaves will not elbow flowering plants aside, but will enhance their beauty by contrast, and enrich the harmony in which they play so conspicuous a part.

S. H.

Stoke Newington, London,
September 30th., 1869.

NEW AND RARE
BEAUTIFUL-LEAVED PLANTS.



MUSA VITTATA.

PLATE I.

Musa sapientum vittata, The Wise Men's Banana.
Natural Order—MUSACEÆ.

THE green-leaved form of this *Musa* has been in cultivation in our stoves about forty years, but the variegated form here figured is of quite recent introduction. When compared with the finest variegated-

leaved plants of the stove, such as the *Alocasia macrorhiza* var., for example, this striped-leaved Banana takes a very high place; and we may search far and wide to find its equal for nobility of proportions and splendour of colouring. The stripes and blotches of white, which give it the right to be placed first in this series of "Beautiful-leaved Plants," are delightfully constant, so that when well grown it is but seldom a green leaf is produced.

The treatment of this plant should be the same as that of Musas generally, but it is advisable to abstain from the use of strong manure, to avoid the development of a degree of vigour unfavourable to the variegation. The Musas, as a rule, require a rich turfy loam, with a liberal proportion of good manure, an abundance of water at the root while growing freely, and a considerable degree of atmospheric humidity. The plantain thrives in every part of the world where the mean heat of the year exceeds 75° Fahr., and in Cuba it is reported to bear a temperature occasionally as low as 40°, or even down to the freezing point. In our planthouses a summer temperature of 70° to 100°, and a winter temperature of 50° to 60°, are found to suit all the species that are in cultivation. It is however certain that Musas will with us bear low temperatures without harm, for during the past summer some fine plants of *M. Cavendishii* and *M. rosacea* were "bedded out" at Battersca Park, and they grew freely, flowered abundantly, and actually formed a few clusters of fruit, before they were taken in for the winter. The plant now under consideration is possibly a trifle more tender in constitution than its green-leaved congeners, and therefore should not be taken out of the stove except during the very height of the summer.

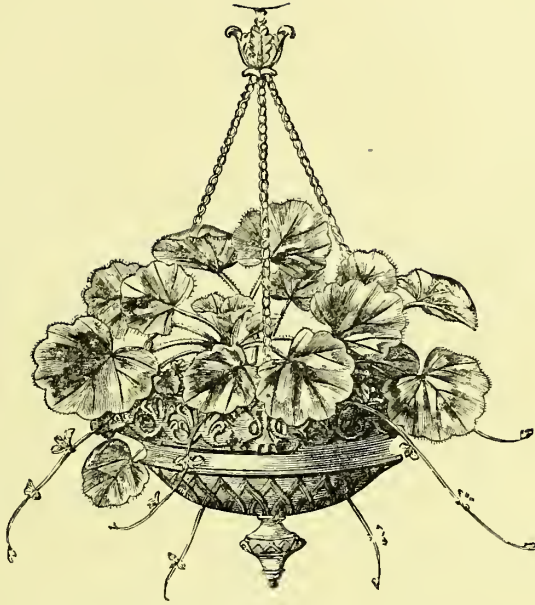
All the Musas known to cultivators are worth house-room, and a wealthy amateur may find amusement in collecting and keeping them. But in the majority of stoves, where a number of large plants of the same genus cannot be accommodated, the best are *M. sapientum vittata*, figured above, which will attain a height of twenty feet; *M. ensete*, a plant of the most magnificent proportions, twenty or more feet high when full grown, with bright green leaves fifteen feet long and four feet wide; and *M. Cavendishii*, growing only three to five feet high, and producing an abundance of fruit.

The propagation of Musas is easily effected by means of suckers, which are removed when furnished with a sufficiency of roots. The species vary in respect of the production of suckers, such as *M. Cavendishii*, *rosacea*, and *sapientum* affording them in plenty; whereas *M. ensete* gives none at all, so far as we are aware, and hence doubtless its great rarity.



SAXIFRAGA FORTUNEI.

Var. *tricolor.*



SAXIFRAGA FORTUNEI.

Var. Tricolor.

PLATE II.

Saxifraga Fortunei, var. Tricolor, Fortune's Variegated-leaved Saxifrage.
Natural Order—SAXIFRAGACEÆ.

THIS is one of the many beautiful-leaved plants for the introduction of which we are indebted to Mr. Robert Fortune, who introduced it from Japan in 1863, with other treasures that were subsequently distributed by Mr. Standish. In all its essential characters this Saxifrage is closely related to the well-known *S. sarmentosa*, the "mother of thousands" of the window garden; but the beauty of its leaves gives it a distinctive character, for, when richly variegated, the shades of pink and red on the younger leaves, and the bright soft blendings of pale rose, pale flesh, and pinky blush upon the leaves that are fully matured, contrasting with the fine dark green of the disks, render it one of the most attractive of the inmates of the

greenhouse. The leaves are reniform cordate, lobed and toothed; the flowers are white, in erect loose panicles, the petals very unequal in size, one or more being elongated and saw-edged.

S. sarmentosa is sometimes described as hardy, but we have never known it to live out of doors the winter through anywhere near London, though in the warmer parts of the south-west of England it remains unhurt on open rockeries, and spreads freely by its numerous stolons. *S. Fortunei* is no doubt as hardy as *sarmentosa*, but it is an important fact in the cultivation of the plant, that rough treatment causes the variegation to disappear, and the leaves become wholly green. We have been much interested in observing the effects on the colouring of the leaves of various modes of treatment. We have planted it out on a rockery in a cool fernhouse, and it has run wild and become almost wholly green, shewing but an occasional touch of variegation here and there. In a warm greenhouse, with abundant pot-room and a rich soil, it has grown luxuriantly and been well coloured; but it has always been most richly coloured when grown in small pots, with a soil consisting of sandy peat, and in the temperature of an intermediate house.

Cultivators who have been disappointed with this plant, as many have, usually destroy those stolons that are wholly green, in the belief that unless there be some trace of variegation in them, there is no probability of their ultimately assuming the rich colouring, for which, principally, the plant is grown. But this is a mistake. Plants that have been wholly green, without a visible spot of variegation upon them, and in that state have attained maturity, have produced a richly-variegated progeny, and in suspended vases have been most attractive. We have thought in such cases that the reduction of vigour consequent on the pot being filled with roots, favoured the restoration in the stolons of the colouring which was lost in the parent.

The flowers of this Saxifrage are thought little of by cultivators, yet they are extremely beautiful, and never fail to remind the orchid-grower of the pretty inflorescence of the *Anætochilus*. This plant, or the common *S. sarmentosa*, is invaluable for window culture, especially if suspended so that the progeny may be seen against the light, like so many leafy spiders descending by stout threads, but pausing in mid-air until some fancied danger is past. Both are sadly subject to become infested with green fly, for which the best remedy is fumigating. But this is not always possible or convenient, and it is not a difficult matter to remove the aphides with a soft brush. The warmer, drier, and more pot-bound the plant, the more readily will fly seize upon it.



BEGONIA DÆDALEA.



BEGONIA DÆDALEA.

PLATE III.

Begonia Dædalea, Begonia named in honour of Dædalus, the Athenian artificer.
Natural Order—BEGONIACEÆ.

THIS noble plant is a native of Mexico, where it was met with by Ghiesbreght, and by him transmitted to M. A. Verschaffelt, of Ghent, who distributed it in 1861. It is one of the gems of a beautiful family, and was originally described, and justly, as “la perle, le bijou de tous les Begonias passés, présents, nous oserions presque dire, futurs.” It is of robust habit, the leaf stalks stout and richly tinted with carmine; the leaves are in form obliquely cordate; when young their colour is bright carmine or deep pinky red, but as they become matured they acquire a fine deep green colour, richly overlaid with considerable

uniformity with deep brown or blackish reticulations, the margin being clothed with pale rosy hairs in the manner of a light fringe. The flowers are borne in a loose panicle; they are small, and their colours are white with red streaks. Hitherto, in common with many other Begonias, this species has flowered in the winter, but it occasionally produces flowers at other seasons.

To grow the variegated-leaved Begonias to perfection, a good stove heat is essential, and the cultivator should aim at producing fine plants; for mere scraps, or half starved plants with broken leaves, are a disgrace to the house in which they are to be found. A light rich soil is required, and the compost usually preferred is one consisting of equal parts of fibrous peat, leaf mould, turfy loam, and sharp sand. We have grown fine specimens in good, mellow, turfy loam, (full of fibre,) with only a little sand added to promote its porosity. During the winter they should be kept rather dry, in an intermediate house, where the temperature averages 60° to 65° , but if from 45° to 50° they will take no harm. It is a good plan to lay the pots on their sides, so that the roots will obtain no more moisture than is given them intentionally and with proper care, for accidental watering is frequently the cause of the death of these plants, especially when wintered in a low temperature. About the middle of February they should be shaken out, the old soil removed, and repotted with the crown of the plant just above the surface of the soil. The more lumpy and elastic the soil the better, and the potting must be well done, and finished in a cleanly manner. A sweet hotbed, or a bed over a tank in a propagating house, is the best place for them after they are repotted. The atmosphere must be moist, but they must have but little water at the roots until they have begun to grow freely. The cultivator must guard against excess of air, excess of light, excess of water, and the wetting of the leaves. Never a drop of water should fall on the leaves of any of the richly-painted Begonias. When growing freely, copious supplies of water may be given at the roots. When transferred from the stove to the conservatory, as Begonias frequently are, a shaded and sheltered spot should be found for them, as a cold draught or a burning sun will soon make havoc among their velvet leaves. The propagation of variegated Begonias from leaves is a very simple affair, the fact is it is almost impossible to fail if the leaves are simply pressed or pegged down on moist sand in a warm close place. The leaves may be cut into small pieces, and the cut edges carefully pressed on the sand, and they will soon form incipient plants, and need only tender nursing for their further development. But for all ordinary purposes multiplication may be

effected by means of suckers, or cuttings of the stems. Wide shallow pots for specimens are to be preferred to those of ordinary make. We have pots made expressly for such plants as these and specimen ferns, by Messrs. Adams Brothers, of the potteries at Belle Isle, King's Cross. To keep specimens in perfect condition they should be repotted at least twice a year.

The following is a good selection of eight varieties of variegated-leaved Begonias:—*Dædalea*, here figured; *Regina*, olive green, with silvery vandyked zone; *Madame Wagner*, the centre dark green, the zone broad and silvery, a bright and beautiful variety; *Rex*, massive and rich, the zone silvery grey vandyked; *Queen of England*, the finest large-leaved variety in cultivation; *Rollisonii*, a solemn plant richly coloured with shades of deep green and purple; *Roi Leopold*, a tall erect red stem, leaves very large, with reddish central star margined with red, very distinct and splendid; *Splendida argentea*, leaves grey suffused with red, with bright green lines marking the course of the veins, very showy.

Begonias are not largely grown for their flowers, yet a few of the freely flowering kinds should be found in every well-furnished garden, especially where winter flowers are in request. The following merit especial attention:—*B. nitida*, a favourite of small size, producing an abundance of white flowers. *B. insignis*, very neat in growth, with lively pink flowers. *B. Digswelliensis*, a hybrid with narrow leaves, dwarf habit, flowering profusely, the flowers a bright purplish red colour. *B. fuchsioides*, a well-known species flowering in mid-winter, when it is very gay with scarlet flowers. *B. erecta multiflora*, neat and elegant leafage, and myriads of small rosy pink flowers.





ERANTHEMUM SANGUINOLENTUM.

PLATE IV.—FIG. I.

Eranthemum sanguinolentum, The Blood-veined-leaved Eranthemum.

Natural Order.—ACANTHACEÆ.

WE have figured this lovely plant on the same sheet with *Hypæstes sanguinolenta* because of its close resemblance in leafage to that plant, and the too general opinion that they are one and the same, whereas they are two and different. It will be seen by the figures, that they could scarcely be distinguished from each other were verbal descriptions to be alone relied upon; but when placed side by side, the plant now

before us is seen to be the richest and most decisive of the two in leaf colouring. It is indeed a charming stove plant, of free healthy habit of growth, and like the other members of the genus, producing beautiful flowers. Soft growing shoots may be quickly struck in a temperature of 80°, and the after culture is of the simplest description. We find the proper soil for this *Eranthemum* to be good turfy peat of a yellow colour, but black boggy soil is quite unfit for it. The *Eranthemums* have fallen from their high estate as flowering plants, we know not why, for their beauty is scarcely to be matched. Possibly the introduction of this gem may revive an interest in them. At all events we will hope for such a result. The companion plant must be the subject of a separate and more lengthy notice.

HYPÆSTES SANGUIOLENTA.

PLATE IV.—FIG. II.

Hypæstes sanguinolenta, Hooker. The Blood-veined Hypæstes.
Natural Order—ACANTHACEÆ.

THIS pretty acanthaceous plant was first published by Van Houtte as *Eranthemum sanguinolentum*, but the flowering of specimens at Kew, and in the Royal Exotic Nursery, Chelsea, furnished proper reasons for removing it from the genus *Eranthemum*, with which it has no relationship, and placing it in *Hypæstes*, with the characters of which it accords pretty well. It is a stove herb, growing a foot high, freely branching, and ultimately crowned with compound racemes of pretty rose-coloured flowers. The stems are acutely four-sided; the leaves are in pairs, about three inches long, bluntly elliptical, with a velvety pubescence on both surfaces, and the veins accompanied with broad bands of rosy purple, the intervening spaces full deep green. The panicle of flowers rises five or six inches above the topmost leaves, and bears about a dozen short branches, which are sparingly clothed with small flowers of a rosy purple colour.

This *Hypæstes* is a native of Madagascar, and one of many species equally beautiful to be found in the same country and in the central

parts of Africa, but which have not yet been introduced to Europe. It can make no claim to eulogy on the ground of massive proportions or gorgeous colouring. It is a pretty little plant, worth a place in any stove, and very well adapted for occasionally decorating the dinner-table. To grow it well is a matter of no difficulty at all, but the cultivator who is accustomed to *Anætochilus* will be most likely to succeed with it. Supposing we begin with a young plant, we should shift it into a five-inch pot, using a rich light sandy soil, and keep it in a moist stove or orchid-house, giving plenty of water, but no more pot-room until it flowered. Immediately after flowering we should cut the plant up and strike a sufficient number of cuttings, and destroy the old stool, and thus from time to time renew the stock. A number of small plants planted together in a shallow ornamental basket, and kept pinched back, would for a time be highly ornamental. To propagate the plant it is merely necessary to take firm side-shoots, and remove the lowest leaves, and insert them in sand, and cover with a bell-glass. A steady heat of 80° Fahr., and very little water will be the necessary conditions for ensuring roots quickly; and as soon as they begin to grow, they should be potted in small pots, and have a warm place in the moist stove.

We have endeavoured to simplify the treatment of *Anætochilus* by abolishing bell-glasses, and treating them all in a less fastidious way than formerly. In the "Intellectual Observer," of January, 1866, we gave a sketch of our system, and refer to it here in order to say that the many small beautiful-leaved stove plants that have been lately introduced into cultivation, require just such treatment as we have there prescribed for *Anætochilus*. At the exhibitions we see these subjects, such as *Gymnostachium*, *Peperomia*, *Maranta*, and even the new variegated-leaved *Hibiscus*, covered with bell-glasses: such protection is needful, because dust and draughts are likely to assail them when exposed to view in places of public resort, but it is better to dispense with the bell-glasses when the plants are at home, for with careful management all these plants become more richly coloured, are healthier, and grow more freely when enjoying the gently moving atmosphere of a well-kept house, than when stifled under bell-glasses. Nor should any of these plants be subjected to a greater heat than they absolutely require. During winter a mean of 55°, and in summer a mean of 75°, will doubtless suit a greater number of beautiful-leaved plants of the diminutive class we are now considering, than any greater extreme of cold or heat. These means enable us to fix on 50° as the winter minimum, and 90° as the summer maximum. In common with all velvety-surfaced leaves of a delicate nature, those of the plant

before us should never be splashed with water. Humidity it will enjoy, and plenty of water at the root, but the wetting of the leaves must be constantly avoided.

There are about half-a-dozen species of *Hypæstis* known to English cultivators, namely, *H. Cochinchinensis*, native of China, a pretty climber with white flowers; *H. purpurea*, native of China, a deciduous herbaceous plant with purple flowers; *H. fastuosa*, a splendid evergreen plant, from India, with red flowers; *H. involucrata*, native of India, white flowers; and *H. serpens*, an Australian trailer of most humble character.

A NOTE ON GROUPING PLANTS.

The prevailing fashion of grouping tends to monotony. For example, an orchid-house is usually deficient of variety of form, all Orchids, the meanest and the most gorgeous, have certain features in common, and the eye wearies of beholding repetitions of a type. The connoisseur who perhaps (and most likely) is a man of one idea, may find in the most tame collection of Arads, Orchids, or whatever else may be his favourite class of plants, abundant and exhaustless entertainment, but there are many who can appreciate beauty without any regard for the dreary particulars of affinities, values, distinctions, and differences, which constitute the charter of connoisseurship. Just for these, who are worthy of high regard, let us have in a spacious and comfortable stove, bold picturesque groups comprising some of the grandest Orchids, a few Palms, a few Dieffenbachias, Caladiums, Anthuriums, Alocasias, Ferns, Begonias, Allamandas, Dipladenias, and Ixoras, and we may dignify the collection by the title of Tropical Garden, and satisfy the demands of true art much more completely than by special collections which have the repute of being scientific, but perhaps contribute nothing at all to the aggregate of scientific knowledge. "Variety is charming," therefore we should seek amongst many families for the furnishing of a plant-house, which is intended to afford delight to various minds at various seasons.



MARANTA ROSEA-PICTA.
V



MARANTA ROSEA-PICTA.

PLATE V.

Maranta rosea-picta, Maranta with rosy-veined leaves.
Natural Order—MARANTACEÆ.

THE Marantas and their allies, the Cannas, are fully as important for economical as for decorative uses. From one of the family, *M. arundinacea*, is obtained the Bermuda arrow-root of commerce, and from another member of the order, the well-known *Canna edulis*, is prepared a similar product. *Maranta Indica* yields the yellowish Jamaica arrow-root; and the bland nutritive "Fous le mois" is extracted from Canna roots; while from many other plants of these two genera amylaceous products of the highest value as food, and for various purposes in the manufacturing arts, are obtained. The mucilaginous tapioca is derived from the root of *Jatropha manihot*; and the seeds of Cannas (Indian Shot) are in some places used in

place of coffee, and some of them yield useful purple dyes. Considered as decorative plants, the Marantas, generally speaking, have but few claims to attention. They are of small size, and rarely attractive; yet the few that are in cultivation offer splendid examples of leaf colouring.

The Marantas constitute a good natural group, having distinct features and strong family resemblances. They are stemless, or have only annual stems. The leaves have diverging veins, the flowers are very irregular, the ovary inferior, the root-stocks white, horizontal, and the root-fibres swell into tubers, which in time become independent plants. The leaves are alternate, with leafy sheaths; the flowers white, with but a single stamen, which is attached to the petal-like filament; the fruit is dry and one-seeded.

The species that have become favourites with English cultivators owe their celebrity solely to the beauty of their leaves. *M. splendida* and *M. illustris* present us with leaf-surfaces most elaborately and richly painted, and moreover very distinctive as fine-foliaged plants. In the first, the broad ovate leaves are striped with pale green, passing into a greenish primrose hue upon a rich deep green ground. In the second, the leaves are boldly marked with oblique bars of greyish green upon a deep bluish green ground. *M. rosea-picta*, here figured, is a native of the Upper Amazon; it is of dwarf growth, the leaves have a bright rosy midrib, and bands of brilliant red and white, the intervening spaces a solemn tone of deep green—a remarkable example of leaf-colouring. We cannot pass without mention *M. Lindenii*, lately introduced from Peru, which is brilliantly blotched with transparent yellowish green upon a ground of olive green; or *M. Van den Heckeii*, a native of Para, the leaves of which are bordered with bold crescents of delicate silvery grey, the rest of the surface being dark satiny green, divided by a bright grey line.

All these richly-painted plants require the fullest heat of the stove to bring them to perfection. A light rich soil is essential, and this may be compounded of leaf-mould, silky loam, and a small proportion of thoroughly decayed manure; or they may be grown in tough felt-like peat, from which all the fine dust has been removed. Shade during sunshine in summer is essential. To multiply them is quite an easy matter, for the process consists only in dividing the roots, the several tubers of which will soon form plants. This should be done in spring, and they should be at once started into growth in a temperature of 70° to 80°, and have but moderate supplies of water until they begin to grow, after which they may have abundance.

Amongst the older species in cultivation, the best are *M. bicolor*, *M. lineata*, and *M. variegata*.



DIEFFENBACHIA BARAQUINIANA.



DIEFFENBACHIA BARAQUINIANA.

PLATE VI.

Dieffenbachia Baraquiniana, Baraquin's Dieffenbachia.

Natural Order—ARACEÆ.

IF richly-coloured leaves are in demand we may search for them in the great family of Arads, and very shortly be overwhelmed with an *embarras des riches*. Aloesias, Arums, Caladiums, Dieffenbachias, Richardias, Urospathas, how these contribute to our collections a wealth of gorgeous leafage which no other order of plants can parallel! The subject now before us is a native of Brazil. Immediately upon its

distribution in this country it became famous for its grandeur, and has been several times exhibited, in every case eliciting the warmest admiration of its majestic proportions, massive musa-like outline, and delicious colouring. The plant attains a height of from three to five feet, the stem and footstalks of the leaves are of the purest white, and appear as if freshly carved in the finest ivory. The leaves are oblong, and spread outwards in a fine tuft; they attain a length of a foot or more, and a breadth of five or six inches. The rich green hue of the general surface of the blade, invaded by the pure white midrib and white veins, and here and there splashed with blotches of the same white colour, render the plant peculiarly fresh and cool-looking, and a fine contrast to such highly-coloured plants as *Caladium Chantini*, or the crimson-leaved *Dracænas*.

The inflorescence of the *Dieffenbachia* is no more acceptable in a decorative sense than in many of its nearest congeners. As a botanical study the flowers and fruits are of course worth attention, but they add nothing to the beauty of the plant. The spathes are comparatively short and swollen, of a whitish grey hue, the apex spreading out in the form of a sagittate leaf, above which rises the club-like spadix, of a dull brown colour. The exposed portion of the spadix bears staminate flowers only, those below enclosed within the spathe are pistillate, and are followed by a mass of berry-like seeds.

This noble plant is of no use at all except where it can enjoy a high temperature and an abundance of moisture. A rich light soil is essential to a free development of the beautiful leafage, and there must be shade from strong sunshine, or the leaves will be curled and browned. When growing freely the syringe should be used twice a day at least, to give the leaves and stems a genial shower, and there must be no stint of water to the roots. If neglected, and especially if kept hot and dry, it will become a prey to vermin, and possibly never be rendered clean again, but a sufficiency of moisture will prevent their approach.

Those who have conveniences for cultivating these handsome plants, and especially those who benefit the public by exhibiting their plants, may beneficially secure, in addition to the plant now under notice, the following new species of *Dieffenbachia*, namely, *D. gigantea*, a plant of most noble proportions, with beautiful blendings of green and white in the leaves and stems, and *D. grandis*, the stem of which is beautifully mottled, and the leaf-stalks spotted.



CALADIUM MIRABILE.



CALADIUM MIRABILE.

PLATE VII.

Caladium mirabile, The Wonderful Caladium.
Natural Order—ARACEÆ.

It would be imprudent, even if it were not impossible, to proceed far in the selection of beautiful-leaved plants without taking notice of a Caladium. If we are not too early in placing one of the family seventh in our list, we may reasonably rejoice to have met with one so distinct and beautiful as the present for the enrichment of our pages. Nature has herself selected types and exponents of powers

and beauties, and placed them before us as examples of perfections concentrated. Thus, the horse becomes the emblem of courage and strength; the nightingale and the thrush represent the whole of nature's music. The humming-birds shew us what is possible in the highest-wrought colouring of the feathers of birds, and Caladiums and Begonias appear to be commissioned to demonstrate the fullest splendour in the colouring of leaves. Unquestionably, though these two families do not, as a rule, afford us any special gratification in beauty of form, their colours outshine all others, and entitle them to the highest place in respect of merit, if colour is to be a main criterion of the criticism. Take the plant before us as an example. Place it in a group with the gorgeous *C. Chantini*, *C. Baraquini*, the sombre *C. cupreus*, and the marvellously delicate *C. Belleymei*, and its lovely shades of green and white render it a help by contrast to all the rest, and yet establish it as one of the most distinct and splendid of them all.

In common with other of the richly-coloured Caladiums now in cultivation, (recent introductions all of them,) *C. mirabile* is a native of Brazil and the hot humid valley of the Amazon. It is a plant of large growth, the leaves attaining a length of one to two feet, and about half as much in breadth. As compared with the leaves of the nearest-related species, those of *C. mirabile* are distinguished by breadth and softly-rounded outlines, especially at the base, which has none of the sharp angularity of *Belleymei* or *Troubetzkoy*, which remind us of the ears of some quadrupeds. Here, indeed, the leaf suggests the idea of a shield, and its great breadth is favourable to the display of the bright light green divisions, which branch off from the median line, and most elegantly determine its geometry. The ground colour consists of a mixture of the same light green with a deeper green, which, towards the edge passes into dark olive, and all the spaces between the bright green veins are plentifully sprinkled with amorphous blotches of white. It is but rarely the leaves of this plant vary from the colouring represented in the figure; as they attain maturity they are uniformly painted as in our example, and the advantage of constancy is added to distinctness and beauty.

Caladiums may be grown so easily that it appears but an idle task to say anything on the subject. But, as beginners consult such works as this, we will offer for their use a few practical observations. These plants grow in vegetable soil in humid tropical countries; unless, therefore, they have sufficient heat and moisture, and a good peaty or loamy soil rich in vegetable fibre, it is impossible they should attain perfection. A moist stove or forcing-pit is requisite, but a tank or a

warm corner in a propagating house will answer the purpose; a temperature of 70° to 80°, a subdued daylight, and abundance of atmospheric moisture being the principal conditions of success. The plants require to be re-potted at least once every year, but to grow them luxuriantly a second potting should take place in the height of summer. When started in the early part of the year, it is advisable to plunge the pots in some moist material, such as cocoa-nut fibre or tan, and at that time water should be given sparingly. As the growth advances the supply of water must be increased, and as a few of the first leaves advance towards maturity it is scarcely possible to give too much. We have indeed grown fine plants for exhibition by plunging the pots to a depth of three inches in water, at a temperature of 80°, but with drier and slightly cooler treatment very handsome plants may be grown. Shade from sunshine is indispensable, but there never need be any fear of wetting the leaves, for they are like fern fronds, and enjoy the shower-bath.

Perhaps failures in the culture of Caladiums more frequently occur in winter than in summer. It is easy to remember that heat and moisture are essential to growth, and it is easier still to forget them altogether when the growing season is past. We prefer to keep them in the stove the whole year round. As winter approaches we give less and less water, and when they are nearly dry remove them to a cool part of the house, where the temperature is likely never to go below 50° all the winter long. Two things we keep in mind; one is, that

If dust dry,
They must die;

and the other is, that

If quite forgotten,
They are soon rotten.

As for the rest there is little to be said. Those who grow them properly will learn how to multiply them, for in potting them to start in spring they will be found to be as prolific of tubers as potatoes.

A NOTE ON STOVE PLANTS IN THE CONSERVATORY.

Caladiums, Begonias, Marantas, and other stove plants with fine foliage are admirably adapted for the embellishment of the conservatory, when Pelargoniums, herbaceous Calceolarias, and other plants

that flower in the early part of the summer are past their best. The transference of such plants from the moist heat in which they have been growing luxuriantly is sometimes so roughly accomplished that their beauty is soon marred, and their stay in the conservatory is only a publication of the fact that the cultivator is not yet a master of his business. But all these delicately-constituted plants will bear the cool air of the conservatory without harm if a few precautions are taken. In the first place, their leaves should be fully developed before they are removed, for it is the tender advancing leaves that suffer most. To prepare them for removal they should first be taken to the coolest and airiest part of the house they are growing in, or to an intermediate house, and the supply of water should be at once diminished. After a few days they will bear another remove, and may go to the places they are to occupy in the greenhouse or conservatory, where, as far as possible, they should be sheltered from cold draughts and from strong sunshine. Their well-doing now will mainly depend on the amount of water given, and the golden rule is to give only just enough to keep them alive, and without flagging.

Some little preparation of the same kind is needful when any of these plants are to be exhibited; but no fine-foliaged stove plant should be kept long in a cool place previous to its being exhibited, as a low temperature makes a sensible difference in the freshness and brightness of the colouring of the leaves. As one of the most important uses of fine-foliaged plants is to contribute to the variety and richness of the conservatory in the late summer and autumn months, these remarks will, we hope, prove of service to many readers.



PHILODENDRON BICOLOR, VAR. STRICTA
VII



DRACÆNA TERMINALIS.

Var. Stricta

PLATE VIII.

Dracæna terminalis, var. Stricta, Lindley. Calodracon terminalis, var. Strictus, Planchon. Upright-growing tricolor-leaved Dragon Tree.

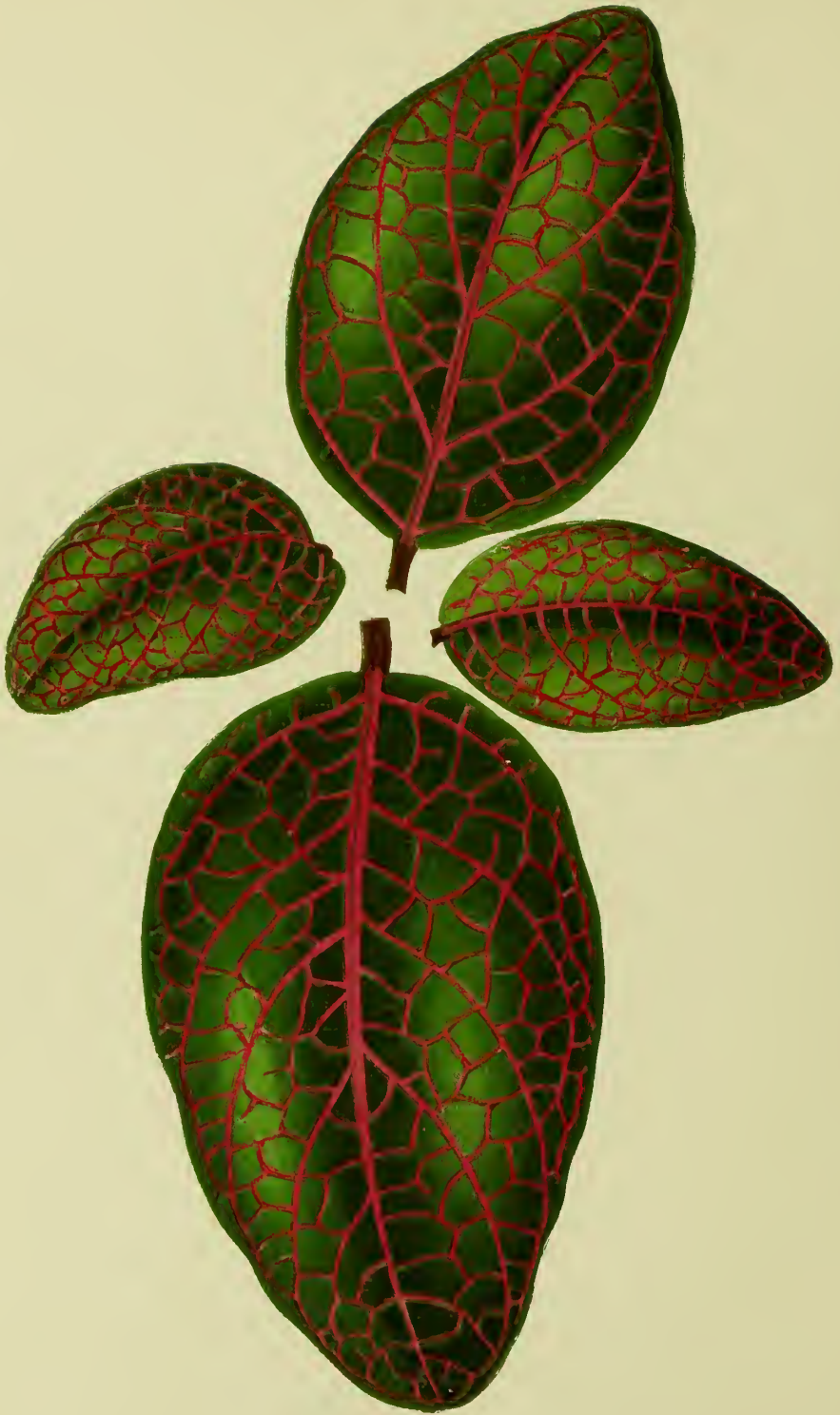
Natural Order—LILIACÆ.

WE make a concession to usage in describing this as a *Dracæna*, for in common with *D. ferrea* and other broad-leaved allies it more properly belongs to the new genus *Calodracon* than to *Dracæna*. But we content

ourselves to prepare the reader to look for it shortly in its newer and more proper place, and our next business is to direct attention to it as one of the most useful of beautiful-leaved plants in cultivation.

The elegant contour and rich colouring of this plant will always secure for it plenty of admirers. The leaves are broadly lanceolate, decurrent at the base, and sub-acuminate at the summit, of a thin membranous texture; they have long channeled petioles, which, when they decay and fall off, leave marks on the stem which in time give it an annular appearance. The colours of the leaves are splendid, the prevailing hues being a profound chocolate bronze, and a vivid scarlet crimson. With these colours there is intermixed enough green to increase their effect, and when viewed in a suitable light the leaves have the appearance of stained glass of the deepest blood-colour toned down with darker shadows.

Dracænas of this type are usually grown in the stove, and certainly *D. Cooperi* and some few others need a good heat to keep them in health. But *D. terminalis* and its varieties, and *D. ferrea* and its varieties, and *D. rubra*, which is valued for its flowers, may be grown to greater perfection in the greenhouse; and are admirable plants for the dinner-table, or to decorate the ball-room or the reception-room on festive occasions, for they bear much rough usage and are little the worse for it. Any good mellow soil will suit them provided it contains plenty of vegetable fibre. They require plenty of water all the summer, but should never be watered overhead, for water lodging in the heart causes either the death of the plant or the rotting of many of its finest leaves. In winter water must be very sparingly given. Shade from strong sunshine is essential to the development and preservation of their rich colours, and as they are subject to the attacks of red spider it is well all through the summer to sprinkle the floor of the house daily when shutting up.



LYNGBYOSTACHYUM VENOSUM (HAFFELT)
IX



GYMNOSTACHYUM VERSCHAFFELTI.

PLATE IX.

Gymnostachyum Verschaffelti, Nob. *Pittonia Verschaffelti*. *Eranthemum Verschaffelti*. *Gymnostachyum bracteosum*, Hort. Verschaffelt's *Gymnostachyum*.
Natural Order—ACANTHACEÆ.

THE numerous synonymes of this plant are the consequence of its deviation in a few particulars from the characters of the genera to which it has been respectively assigned. It agrees most closely with *Gymnostachyum*, and under that name it will henceforth be known, until some adventurous botanist shall see better reasons than are now to be

found for the establishment of a new genus for its accommodation. One of the principal characteristics of the plant which give occasion for doubt as to its place, is that the divisions of the ovary have one seed each; whereas there should be two for complete conformity to the characters of *Gymnostachyum*. The fact of its being a native of South America would suggest the probability of its proving erratic in some particulars of structure, for all other known members of this genus are natives of India.

Gymnostachyum Verschaffelti is strictly herbaceous, and of humble growth. The stems and branches are of a reddish tinge, and in form cylindrical, but they appear to be four-sided, owing to the silky pubescence with which they are clothed, the hairs being disposed in regular lines in the spaces intermediate between the successive pairs of leaves. The leaves are opposite, on reddish leaf-stalks; the leaves average four or five inches in length, and two or three inches in breadth, the form being ovate with a slightly cordiform base. The upper surface of the leaf is quite smooth, and is richly painted with reticulations which vary from creamy red to rich pink, and at times pass into brilliant scarlet on a fine deep green ground. These colours are seen to best effect in full sunlight, but in the absence of that advantage, the plant has a most beautiful appearance, and has become quite a favourite with cultivators. The flowers are pale yellow, and have no beauty; they occur in an upright spike, which is clothed with large green bracts, in the axils of which the flowers are produced. A mere glance at them is sufficient for the determination of their relationships to the *Acanthads*, and a glance will be sufficient, except when an analysis of structure is required.

To grow this pretty plant is a matter of no difficulty, but there is always a danger of it being killed with kindness. During the summer it should have an airy place in an intermediate house, or common greenhouse, but a draughty place is at all times unfit for it. In winter it must be kept in the stove, and a moist atmosphere will be favourable to its well-doing. A light vegetable soil is required, and we have found a soft silky loam full of fibre to be more favourable to the development of its proper colours than peat. When well grown it throws up a multitude of flowering stems, and is then more interesting than at other times, although we just now spoke of the flowers as having no beauty. The young shoots readily strike in a moist heat, and that is all that need be said about the propagation.



ECTOLONIA CILIOLATA



BERTOLONIA GUTTATA.

PLATE X.

Bertolonia guttata, Spotted-leaved Bertolonia.
Natural Order—MELASTOMACEÆ.

THIS is emphatically a new plant, which, until quite recently, was as much unknown to science as to cultivation. The late Sir W. J. Hooker reported of it, "We have beautiful samples identical with this in our herbarium, collected at St. Sebastian, Brazil, by the late Mr. Fox; and again from the Province of St. Paul, South Brazil, collected by Mr. Weir. It appears to be quite undescribed, and is, so far as we know, peculiar to Brazil." It has frequently been exhibited at Kensington and Regent's Park, and always under bell-glasses, as represented in our woodcut; Messrs. Veitch, who first flowered it, and Mr. Bull sharing between them the honour of its introduction to public notice.

Bertolonia guttata is a stove herb. It has a long creeping root, thick as a goose-quill, resembling the caudex of some fern. The stem is obtusely quadrangular; the leaves occur in pairs: they are ovate, submembranaceous, the margin entire or obscurely dentate. The flowers are produced at the summit of the plant, where they form a cyme containing five to ten flowers, the petals of which are of a pale rose-colour. It is for the beauty of its leaves this plant has been received with favour, for, although its flowers are of a pleasing character, they alone would scarcely have secured for it the place it has obtained in the list of the most select stove plants. The upper surface of the leaf is dark green with five parallel veins, on either side of which are lines of white or rosy spots, which are laid on sharply and regularly. The younger leaves have, superadded to these attractions, a delicate tinge of cinnamon-colour, and the under surfaces of all the leaves are of a brownish purple colour, divided by light green ribs.

It requires some care and skill to grow this beautiful plant as it deserves. Young plants are obtained by dividing the caudex, or by cuttings in the ordinary way; and in either case a strong heat is required, with but a small allowance of water until roots are formed. The heat of an ordinary stove, or indeed the coolest part of an ordinary stove is sufficient for the plant when growing, and a rich light soil is essential. One of its essential requirements is a decided season of rest in the temperature of an intermediate or ordinary greenhouse. If the atmosphere of the house is humid, and the plant is safe from draughts, there is no occasion to keep a bell-glass over it.



XIBNONIA ARGYREA-VIOLESCENS



BIGNONIA ARGYREA-VIOLESCENS.

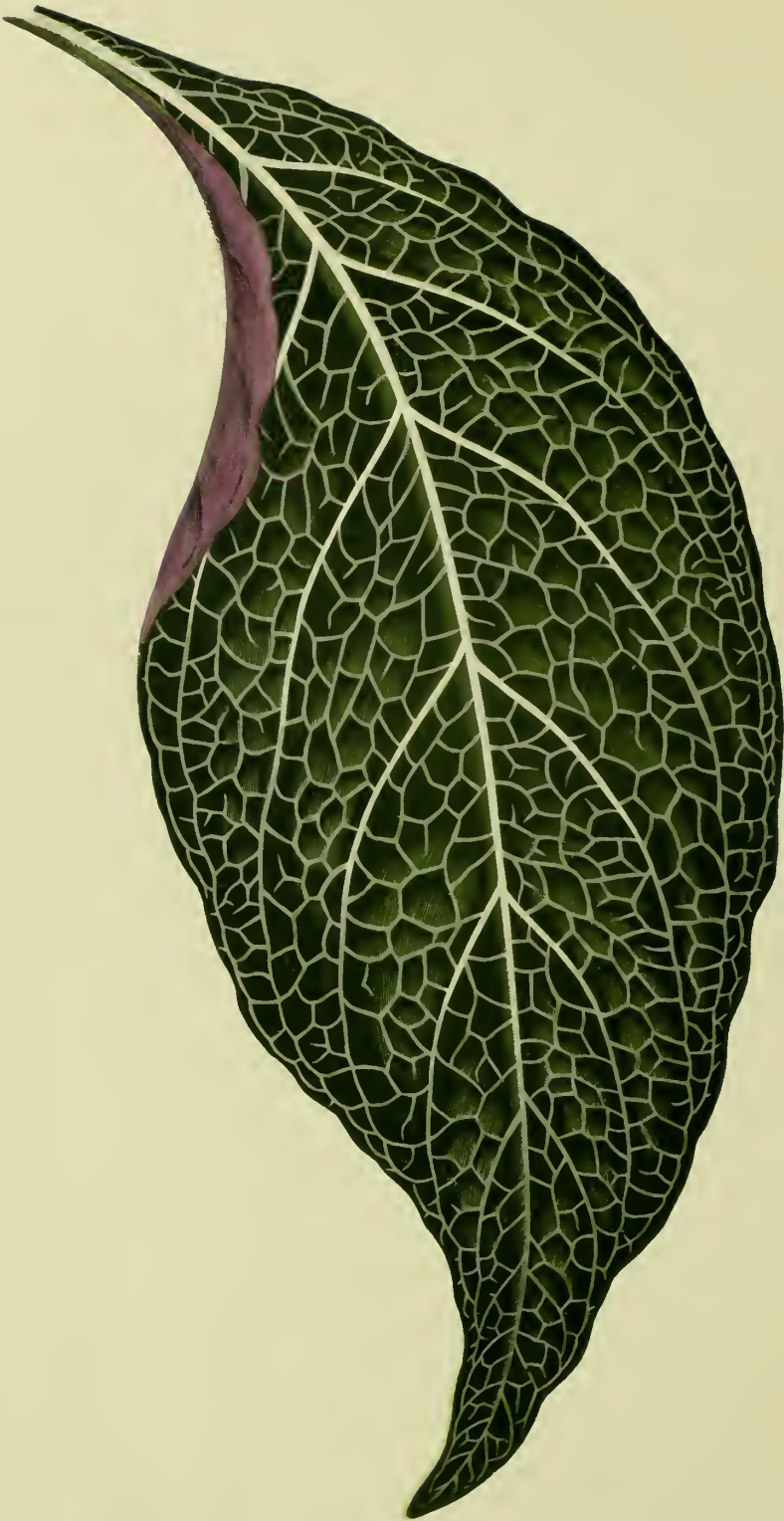
PLATE XI.

Bignonia argyrea-violescens, Bignonia with silvery and violet-coloured leaves.
Natural Order—BIGNONIACEÆ.

WE have in this Bignonia (if it be a Bignonia, a question not to be settled until the plant has flowered) a good example of the wealth of the central districts of the Amazon, in richly coloured forms of vegetation. There is something apparently in the climatal conditions of this glorious region peculiarly favourable to the production of elaborate colouring, for birds, insects, and plants, appear to vie with each other in reflecting the colours of the rainbow, and in displaying combinations of hues which the spectrum never suggests. Mr. Wallis, who understands this country well, speaks of such forms of vegetation as common to it, and we can form some faint idea of the extravagant richness of its vegetation by the many wonderful plants we have obtained from thence for the embellishment of our tropical and subtropical gardens.

The plant before us has claims enough in its exquisite leaf-colouring to a leading place in our series, though it is but little we know about it at present. Time, however, will reveal to us all its characteristics, and for the present we must accept it as a companion to *Cissus discolor* and other richly-coloured foliage plants that clothe the pillars and trellises of the stove. It is a climber, and if a Bignonia, it belongs to De Candolle's section *Simplicifoliæ*, the leaves being simple, and will probably produce flowers less attractive than those we are accustomed to in the compound-leaved species. There is a delightful diversity in the colouring of the leaves. The midrib and the principal veins are greyish green shading to silvery white, and the intervening spaces are in the young leaves of a rich purplish chocolate or reddish violet hue, changing as the leaves acquire maturity to a dull olive green. The appearance of a neat healthy plant is delightful, and sometimes curious, when, as in the plate, there is a strong contrast between the leaves newly produced and those that have attained their full development.

There need be nothing said about the cultivation of this beautiful plant. Ordinary stove treatment is all it requires, and to propagate it is about as simple a matter as can be imagined by any one accustomed to the practical details of plant growing. Those who possess it should encourage free growth, with a view to obtain flowers. These we expect will prove to be less attractive than the flowers of the compound-leaved Bignonias; but at all events we want to see them, and shall be glad if any of our readers who obtain flowers will favour us with an opportunity to inspect them.



ADELASTER ALBIVENTIS.



ADELASTER ALBIVENIS.

PLATE XII.

Adelaster albivenis, White-veined-leaved Adelaster.
Natural Order—ACANTHACEÆ.

THE Acanthus family provides our plant-houses with many examples of beautiful leaves. Even the common Acanthus of the garden, the supposed origin of the Corinthian capital, is one of the most beautiful leaf-forms known. The plant now before us, however, has its own peculiar claim to admiration, and it is one of the most distinct and striking of the class in which we group it, irrespective of its botanical affinities.

This plant is a native of Peru, and may be considered a warm greenhouse rather than a stove plant. It is herbaceous or subshrubby, the leaves are produced in pairs; they are ovate, lengthened out at apex, and at the base decurrent. The upper surface of the leaf is of a solemn tone of dark green, strangely lighted up with a pure white midrib and veins, and obscure anastomosing reticulations of a greyish white colour. On the under surface they are purplish. The plant has not yet been seen in flower, and therefore it is only of its leaves we can at present speak.

To grow this plant to perfection only ordinary care is required. A temperate house is sufficient all the summer, but it needs the stove or a warm place and very careful treatment in the greenhouse during winter. A rich loam is the proper soil for it, for in light soil or peat it soon becomes infested with vermin, and the leaves lack their proper beauty. As a decorative plant it is particularly well adapted for vases, and it might no doubt be placed out of doors during the best part of our brief summer. Good drainage is an important requisite, and we should prefer never to allow a drop of water on the leaves; but a humid atmosphere is certainly favourable to full development. As for propagation, it is so easy a matter that we only need say that a cutting two or three joints long will root almost immediately, if inserted in moist sand in a temperature of 70°, with a reasonable degree of moisture.

WHAT IS VARIEGATION?

The question has been asked and answered so variously and so frequently, that unless we had now a distinct object in view we should forbear to touch the hackneyed subject. "Variegation," as it is termed, in the leaves of plants consists in blotches, lines, spots, marginal bands, etc., of various colours,—white, yellow, and red prevailing principally. To go into the whole question here is impossible, but we must remark that some leaves are normally rich in colour, and the question of the cause of variegation does not apply to them at all. It is the abnormal (if abnormal) colouring of a leaf which now interests us. Wherever this abnormal colouring appears, as, for example, in "Flower of the Day" Pelargonium, or the white and creamy stripes of the "Ribbon Grass," (*Phalaris arundinacea*,) the vigour of the plant is less than that of its nearest relative in the class to which it belongs. For example, "Flower of the Day" is

less vigorous than the dark-zoned variety from which it originated, and the Ribbon Grass is less vigorous than the green-leaved unvariegated form of the same *Phalaris*. Now we have watched over the growth from seed of thousands—tens of thousands—of variegated-leaved plants, or of plants bred from one or two variegated parents. In all cases the more intense the variegation the less was the degree of vigour, a fact which goes very far indeed towards establishing the popular theory that variegation is the result of disease. We are now approaching the object we have in view in penning this note, and if of no interest to anyone but Mr. Darwin, it will at least be of some interest to *him*, as a trifle in aid of his theory of "*Pangenesis*." We have observed that whenever the seed-leaves or cotyledons present any kind of variegation, even the faintest streak or spot of white or yellow, the plant at some time or other produces variegated leaves, and when this occurs, it also immediately and unmistakably declines in vigour. But the converse is not true: when the cotyledons are apparently quite healthy, and destitute of a trace of variegation, it is not at all certain that the plant will not become in due time variegated; in fact, some of the most beautiful of the variegated-leaved *Pelargoniums* were quite green in the seed-leaf. What is variegation? Well, we can ascertain the contents of cells, and we can reason on all the relations of the condition to that of albinism in animals, and at the end of our inquiry what have we gained? It appears to us that variegation is transmitted by roaming cells, which are capable of development only under certain conditions of the individual in which they circulate, and that the development is a form of disease for which no better term can be found than one already in use by the medical profession, namely, DEFECTIVE NUTRITION. The cells which predispose to variegation are of a kind unfavourable to assimilation, and the analogue to a variegated plant is perhaps not so much an albino as the victim of atrophy.

Aspidistra lurida variegata.—This fine plant is as hardy as an Iris, yet will bear the heat of the stove, and appears to be always at home in a cool greenhouse. When planted out on a dry sand-bank it grows freely, and is unhurt in the severest winters, and it answers admirably as a pot plant to mix with hardy ferns. It is an interesting subject, for, though strictly liliaceous, it appears to have no affinities with the Lilies until we carefully study its structure and habits. Its large handsome leaves, rising from a woody rhizoma, afford no hint of its relationships; and its flowers we never see unless we make a search for them. Some time in May, however, they may be discovered

on the rhizoma, not rising from it; and as sometimes a little of the earth has to be removed to afford a good view of them, it has been described as "flowering under ground." When the flowers are discovered, they are seen to be of a dull brown or earthy colour, and about the size of a florin; their structure liliaceous, though quite destitute of attractions. To ensure the production of leaves finely variegated this plant must be grown in poor soil. If grown generously the beautiful stripes of creamy white disappear, and the leaves acquire a uniform dull green hue. It is a good plan to assist pot plants with a little heat when the new leaves first appear; this produces development. To multiply the plant is an easy matter. Wait till it begins to grow, then cut up the rhizoma, and pot the pieces, and put them in a steady bottom-heat.



HIBISCUS COOPERII.



HIBISCUS COOPERII.

PLATE XIII.

Hibiscus Cooperii, Sir Daniel Cooper's Hibiscus.
Natural Order—MALVACEÆ.

WE cannot be wrong in selecting for a place in this series *Hibiscus Cooperii*, for it has leaves that are exquisitely beautiful, and in its season it is crowned with gorgeous flowers. The Malvaceous order contributes largely to the embellishment of our gardens, and the Hibiscus is not the least amongst many of its genera in respect of decorative properties. The hollyhock, abutilon, althæa, and a host of annuals, offer themselves out of this great family for the most common but delightful uses; from several species of Hibiscus and Gossipium valuable fibres

are obtained, the last-named furnishing the several varieties of cotton which we have seen associated as a power, with some of the greatest political agitations of modern times. In our stoves the species of *Hibiscus* have long been prized on account of the brilliant colours and great abundance of their flowers, those of *H. sinensis*, *H. splendens*, and *H. pulchellus*, to name only three out of fifty or more that have been introduced to cultivation, are certainly unsurpassed for splendour, when at their best, in all the range of plants with which they may be fairly compared in respect of merit. The particular subject of this notice is a native of the hottest parts of the Australian continent, where it was first discovered by Sir Daniel Cooper, Bart., of Woollabra, near Sidney, and some time treasurer to the Royal Horticultural Society of London.

The plant is of delicate constitution, but when properly treated grows freely, and is extremely beautiful. The young stems are of a deep red colour, and the footstalks of the leaves, and the stipules that accompany them, are of the same colour. The leaves are lanceolate or elongate-ovate, wedge-shaped at the base, pointed at the apex, irregularly bluntly toothed. They vary considerably in colours, but the prevailing tints are carmine red, with patches of creamy white on the outer parts of the blade, with more or less of light and dark green dappled in the line of the midrib. Numerous as are plants with highly-coloured leaves, we have few that equal this in the abundance and richness of its tones of red. When it flowers, however, surprise must precede admiration, for the flowers are not surpassed in splendour by any other species of this noble family. The flowers usually exceed six inches in diameter; they present no peculiarities of structure, being of the ordinary *Hibiscus* type, the long narrowish petals being rather widely separated. The colour of the petals is an intense carmine scarlet, but the base of each is blush, which breaks into the scarlet in delicate veins, the centre of the flower being blackish crimson. The plant has at least one defect, and that is extreme shyness in producing flowers: this, however, is a common defect of new plants, owing to their being kept in a constantly growing state, for purposes of propagation. When quite established it will probably flower much more freely than it has done hitherto.

Hibiscus Cooperii requires careful stove cultivation. We are particular in saying this, because it has been described as a greenhouse plant. For all the stove species of *Hibiscus* we prefer a soil consisting wholly of tough fibrous peat, or the most mellow fibrous loam that can be obtained; mixtures answer very well for such free-growing kinds as *mutabilis*, *sinensis*, and *phaniceus*, but the delicate habited do far better

in gritty yellowish peat than in any mixture. *H. Cooperii* may be quickly struck with a good heat, but great care must be taken not to make the cuttings too wet or they will perish. The specimens hitherto exhibited in London have been presented covered with bell-glasses, which is a good measure of precaution against cold draughts and dust, but in the well-kept plant stove bell-glasses are unnecessary.

As it is but seldom we meet with collections of Hibiscus, the following list of the beautiful species may be useful to some of our readers.

HARDY SPECIES OF HIBISCUS.

H. trionum, (the "bladder-ketmia,") an annual plant; the flowers citron yellow, with centre brown and black.

H. militaris, hardy herbaceous plant, the flowers white with crimson centre.

H. palustris, a hardy herbaceous plant, native of North America, where it grows in marshes; flowers pink or rose with crimson centre.

H. speciosus, herbaceous, native of Carolina; flowers scarlet with white centre.

H. syriacus, syn. *Althæa frutex*, a splendid hardy deciduous shrub, of which there are at least a dozen varieties. It requires a rather poor sandy or stony soil, and the hottest place that can be found for it in the garden. As it is unsightly during winter, looking much like a dead tree, and is late in coming into leaf, it is not well adapted to plant in a rich foreground where the finest evergreen shrubs are usually placed.

H. Wrayæ, a nearly or quite hardy deciduous shrub rarely met with, but deserving a place wherever it can be treated as described for *H. syriacus*. The flowers are purple, or lilac and violet, and are rarely produced until October.

STOVE SPECIES OF HIBISCUS.

H. cameronis, native of Madagascar: there are two varieties, one with rosy, the other with scarlet, flowers.

H. ficuloides, native of Ceylon; the flowers are yellow and purple.

The proper way to treat this is to roast and starve it; if cramped at the roots, and in the driest and hottest part of the stove, it will be in flower nearly all the year.

H. liliflorus, native of the Isle of Bourbon; a fine shrub, producing enormous lily-like flowers of a rosy scarlet colour. This should be planted out in a border of free loam, and have abundance of water when making its new growth.

H. Lindleyi, native of Burmah; a compact shrub, rising six or seven feet high, growing freely in light mellow loam, and better adapted for a pot than for the border. It flowers abundantly and continuously throughout the winter and early spring: the flowers are neat in form, the colour rich crimson purple, with black centre.

H. mutabilis, a noble tree, native of the East Indies; the flowers are usually produced during the early part of the winter in great plenty. This requires plenty of root-room, and should therefore be planted out in a bed of rich loam, but it may be grown in a pot to great perfection. It takes its name from the changeableness of its flowers; they open in the morning an impure green colour, soon afterwards they change to white; at noon they acquire a tinge of red, and before they perish at night they become richly tinted a crimson rose colour.

H. rosa-sinensis, better known as the "Chinese rose." A magnificent tree, native of India and the hotter parts of China; there are several varieties, producing respectively rosy, red, and yellow flowers, single and double. These thrive as pot plants, but when planted out in a border or bed of loam grow more freely and flower more profusely.

If more be required, add *H. cannabinus*, a stove biennial plant, with flowers yellow and crimson; and *H. multifidus*, native of Swan River, a greenhouse shrub, with flowers pale blue, the centre rosy crimson.



MARANTA ILLUSTRIS
XIV



MARANTA ILLUSTRIS.

PLATE XIV.

Maranta illustris, Noble or Remarkable Maranta.
Natural Order—MARANTACEÆ.

THIS charming plant will be a suitable companion for *M. rosea-picta*, (Pl. V.,) which it resembles in its general character and habit of growth. It differs chiefly in having esescent bands of pale rose and white in place of the brilliant red, and oblique bars of emerald green alternating with deep olive green in place of the more uniform full green of *rosea-picta*. *M. illustris* was obtained from the Upper Amazon by M. Linden, of Brussels, through his collector Mr. Wallis; it has also been found by M. Baraquin, in districts watered by affluents of

the Amazon, and by him was transmitted to M. A. Verschaffelt, of Ghent. A plant so easily multiplied and so highly attractive in appearance, could not long remain in few hands, and it has been largely distributed, and may now be found in all good stove collections, associated with *M. rosea-picta*, *M. splendida*, *M. Veitchii*, *M. striata*, and others referred to at page 14.



LONG CARA S.A. LINDA, VAR. AUREO-RETICULATA



LONICERA BRACHYPODA.

Var. Aureo-reticulata.

PLATE XV.

Lonicera brachypoda, var. *aureo-reticulata*, Japanese Honeysuckle with golden-netted leaves.

Natural Order—CAPRIFOLIACEÆ.

WE are strongly tempted to apologise for the picture, because it is not occupied with the newest novelty, but perhaps its beauty may be a sufficient vindication. We can defend the plant at all events, and if it has any enemies we begin by hurling at them the declaration that this hardy shrub created quite as much sensation on account of its curious colouring as any other plant introduced in the same season with it; and, being hardy, interested a greater number of amateurs than any other of the time. And it has not disappointed any; even those who doubted if such a slender beauty could brave a British

winter, are satisfied; and it has now acquired a new interest, for established plants are found to flower abundantly, and the flowers are as pretty and sweet as those of the common evergreen Honeysuckle.

This pretty plant is one of the many acquisitions—we will venture to say also one of the triumphs—of Mr. Robert Fortune, the intrepid explorer of Chinese and Japanese gardens. It was first introduced to public notice by Mr. Standish, and at Kensington and Regent's Park obtained the highest awards that could be given for merit. When distributed it was purchased eagerly, and proving as hardy as any plant in our gardens, it may now be frequently met with covering walls, trellises, and bowers with its lovely and peculiar leafage, or as we have it in our own garden, sheeting a ruin in company with dark-leaved ivies, which heighten its attractions by contrast. It can be grown into specimen form in a pot with the greatest ease, but a firm light trellis must first be prepared and fixed in a pot of suitable size, (not less than eleven inches for a handsome example,) and a strong plant must be planted and trained to the trellis from the first. It may remain in the same pot three years, and may then be planted out, or may be cut back and re-potted. Any light soil of tolerably good quality will suit it; we have thought the colours were brighter when the plant has been grown in mixtures of old mortar, broken bricks, and sand in a considerable proportion. One thing is certain, the plant should be fully exposed to light, and it attains to much richer colours when grown in the open air, for then, in addition to its reticulations of gold and green, there is added a crimson midrib, and in autumn a flush of purplish red overspreads the whole surface of the leaf.

Two curious but very pardonable blunders have been made in descriptions of this plant. Mr. Fortune said, "It produces two kinds of leaves, one single and one like the oak." Mr. Thomas Moore, misled no doubt by the error of Mr. Fortune, said, "The leaves are commonly ovate, but occasionally become sinuately lobed, and in the samples before us are about two inches and a half long, and nearly two inches broad," etc. Observation of the growth of the plant will soon furnish the explanation of these inaccuracies. It will be seen that the young leaves are commonly lobed like those of the oak, but as they acquire their full growth and maturity the lobes disappear, and there is at last not a trace of their former existence to be found. Those who wish to see the flowers of this pretty plant should allow it to become established on a sunny wall or trellis at least ten feet high, never resorting to pruning except to regulate the growth and prevent overcrowding, the matured wood will in due time delight the owner by a display of beautiful flowers.



GALADIUM BELLEYI.



CALADIUM BELLEYMEI.

PLATE XVI.

Caladium Belleymeri, or *Caladium Belleymeri*, Belleymer's Caladium.
Natural Order—ARACEÆ.

THIS is one of the most remarkable of the series of Caladiums collected by Baraquin in Para, Brazil, and introduced to European cultivators by M. Chantin, of Paris. Frequenters of floral exhibitions have of late become familiar with the sparkling appearance of its dappled leaves, when presented in groups of its more strongly-coloured congeners; and in every well-furnished stove it is valued as a companion plant to the less robust, but not less beautiful, *C. argyrites*.

It differs, however, in form and colouring, as well as in stature, from that little gem; the leaves of *C. Belleymei* being sharply sagittate, and almost wholly white, with occasional suffusions of pale rose. In the admirable figure here presented the artist has faithfully represented its prevailing characters, the vivid green network arising out of the course of the veins and their anastomosing divisions, constituting, with the contrast of the white ground, the most decisive of its many attractions.

Some general remarks on Caladiums and their requirements will be found in the description of *C. mirabile*, (Plate VII., p. 17.) Special directions as to cultivation, therefore, are not needful in this place.

THE FLOWERING OF CALADIUMS.

When Caladiums flower, as they do occasionally, cultivators who have not previously had experience of their behaviour, are apt to be in doubt as to the effect the act of flowering may have upon the health of their plants; and some there are who declare that after flowering a Caladium is sure to perish. As a rule, the inflorescence of the Caladium cannot be considered ornamental; but there is nothing to be gained by removing it, or indeed by removing the flowers of any endogenous plant. Considered as to the effect of inflorescence, it is favourable to the health and vigour of the plant, provided the growth and ripening of the seed is prevented by removal of the spathe as soon as the freshness of its appearance is past. The green stalk should be left to wither away in its own time. After flowering, if the ripening of seed is prevented, the plant usually makes a number of offsets, and affords its possessor the means of increasing his stock. Generally speaking, the flowering of Caladiums affords a proof that they have been cultivated in strict accordance with their requirements.

DISTINCTIONS BETWEEN THE CALADIUM AND THE ALOCASIA.

The species of these two genera are frequently confounded, and it is no uncommon thing to find them incorrectly labelled at exhibitions. In common with many other closely-allied genera, they are, by the cultivator unaccustomed to scientific observation, regarded as differing in name only, and that difference is of course attributed to the

pedantry and hair-splitting to which botanists have occasionally been addicted. But the distinctions in this case are real and obvious, and may be categorically stated as follows:—

The *Caladium* has a tubercular rhizome, and though bulb proper it has none, it may for popular purposes be said to have a bulbous root.

The leaves of the *Caladium* are all radical, that is, they arise directly from the root.

The *Alocasia* has always more or less of a distinct stem, from which the leaves proceed, the bases of the petioles being sheathed and above ground.

The spadix of the *Caladium* and the *Alocasia* are alike in general characters, as in each case it bears flowers along its whole length, the flowers at the apex being males, those at the base females, those in the centre combining both sexes, and abortive. But in *Alocasia* the spadix is prolonged in a sterile appendix, which is not the case in *Caladium*.

In *Anthurium* the stem is more distinctly and boldly produced than in *Alocasia*, the members of this genus, therefore, have in many cases a palm-like aspect.

TWELVE DISTINCT CALADIUMS.

C. argyrites.—Of small growth, leaves light green elegantly blotched and lined with white, averaging ten inches in height.

C. Baraquinii.—Robust growth, and large leaves, averaging thirty inches; they are almost wholly of a rich dull crimson red, bordered with dull green. One of the best.

C. Belleymeii.—Robust growth, the leaves (including petioles) attaining a length of thirty-four inches. The whitest of the large-growing kinds, and indispensable.

C. Chantinii.—Average height thirty-two inches; brilliant crimson centre. The most showy of its class, and indispensable in even the smallest collection.

C. cupreum.—Dwarf habit, average height fifteen inches; the leaf is broad and flat, the colour dull bronzy olive with dull reddish veins. Very distinct, and metallic in colouring, but not desirable for a small collection.

C. Devosianum.—Very robust, averaging thirty-five to forty inches high: the broad leaves are of a rich deep green, sparingly marked with clusters of white dots.

C. mirabile.—Medium habit, averaging twenty inches high; leaves broad and shield-shaped, light green with white spots. Very desirable.

C. Perrierii.—Medium habit; leaf broad with blunt lobes, and sharp at the apex, rich deep green irregularly marked with deep red blotches, which are lightly edged with white.

C. regale.—One of the largest in growth and particularly handsome: the leaves are finely formed, rich deep green with irregular blotches of greyish white. A very fine plant, surpassing *C. maerophyllum* in nobleness of appearance.

C. splendidum.—A fine companion plant to *C. Chantinii* and *Baraquinii*, as *Belleymei* is a companion to *argyrites*. The leaf is almost wholly tinted with dull carmine, the veins showing richly and boldly in a deeper tone of the same colour, the margins slightly shaded with dull green. This surpasses *bicolor* and its varieties.

C. Troubetzkoy.—Medium growth, averaging twenty inches. Leaves very narrow with ear-like lobes: the ground colour grass green, sparingly spotted with white and pale rose, the central veins rich carmine red. Very desirable.

C. Wighti.—Growth moderate, leaves of a beautiful escutcheon form, rich deep green dappled with large blotches of red and white. One of the best, and indispensable.



ALTERNANTHERA SESSILIS, VAR. AMENA.



ALTERNANTHERA SESSILIS.

Var. Amœna.

PLATE XVII.

Alternanthera sessilis, var. *amœna*, Pleasing variety of the Sessile-flowering Alternanthera.

Natural Order—AMARANTACEÆ.

THE commercial axiom that “demand creates supply” is amusingly illustrated by the pretty group of plants of which the one now before us is a member. Nature does not concern herself perhaps about our commercial or even our scientific axioms, yet when it became the fashion to colour the parterre with leaves, to the exclusion in great part of flowers, Nature appeared favourable to the undertaking, and presented us with a host of new plants suitable for the purpose. The glorious *Coleus Verschaffelti* and *Amaranthus melancholicus* had prepared the way, and when some half dozen lively Alternantheras, and the sombre but useful *Iresine* (*Achyranthes*) *Herbstii* appeared, the practitioners of “bedding” were in ecstasies, and began to dream of abolishing flowers altogether. Well, the Alternantheras have pleased a few and disappointed many, but we

believe their day is yet to come, for they were put to the proof too soon, and have not even yet had a fair trial. To plant out bits the size of one's little finger of a plant of diminutive growth and comparatively dull in its leaf-colours, is a very different affair to putting out tufts as large as one's fist or head, and in places where the *Alternantheras* and their congeners have been taken care of, effects may now be produced which were scarcely hinted at in the earliest experiments. We fully expect to see in the summer of 1868, in the best of the Parisian gardens, and in such richly-planted spots as Battersea Park, near London, displays of leaf-colouring far surpassing all former accomplishments, in which these plants will be conspicuous features.

The generic designation, "altern-anthera," has reference to the fact that the anthers are fertile and barren alternately. All the plants of the genus are humble herbs, mostly requiring the stove, but the members of the new bedding group are strictly greenhouse plants, requiring to be kept near the glass and in an airy place all winter, and growing freely in the open ground during summer. The most striking of the series are the following:—

A. sessilis, v. *amæna*.—Growth very dwarf, neat, and spreading; leaves spatulate; colours reddish orange and reddish purple, passing into shades of bronze and olive.

A. spathulata.—Growth free and branching, quickly forming a sub-shrubby tuft; leaves elongate-spatulate; colours pink and buff, passing into shades of brown, bronze, and green.

A. paronychoides.—Compact, tufted growth; leaves narrow-spatulate; prevailing colour bright orange red, passing into shades of dull olive green. A very distinct leaf-colouring plant.

A. versicolor, syn. *Teleianthera ficoidea*, v. *versicolor*.—Sub-shrubby in aspect, freely branching, and quickly forming a neat round bush. Leaves ovate and decurrent; prevailing colours lively pink and bronzy crimson, passing into shades of green and brown.

As greenhouse plants these will please for a time, but their ultimate fate in respect of the favour shown them by English cultivators, will depend almost entirely on their value as bedding plants.



TEA JAPONICA VARIEGATA
XVII



ZEA JAPONICA VARIEGATA.

PLATE XVIII.

Zea Japonica variegata, Japanese Maize with variegated leaves.
Natural Order—GRAMINACEÆ.

THIS is one of the most useful horticultural novelties, and withal an interesting plant because of the constancy of the variegation, though the plant can only be multiplied by means of seeds. Though well worth a place in the conservatory, it is in the open border that this fine Maize displays its beauties to the best advantage; and it has been largely employed in what is commonly designated "sub-tropical" gardens. Few novelties of so humble a nature as this have

met with a reception like it, for in the first season of its general distribution through the ordinary trade channels, it was to be found in almost every garden in which a new plant could find a place at all. The reason for its sudden and extensive popularity may be found in its close resemblance to a plant of much greater value—the celebrated *Arundo donax variegata*, a plant which must always be expensive, because difficult to keep, and one moreover much coveted because of its distinctive grace and beauty. The Variegated Japanese Maize may be regarded as a cheap substitute for this famous *Arundo*, and it may be considered the best poor man's sub-tropical plant in cultivation.

In raising plants the very simple plan may be followed of sowing the seeds where the plants are to remain in the open bed or border. The soil should be rich, light, and deep, well dug over, and left rather rough on the surface. If a bed be sown, the seeds should be placed a foot apart, and four inches deep, and a few extra should be sown elsewhere to supply plants to fill any gaps that occur in the beds. If required to form clumps on a border, about five seeds should be sown for each clump, and they need not be more than six inches apart. The last week in April or the first week in May is the proper time for sowing in the open ground.

A better way, however, is to sow the seeds in pans of light rich soil in February or March, and place them in a gentle heat. By this means strong plants are obtained for planting out towards the end of May. The plants are always green at first, but acquire their proper variegation as they approach maturity; and when the leaves are fully developed they are superbly marked with longitudinal bands of white and grey, and sometimes a tinge of rose is added.

The best examples of this as a pot plant, that have come under our notice, were grown by Mr. Chater, of the Gonville Nurseries, Cambridge, in 1867. They were exhibited at the autumn meeting of the Cambridge Horticultural Society, and were not only greatly admired, but created some amount of surprise by their elegance of outline and brilliant variegation. They were placed in a line down the centre of the principal table on which cut flowers and fruits were displayed, and in this conspicuous position established the right of this Maize to be considered a valuable plant for the conservatory.



ALOCASIA LOWII.



ALOCASIA LOWII.

PLATE XIX.

Alocasia Lowii, *Caladium Veitchii*, *Caladium Lowii*, Low's *Caladium*.
Natural Order—ARACEÆ.

THE very close relationships of *Alocasia* and *Caladium*, and the consequent impossibility of distinguishing the genera when the plants are quite young, accounts for the three names which the plant before us has respectively borne. *Caladium Veitchii* had been introduced to cultivation prior to the discovery of the plant before us, and in due time proved to be an *Alocasia*, and was re-named accordingly *Alocasia Veitchii*. In the summer of 1862 Messrs. Low and Co., of Clapton, received from Borneo a plant which they believed to be *Caladium*

Veitchii, and under this name they first presented some immature specimens of it at the Metropolitan exhibitions. In due time it proved to be distinct from the plant bearing the name under which they received it, and hence it was re-named *Caladium Lowii*. When the inflorescence appeared it proved to be not a *Caladium*, but an *Alocasia*, and finally it was registered and described as *Alocasia Lowii*, (Hooker,) as good a name perhaps as could be given it in these days of degraded nomenclature, a diagnosis being no longer a needful preliminary to the determination of a specific name.

Alocasia Lowii is one of the grandest plants of the remarkable family to which it belongs, and if not superior to *A. metallica*, as we are inclined to think it is, at least equals that fine plant in solemn richness of colouring and majestic proportions, and is the best possible companion plant to that. It is, like other *Alocasias*, an evergreen stove perennial plant, having a distinct, erect, rhizomatous stem, to which the sheathing bases of the upright leafstalks are attached. The leaves are sharply sagittate, a foot to a foot and a half long, and five to nine inches wide, the base divided by a deep sinus into a pair of oblong lobes. The colouring of the leaf, as in the case of *A. metallica*, suggests to the spectator that he is looking at some elaborate work of metallic art. It is poor praise perhaps to liken any work of nature to a work of art, yet these two plants have such peculiar appearances that we know not how to avoid it. In *A. Lowii* the midrib and its secondary ribs are of ivory whiteness, and coalesce with a thickened ivory white margin; the spaces between these ribs are of a deep green, and the under surface is a sombre purple. In its inflorescence it differs from others of the genus in being somewhat ornamental; at all events the spathes are upwards of four inches long, elegant in outline, and of the most snowy whiteness.



PHORMIUM TENAX VARIEGATUM.



PHORMIUM TENAX VARIEGATUM.

PLATE XX.

Phormium tenax variegatum, Variegated-leaved New Zealand Flax.

Natural Order—LILIACEA.

THE New Zealand Flax is now so well known that we need not point out that the only relation it bears to the European Flax, (*Linum usatissimum*,) is in supplying a fibre well adapted for textile manufactures. Botanically, Phormium is separated by an enormous distance from Linum, and it is to be regretted that the term "flax" was ever applied to this plant at all.

Phormium tenax was discovered in New Zealand, by Banks and Solander, who accompanied Cook in his first voyage round the world,

in the years 1768 to 1771. Cook returned in 1772 and said much about the beauty of this plant, and especially of its fibrous nature, which was fully understood and appreciated by the natives, and he appears to have been enthusiastic in his anticipations of the benefits that would result from the introduction of the fibre to European commerce. Strange to say, in the account of his first voyage, the botanists who accompanied him said not a word about the plant; a bright discovery appeared to be quickly and completely forgotten. However, in his second voyage, 1772 to 1775, he was accompanied by the Fosters, father and son, and the plant was re-discovered, and was figured in the narrative of the second voyage, and some time after that its characters were determined, and it was described under the name it now bears. This name has been generally adopted by botanists, with the exception of Gärtner, who re-named it *Chlamydia tenacissima*, but this name has been rarely used.

There are two accounts extant of the introduction of this plant to cultivation. The late Sir William Hooker, in an interesting notice, reported that the seeds were brought to England by Joseph Banks in 1789, and were distributed liberally on the continent soon afterwards; and that Aiton, who was then head gardener at Kew, sent it in 1800 to the Museum of Natural History, which was at that time under the direction of the celebrated André Thouin.

Another account says that in 1791 Billardiere, botanist to the expedition of Entrecasteaux, returned with a valuable collection of new plants, amongst which was this Phormium. When taken prisoner by the Dutch he lost his plants, which were sold by his captors to the English. They were afterwards restored to the owner through the intercession of Sir Joseph Banks, but the Phormium was now missing, and we are led to infer that Sir Joseph knew of its value as a plant adapted for textile industries, and desiring that England should have the honour of introducing it to commerce, surreptitiously detained it, and thus defrauded Billardiere. Professor Ch. Lemaire, who relates these stories in Verschaffelt's "Illustration Horticole," vol. xiii., pl. 481, adds, "We cannot believe this of Sir Joseph Banks, who had too grand a soul and too noble a sentiment for such meanness, of which there is proof enough in his devotion of his whole fortune to the interests of science." The brief note in "Hortus Kewensis," 1811, vol. ii., p. 284, was of course written while the history of the plant was fresh in the memory of many botanists and horticulturists, and it tends directly to confirm the first account of its introduction.

The New Zealand Flax was from its first introduction known as a

valuable fibre-yielding plant, eminently adapted for manufacturing purposes, as its discoverers had seen the natives use it in the preparation of ropes, fishing-nets, and garments. The fibres are long, fine, strong, glossy like silk, and white as snow. Many experiments have been made to test its strength, the most trustworthy of these being those conducted by M. Freycinet, in the Department of Drome, in France, where the plant thrives in the open air, and flowers freely, though it does not produce seed. M. Billardiere, indeed, had put the fibre to comparative tests long before, but M. Freycinet experimented with fibre of European growth, which proved to be in no respect inferior to that obtained from New Zealand. The following results of the trial of several fibres will interest some of our readers. If the strength of the fibres of the Aloe be estimated at seven, that of the Common Flax is equal to eleven and three quarters, Hemp sixteen and one third, *Phormium tenax* twenty-three and five elevenths, silk twenty-four. There can be no doubt, therefore, of the immense economic value of this plant; yet up to this time it has never, we believe, been employed in European manufactures on a scale sufficient to give it an important place in our markets. The fibre grown in Europe is coarser, though quite as strong as that obtained from New Zealand.

The common green-leaved form of the New Zealand Flax is well known as a cool conservatory plant, which, in sheltered places in the southern parts of England, endures the severest winters unhurt. It is a plant of noble proportions and quite tropical aspect, associating well with Yuccas, Aloes, and other subjects of like character, and requiring scarcely any care in its cultivation. It is commonly reputed a marsh plant, and it certainly thrives if allowed an abundance of water during the summer. But it is not necessarily aquatic in habit, for we have seen a plant covering a space of four or five yards square, the growth of many years, in dry, barren, stony ground, almost the last place in the world where one would think of planting such a tropical-looking subject as this.

The variegated-leaved variety here figured is quite a novelty, and one of the highest value both for the conservatory at all times and for the embellishment of the flower garden during the summer. The leaves are boldly marked with alternate stripes of green, amber, and bright yellow, and occasionally bright red stripes appear. Mr. B. S. Williams, of Holloway, was the first amongst the London nurserymen to exhibit a large specimen of this plant, and we need not say that at its first appearance in public it was noted by lovers of such things as eminently desirable for decorative purposes.



SEDUM SIEBOLDII MEDIO-VARIEGATUM.
XXI



SEDUM SIEBOLDII MEDIO-VARIEGATUM.

PLATE XXI.

Sedum Sieboldii medio-variegatum, Variegated-leaved variety of Siebold's Stonecrop.
Natural Order—CRASSULACEÆ.

Sedum Sieboldii is one of the best hardy herbaceous plants in cultivation, but it is impossible to know much of its merits by treating it in an off-hand way, as fit only for the rockery or border. True, it is quite hardy if planted in a dry sunny position, and on a sandy well-drained soil. But the neat habit and delicate glaucous hue of its leafage are sadly marred by the assaults of weather and vermin, to which it is exposed when out of doors: the rain and the sunshine change the delicate bloom of the leaf to a dull dirty bronze, and if there be but one snail in the garden it will discover the plant, and regale upon its succulent substance until either snail or plant come to an end. On the other hand, as a cool conservatory plant it is well worth the little attention it requires. It must be potted afresh every spring, and be allowed a larger and a larger pot as the plant increases in size, but must never be over-potted. Good drainage is essential, and any light rich soil will answer. The

shoots may be trained out on a wire trellis, or may be allowed to hang down over the sides of the pot, a mode we think preferable to any kind of training. If kept in a sunny and quite airy part of the house it will flower freely in September. The flowers are reddish pink, every shoot terminating in a large dense umbel of them. The finest plant we have ever seen was one of our own, which has been several times exhibited in London. When in its fifteenth year it measured a yard across, having been grown to that size in a pan thirteen inches in diameter and ten inches deep.

This variegated-leaved variety is exquisitely beautiful, and, like the common form, should always be grown under glass. It varies much, producing occasionally shoots wholly green, and also shoots wholly of a delicate cream-colour. The typical character is a central broad stripe of cream-colour on the leaf, the remainder of which is of the same soft glaucous hue as the original plant. It is said that Siebold originated this variety by artificial means, in accordance with a system known to him, by which variegation may be produced at will. Hitherto this account of its origin has existed only as a rumour; no definite statement has been made public on the subject.



DICHORISANDORA MOSAICA.
XXII



DICHORISANDRA MOSAICA.

PLATE XXII.

Dichorisandra mosaica, Mosaic-leaved Dichorisandra.

Natural Order—COMMELINACEÆ.

THE lovely plant here figured belongs to a family of stove plants once highly esteemed by cultivators, but now known and appreciated only by a few. The order of Spiderworts, to which this belongs, is rich in beautiful and interesting plants; and amongst the most attractive occur a few of the Dichorisandras, which are valuable alike for their

leaves and flowers. The plate represents one of the prettiest fine-foliage plants known. The leaves are broadly ovate-oblong; the ground-colour dark green, traversed with zigzag lines of white, which remind the beholder of a delicate pattern in mosaic. When in flower this is a sumptuous plant, but if kept in health, it is well worth a place in the stove for its leaves alone.

Several species of this genus have been introduced from the tropical parts of South America within the past half century; and of these, two at least may be pronounced eminently desirable for the embellishment of the stove in autumn and winter. These are *D. picta*, with prettily painted leaves and blue flowers; and *D. thyrsiflora*, a plant of large growth, producing fine thyrses of blue flowers during autumn and winter. Our *D. mosaica* throws up a terminal thyrse of azure blue flowers, which have a charming appearance while they last, and its season of flowering is autumn. We recommend these three as the best out of about a dozen species known to collectors; and of *thyrsiflora* it may be said that there is not a finer winter flowering stove plant in cultivation.

The treatment required by these plants is simple enough, but they cannot endure neglect. A light rich soil of almost any kind will suit them. They must have stove temperature, a moist atmosphere, and shade from the full sun. Those that flower in the summer may be removed when in bloom to the conservatory, but as they are all delicately constituted, care must be taken not to expose them to cold draughts at any time, and while in the stove they must never be subjected to an arid atmosphere or long-continued dryness at the roots, or they will be quickly covered with red spider.

The quickest way to propagate them is by division in spring, but they may also be multiplied by seeds, which should be sown in a good heat in spring.



PEPEROMIA ARCYREIA.

XXIII



PEPEROMIA ARGYREIA.

PLATE XXIII.

Peperomia arifolia, var. *argyreia*, Arum-leaved Peperomia; Silver-striped-leaved Variety.

Natural Order—PIPERACEÆ.

ONE of the benefits resulting from the increased attention paid to the beauty of the leaves of plants, is the enlargement of the horticulturist's field of selection; for he now finds it advantageous to make acquaintance with plants that have never been prized for their flowers, and his interest in botany and plant-form is increased proportionately. The Peperomias were never cared for by cultivators until the passion for leaves sprang up; they were regarded as plants for the botanists, that is to say, ugly uninteresting things that were unworthy of the attention of any one in search of beauty. The ugly plants are always

made over to the botanists, but now and then it happens that a real beauty gets mixed with them, and the botanist, smarting under the sarcasm of his exigent friend the horticulturist, has the advantage of the laugh, and wins a point or two in the competition. No piperaceous plant is worth consideration for the beauty of its flowers, but of the Peperomias we have now at least half a dozen worth growing for the beauty of their leaves, and the best of them are the one here figured and a smaller leaved and darker coloured one, called *P. marmorata*, the Marble-leaved Peperomia.

The good points of these plants are many, their bad points are few. They are almost always in perfection if taken proper care of, for, unlike most other delicate-leaved herbaceous plants, the leaves of these retain their beauty a long time, and scarcely present an unattractive appearance at any time throughout the year. No insect ever touches them, they are most easy to keep and propagate, and they seem to do equally well in a comparatively dry atmosphere as in one highly charged with humidity; but the average humidity of the tropical house is more favourable to their health than dryness.

The two we have named as most desirable are very nearly related in their characters. The one figured, *P. arifolia*, *v. argyreia*, has orbicular-ovate leaves borne on red footstalks; the blade of the leaf averages three to five inches long; in texture it is somewhat succulent; the colours are delicately blended, being bright green along the lines of the principal nerves, and greyish white between them. The leaves of *P. marmorata*, the Marbled-leaved Peperomia, are ovate-cordate in form, deeply two-lobed at the base, the upper surface dull green, mottled with lighter shades of green, and divided by irregular bands between the nerves of greyish white marbling.

For these plants we are indebted to the industry of Mr. Weir, collector in Brazil for the Royal Horticultural Society.

We cannot dismiss the subject of this plate without remarking on the economic importance of the order to which it belongs. The most important plant in the whole family is *Piper nigrum*, from which both white and black pepper are derived. Several other plants of this order furnish carminative stimulants which are valued as substitutes for pepper and as antidotes to poison. The valuable drug called "cubeb" is the produce of *Cubeba officinalis*, a piperaceous plant; and the celebrated "betel" leaf, *Charica betel*, is a member of the same family.



|| A E AMERICANA VARIATA
XXIV



AGAVE AMERICANA VARIEGATA.

PLATE XXIV.

Agave Americana Variegata, Variegated-leaved American Aloe.

Natural order—AMARYLLIDACEÆ.

FAVOUR does not always go by merit, else a few of the best of the nearly hardy succulent plants, of which there are a myriad beautiful varieties known, would be found in every private garden where now

Tom Thumb geranium reigns supreme. It is something to keep a noble plant all the days of one's life, and hand it over at last to a successor, along with the family plate and the testimonial snuff-box, and the American Aloe is just such a plant as may be kept "in the family" through any number of generations, and be to them "a thing of beauty and a joy for"—as many centuries as *they* last, for the plant itself may be considered an emblem of immortality.

Glancing through the Aloes, Yuccas, Cacalias, Houseleeks, Sedums, Gasterias, and the rest of the subjects that are classed as "succulents," how many noble and beautiful plants do we find, which in characters and requirements appear to be better adapted to the circumstances of amateurs than almost any other large sections of the vegetable kingdom that find favour with them. We are now considering those whose range of selection must be limited, but who desire to derive from the garden the largest possible amount of intellectual recreation, combined with those varying attractions which render a garden a necessary appendage and embellishment to the residence of a man of taste.

Having visited almost every good garden in the British Islands, and being familiar with a majority of the best collections, public and private, we know of but one example of thorough appreciation of these plants, apart from business interest or professional duty, and that one example would fire thousands with the spirit of emulation were they but familiar with it. In the Catalogue of the International Horticultural Exhibition of 1866, will be found the name of our friend and neighbour, J. B. Kellock, Esq., of Stamford Hill, who distinguished himself by the exhibition of rare species of Yuccas, Dasylyrions, and Beaucarneas, in competition with the best collections of such plants from all parts of Europe.

Mr. Kellock has made the cultivation of these plants the amusement of his life, and whoever is fortunate enough to see his conservatory, will be ready to agree that amongst plants he might have found less attractive and less noble subjects. They are kept in a large span-roofed house, the floor of which is concreted, to secure perfect dryness in winter, because many of these plants, Aloes in particular, suffer at that season if exposed to damp. For the benefit of such plants as Beaucarneas, and others that require a certain degree of moisture at all seasons, there is a small fish-pond and fountain around which the moisture-loving plants are grouped, to benefit by the humidity communicated to the atmosphere by evaporation. A service of hot-water pipes, sufficient only to keep out frost, is provided, and the whole collection, which comprises many species and varieties, reputed to require the stove, is managed on a strictly cool system.

The appearance presented by this group of plants is that of a luxuriant tropical garden; tall *Dracænas* nearly touch the roof with their elegant tufts of dark green drooping leaves; the *Beaucarneas* imitate their graceful outlines lower down; the gigantic leaves of many species of *Agaves* and *Yuccas*, the thong-like and wonderfully elegant *Bonaparteas*, with many more of the most distinctive vegetable forms diversify the scene throughout, and afford delightful variety of elegant outlines, here and there lighted with a bit of cheerful colour.

Amongst these various and valuable plants there are none more striking than the Variegated-leaved American Aloe, many examples of which may be found, and every one differs from the rest in colours and markings; yet it is doubtful whether there are in reality more than two or three varieties with variegated leaves; the differences observable in different plants may be attributed chiefly to differences of age, but also in some part to differences of condition. Many cultivators have been led into error by the striking distinctiveness of characters presented by the plants, and as they are strangely slow in their movements, it requires the observations of a long series of years to determine their relationships to one common source, and their ultimate convergence to one common type. Nurserymen have been always ready to bestow names upon these supposed varieties; but if the purchasers of them could watch them long enough, they would find them all relinquish by degrees their minor distinctions, and take the characters of the type.

Nearly all the succulents that require the protection of the greenhouse in the winter, and not a few that are reputed to require the stove, may be employed to embellish the garden during the summer. We have never seen plants of this kind better employed out of doors than in the garden of J. B. Saunders, Esq., of The Laurels, Taunton. He has some gigantic specimens of the Variegated-leaved American Aloe, which are placed on pedestals during the summer on either side of the main walk, and their grand outlines and brilliant colours render them most impressive elements in a beautiful scene. They are kept all the winter in an unheated coach-house, where there is but little light, and they do not have, after being housed, until brought out again, a single drop of water. So long as they are kept dry a few degrees of frost will not harm them; but it is desirable to protect all fleshy-leaved plants from the slightest touch of frost, for the expansion consequent upon the freezing of the leaves is likely to rend the tissues, to say nothing of its effect on the constitution of the plant in general.

The *Agaves* have been receiving considerable attention from botanico-

horticulturists of late, and a considerable number of fine species have been introduced to Europe. One of the best trade collections of these is that of Mr. B. S. Williams, of Victoria Nursery, Holloway, near London. The Kew collection is a fine one, and has been considerably enlarged recently.

Having on several occasions witnessed the flowering of the American Aloe, we can testify that the event is to be desired by any possessor of the plant who can afford it the space necessary for the full development of its enormous flower-stem, for its appearance when in perfection is one of the most remarkable the lover of fine plants is likely ever to witness. The popular opinion that the plant flowers only when it has attained the age of one hundred years is erroneous, but it is quite true that many years must elapse ere it attains to a flowering condition. In hot climates, where all the circumstances are favourable, the American Aloe produces flowers at ten years of age; in less favourable circumstances the time of flowering is deferred to fifty, seventy, or even a hundred years, possibly longer; but these periods are known to have elapsed from the birth of a plant until the date of its inflorescence. As, when happily circumstanced, and especially when preserved against the injurious effect of an excess of moisture, it is a rare event for a leaf to wither, an aged specimen has an immense number of leaves, many of which will exceed six feet in length. The flower-stem rises to a height of forty feet when the plant is grown wholly out of doors, as it is in many parts of the south of Europe. It is regularly branched and perfectly symmetrical; the flowers are of a greenish yellow colour, and of an elegant liliaceous form. It is well known that from this plant are obtained an ardent spirit, a strong flax-like fibre, food for cattle, and a kind of vegetable soap; but it is not so well known that the centre of the flower-stem makes a good razor-strop, owing to the particles of silica it contains.



CALATHEA VEITCHIANA



CALATHEA VEITCHIANA.

PLATE XXV.

Calathea Veitchiana, Mr. Veitch's Calathea.
Natural Order—MARANTACEÆ.

THIS has become one of the most popular of the attractive family to which it belongs, and is constantly met with at exhibitions. Whether it is absolutely the handsomest species in cultivation we will not attempt to determine, but it is certainly not surpassed in richness of colouring and nobleness of character by any kindred species. Its floral characters, a sceptre-like scape and dense flower-head, the bracts imbricated all round, determine its immediate relationship to the celebrated

Calathea (formerly *Maranta*) *zebrina*. Dr. J. D. Hooker says, "it differs from any of its congeners known to us, in having several of the rather large upper bracts empty, and from its nearest allies in the form and colour of the perianth, of which unfortunately we do not possess the material to enable us to give a detailed description." However interesting to the botanist, the flowers offer but few attractions to the cultivator, though their pale purple lips contrast pleasingly with the pale green bracts, amongst which they appear. The leaves are sumptuously coloured, and their outline is bold and commanding. Their form is ovate-elliptical, broad and rounded at the base, marked above on each side with a series of broad semicircular or crescentic blotches of a rich dark green on a light green ground, which is bounded by dark green in similar crescentic lines towards the margins.

In the description of *Maranta rosea-picta*, (Plate V. page 14,) a few directions are given for the cultivation of this tribe of plants, and at page 38 is a list of *Marantas* which we consider the most attractive in their leaf colouring. *Calathea pavonina* may safely be added to the best collections, the leaves are chequered with blackish purple spots, and the flowers are a brilliant orange colour.





SMILAX MACROPHYLLA.

PLATE XXVI.

Smilax macrophylla maculata, Broad-leaved Sarsaparilla, variety with spotted leaves.
Natural Order—SMILACEÆ.

COMPARATIVELY little is known of the plants of which the order *Smilacæ* consists. The genus *Smilax* is undoubtedly the most typical of the whole of this genus. Only a dozen species at the utmost have been subjected to cultivation in England, and we may travel far and wide, and search much and curiously, ere we meet with any of them. Yet they are not destitute of either beauty or interest, and the beautiful

plant figured may be considered a fair example of the most desirable species for cultivation. Two good companion plants would be *S. longifolia variegata* and *S. ornata*; and if more were wanted, *S. rubens*, which has red tendrils, and *S. sarsaparilla*, the reputed source of the celebrated drug of the same name, might be added.

Smilacaceous plants are of somewhat various characters; in general bearing and habitude they approach very near to the asparagus section of the *Liliaceæ*, but they differ in having quasi-exogenous stems and net-veined leaves, the lilies being truly endogenous, and having parallel-veined leaves.

The genera of *Smilacæ* comprise herbaceous and sub-shrubby plants, many of which manifest a tendency to climb, a few are prickly, and some have tuberous roots. The leaves are simple and undivided, usually ovate and strongly ribbed. The flowers are small and insignificant, with six-parted perianth, six stamens, three-celled ovary, the fruit being a berry. Of the species about one hundred and thirty are known. They are widely distributed, inhabiting for the most part the sub-tropical and temperate regions of Asia and America.

In collections of officinal and medicinal plants, the plant known as *Smilax sarsaparilla* is usually regarded as the source of the sarsaparilla of commerce. It is certain, however, that sarsaparilla is obtained from several distinct species, and it may be questioned whether it has ever been really derived from the species accredited with its production. Jamaica sarsaparilla is the produce of *S. officinalis*; that from Vera Cruz is derived from *S. medica*. The variety of sources whence this drug is obtained may be sufficient to account for the conflict of opinions as to its medicinal value, for it may be effectual for the purpose for which it is employed, or altogether useless according to its derivation.

One of the oldest known species of *Smilax* is the European *S. aspera*, which is considered by many as valuable as any of the American species. At all events it is much employed in Italy and Spain for medicinal purposes. In Dr. Deakin's "Flora of the Colosseum of Rome," this plant occurs amongst the "four hundred and twenty plants growing spontaneously upon the ruins of the Colosseum." It is described as "an elegant, wild-looking plant, hanging in festoons in hedges or among bushes, and common in most parts of Italy." Another ancient species is *S. China*, which has a tuberous root, regarded by the Chinese and Japanese as possessed of properties which render it valuable for purifying the blood and invigorating the constitution. Dr. Lindley was of opinion that "probably some of the species found in the Old World would be found to be possessed of virtues equal to the American species."

In the various references to the "Smilax" which occur in ancient literature, it is a difficult matter to determine the particular species of plants that bore the designation. Not only in ancient, but even in comparatively modern times, the name has been applied to several distinct species of climbing plants; as, for example, in Johnson's Gerarde 861, the great bindweed, *Convolvulus sepium*, is named "*Smilax lavis*," and the bindweed bears the same name in Dodonæus (*Stirp. Hist. Pemp.* 392.) Theophrastus and Dioscorides apply the name to several distinct plants, and amongst others to the yew. *Smilax aspera* was known to Dioscorides, who describes it as a species of Phaseolus or Convolvulus, in accordance with the old unscientific rule of associating plants by their outward and general resemblances, without special reference to structural and physiological relations. In the Greek tragedies we find it associated with the ivy in the worship of Bacchus; as, for example, in the following passage from "The Bacchæ" of Euripides, where the messenger describes to Pentheus the orgies he had witnessed upon the mountains:—

"T was wonderful to see the young, the old,
 And the unmarried virgins. O'er their necks
 Their loose-devolving hair they spread, reflex
 Their vestments, such whose cinctures were unloosed,
 And o'er them bind the spotted skins of fawns,
 With serpents wreathing round their shaded cheeks.
 Some holding in their arms a kid, and some
 The wolves' wild whelps, taught them to drain their breasts,
 Swelling with milk, their new-born infants left
 At home; then on their heads their garlands place
 Of oak, of ivy, and the *silvery bloom*
Of Smilax: one her thyrsus took, and smote
 The rock, out gush'd the pure transparent stream;
 Another cast her light wand on the ground,
 Instant, so will'd the god, a fount of wine
 Sprung forth; if any wish'd a softer draught,
 These with their fingers oped the ground, and milk
 Issued in copious streams; and from their spears,
 With ivy wreathed, the dulcet honey flowed."

POTTER'S Translation, I., p. 23.

Similar allusions to the plant occur in the works of all the later Greek poets, and in many of the Roman poets; but as wreaths and garlands were not known at the time of the Trojan war, Homer never crowns any of his heroes with them. In the story of "Alcithoe and her Sisters," Ovid makes mildly merry over the dissensions that

led to the downfall of Bacchus from his high place amongst the gods, and gives a hasty sketch of the rites that were paid to him:—

“Yet still Alcithoe perverse remains,
 And Bacchus still, and all his rites disdains.
 Too rash and madly bold, she bids him prove
 Himself a god, nor owns the son of Jove:
 Her sisters, too, unanimous agree,
 Faithful associates in impiety.
 Be this a solemn feast, the priest had said;
 Be, with each mistress, unemploy'd each maid.
 With skins of beasts your tender limbs enclose,
 And with an ivy crown adorn your brows,
 The leafy thyrsus high in triumph bear,
 And give your locks to wanton in the air.
 These rites profaned, the holy seer foreshow'd
 A mourning people, and a vengeful god.”

Metamorphoses, iv. 1-15.

None of the species that are worth growing are at all difficult to manage. In the arboretum at Bieton, South Devon, there is a collection of species of *Smilax* trained to poles, the only instance in which we have met with these plants growing in the open ground. They are usually treated as cool greenhouse plants; and those we have named as desirable will be found of service to train up the pillars of the conservatory, and to clothe the walls and trellises. Any good loamy soil will suit them, and they are easily propagated by means of suckers from the roots.



TELEIANTHERA FICOIDEA.



TELEIANATHERA FICOIDEA.

PLATE XXVII.

Teleianthera ficoidea, var. *versicolor*, *Alternanthera versicolor*, Variously coloured leaved *Teleianthera*.

Natural Order—AMARANTACEÆ.

THIS charming little plant was referred to in the description of *Alternanthera sessilis*, Plate XVII. It has the best possible right to a place here as a beautiful-leaved plant, and especially so on account of its distinctness from all the true *Alternantheras*. A well-grown tuft in a shallow pan or a good bed of it, such as we have ourselves enjoyed in the past season, presents a display of leaf colouring not to be soon forgotten. At page 46 we have said in respect of the group of plants to which the subject before us belongs, that, "their ultimate fate in respect of the favour shown them by English cultivators, will depend almost entirely on their value as bedding plants." We are already prepared to recant, and to say instead that their ultimate fate is pretty well determined, for if they never become popular as bedding plants, they will be sure to keep a place on the greenhouse shelf, for when well grown in large tufts they have a most beautiful appearance,

and are especially valuable for decorative purposes in seasons of the year when flowers are scarce.

Teleianthera ficoidea is a sub-shrubby plant of compact tree-like habit, with broadish ovate leaves, which are variously tinted with pale carmine, deep bronzy red, and claret colour, and two or three shades of pale green. To keep it in a lively state of colour it should be occasionally pinched back, and must have at all times plenty of light and air. It may be multiplied to any extent, and at almost any time by means of cuttings.

VARIEGATED-LEAVED TULIPS.

During the past three seasons we have grown several varieties of early tulips with variegated leaves. We are not so much in love with them as to give them a hearty recommendation, but as a few of them are well worth a trial for the decoration of the conservatory and the drawing-room in early spring, this brief notice may be useful. Out of about two dozen varieties, the leaves of which were marked with white, or cream, or pale yellow stripes and bands, the following were the best:—

Edouard d' Argent.—The leaves are edged with creamy white; the flowers are double; colour lilac rose.

Feu d' Empire.—Leaves edged with sulphur yellow; flowers gold with crimson flame.

Variegated Golden Standard.—Leaves finely margined pale sulphur; flowers gold yellow. First rate.

Lac Bontlof.—Leaves margined pale sulphur; flowers purple, red and white. First rate.

Silver Standard Variegated.—Leaves elegantly edged creamy buff; flowers carmine. First rate.



RHAPIS FLABELLIFORMIS.



RHAPIS FLABELLIFORMIS.

PLATE XXVIII.

Rhapis flabelliformis, var. *foliis luteo-vittata*, Fan-shaped Needle Palm,
variety with yellow ribbon-striped leaves.

Natural Order—PALMACEÆ.

PALMS and ferns are least in need of the special embellishments which are collectively known as "Variegation," because of their inherent elegance of form, and their many pleasing shades of colour. We can imagine that in many cases the appearance of variegation in the leafage would detract from their beauty. The lovely green hue of *Leopoldiana pulchra* or of *Leptopteris superba*, to name two examples

only, would scarcely we think be improved by the addition of stripes or spots of any colour; in fact, we cannot conceive of any possible improvement on their rich and finished appearance. Yet experience teaches us that all beauty is comparative, and the history of botanical terminology tends the same way. We meet with a species which charms us by its beauty, and we name it "pulchella." Presently we meet with another, which certainly surpasses it, and we call it "pulcherrima:" what shall we do when we meet with a species to eclipse the last? take refuge in "speciosa," perhaps, or, if hard driven, in "speciosissima." The beautiful palm here figured has been known to cultivators in its green-leaved or normal form for nearly a century, and at Kew, and indeed in all botanic gardens where palms are grown in collections, large and handsome specimens may be found. If we were asked about the desirability of a variegated-leaved variety, we should probably say that the cheerful green hue of the healthy fronds was all-sufficient, and variegation would in no respect improve it. But when Nature solves the problem, we find that we should have been altogether wrong in such a conclusion, for here is the plant in a variegated state, its original beauty beautified, its graceful outlines more distinctly marked by the lines of light that trace them, its original green hue relieved and brightened by the contrast of the yellowish or creamy stripes which accompany every division of the fronds from base to apex.

For this charming variety of *Rhapis flabelliformis* English cultivators are indebted to Mr. Standish, who in 1860 imported specimens from Japan. Owing to the comparative slowness with which palms are multiplied, and especially in the case of variegated varieties, this plant has scarcely yet become known, except to a quite select few collectors of rare and costly plants, and it will be many years ere it is met with in collections generally. There are, if we trust to catalogues for guidance, several distinct forms of this palm in cultivation, some with white stripes, others creamy, others golden. The several names of these however, are but several delusions, for there is but one variegated-leaved variety, but as it varies in its appearances according to age and condition, so it has obtained a multiplicity of names, just as in the case of *Agave Americana*, and other strikingly and variably variegated plants.

The common form of *Rhapis flabelliformis* is so nearly hardy that we can safely recommend the introduction of the variegated variety to the greenhouse and the cool conservatory. The cultivation of palms has been well-nigh revolutionized during the past ten years, and a host of them have been transferred from the stove, where they were

ever infested with vermin, to the conservatory and the open summer garden, greatly to their benefit and the extinction of the insect plagues they were previously subject to. Every species of palm known may be benefitted by stove treatment when young, and the most hardy kinds enjoy a brief term of residence in a tropical atmosphere laden with moisture, at the time of their seasonal growth. But a large proportion of the species of this noble family may be preserved in perfect health and vigour with ordinary greenhouse and conservatory treatment, and their requirements are so few and simple that a few of the most tractable and elegant should have a place wherever plants of striking character and interesting history are valued.

A SELECTION OF PALMS
THAT ORDINARILY REQUIRE THE STOVE, BUT MAY BE PLACED
IN THE CONSERVATORY DURING SUMMER.

<i>Areca aurea.</i>	<i>Euterpe edulis.</i>
<i>Areca rubra.</i>	<i>Leopoldiana pulchra,</i> (syn.
<i>Calamus asperrimus.</i>	<i>Cocos Weddeliana.)</i>
<i>Calamus elegans.</i>	<i>Phœnicophorium Sechellarum.</i>
<i>Caryota sobolifera.</i>	<i>Thrinax elegans.</i>
<i>Cocos nucifera.</i>	<i>Thrinax argentea.</i>
<i>Cocos coronata.</i>	<i>Verschaffeltia splendida.</i>
<i>Dæmonorops plumosa.</i>	<i>Acanthophœnix crinita.</i>

A SELECTION OF PALMS
ADAPTED FOR COOL CONSERVATORIES AND FOR EMBELLISHING
THE FLOWER GARDEN DURING SUMMER.

<i>Areca Bauerii.</i>	<i>Chamædorea Ernest Augusti.</i>
<i>Areca sapida.</i>	<i>Latania Bourbonica.</i>
<i>Brahea calcarea.</i>	<i>Molinia Chilensis.</i>
<i>Brahea dulcis.</i>	<i>Phœnix dactylifera.</i>
<i>Chamærops Fortunei,</i> quite hardy in the south of England.	<i>Phœnix tenuis.</i>
<i>Chamærops humilis,</i> also quite hardy.	<i>Rhapis arundinacea.</i>
<i>Corypha australis.</i>	<i>Rhapis flabelliformis.</i>
<i>Chamædorea elegans.</i>	<i>Seaforthia elegans.</i>
	<i>Thrinax parviflora.</i>
	<i>Thrinax tunicata.</i>

CULTURAL NOTE ON PALMS.

Stove Palms require a temperature of from 70° to 80° Fah., from the commencement of the new growth until it is completed, say from March to September, and a considerable rise may be allowed during sunshine, say to 100°, provided there is no neglect of watering and syringing, and a reasonable amount of air is allowed. From October to February the temperature of the palm stove should range between 50° and 65° Fah., the first-named figure being the lowest allowable in mid-winter.

Greenhouse Palms require an average temperature of 45° Fah. during winter; the extreme minimum in severe weather should be 35°, but a minimum of 40° is safer, although some few species will bear a few degrees of frost with impunity. Palms require a good nourishing soil. In their early stages of growth fibrous peat answers admirably, but as they advance in size it is advisable to grow them in good turfy loam, with a moderate admixture of thoroughly decomposed hotbed manure and leaf mould. As a rule they are not fastidious as to soil. During the season when growth is active they must have plenty of water, but at other times comparatively little.

Palm seeds are frequently obtained by cultivators, and, as they travel well and keep long, they are generally good. To raise palms from seed is an easy matter, but stove heat is essential. The best time to sow the seed is February or March; but where the cultivation of stove plants is carried on in a systematic manner, it is advisable to sow the seed as soon as it is obtained, no matter what the season. The pots should be filled with a mixture of peat and leaf mould, and the seed be covered with two inches depth of chopped sphagnum. A hotbed at 75° is the best place for the pots, which must be kept constantly moist.



DIELLORISANDRA UNDATA.
XXIX



DICHORISANDRA UNDATA.

PLATE XXIX.

Dichorisandra undata, Wavy-leaved Dichorisandra.

Natural Order—COMMELINACEÆ.

THOUGH bearing a close family likeness to *D. mosaica*, figured on Plate XXII, this species is sufficiently distinct and beautiful to be worthy of a place in the same house with it, and especially where there is room to grow a few handsome specimens. A large mass of this plant has a splendid appearance, the frequent repetition of the undulations of the leaf-surfaces having a strange and charming effect, and, in some circumstances of light and shade, giving the idea of surfaces in motion. The broadly ovate leaves of this plant are banded with alternate broad stripes of dark dull green and narrow stripes of greyish green, the bands following the course of the veins from base to apex. The under side of the leaves is a rich satiny purple.

This species is equally desirable with the one previously figured for its flowers as well as its leaves. When carefully treated it flowers freely, and affords a pleasing embellishment to the stove, or to the bouquet in which the flowers when cut are placed. The treatment required by this plant is precisely that described at page 58. Any further remarks on that head are therefore unnecessary.

CYPERUS ALTERNIFOLIUS VARIEGATUS.

Many who have cultivated this lovely plant have been disappointed of an abundant variegation, and many plants originally variegated have become wholly green, and appear as if they would continue so. A few remarks, the result of observation and practice, may therefore be useful. This plant produces abundance of seed; and a considerable number of seedling plants, from seed produced by the variegated variety, have been raised and distributed. But seedling plants, however richly variegated the parent may be, are not to be relied upon, and the only safe course is to obtain rooted offsets. Even when true offsets are obtained there is a danger of the plants "running back," or, in other words, of becoming wholly green. To prevent this, the variegated plants should be grown in the poorest peat that can be obtained, and this should have added to it a very large proportion of clean silver sand. Yet one more precaution: nip out all green growths the moment they appear, for they communicate to the whole plant such a degree of vigour that it soon gets rid of its variegation altogether, and acquires its normal green hue. At the first of the horticultural exhibitions held in the Guildhall, in the city of London, when a vast collection of rare and valuable plants were displayed in picturesque groups, a large specimen of this *Cyperus*, from Mr. Tanton, of Epsom, was unanimously pronounced by the judges the finest plant in the exhibition; there can be no question, therefore, that it is worth growing, and growing well.



ERANTHEMUM ICNEUM.



ERANTHEMUM IGNEUM.

PLATE XXX.

Eranthemum igneum, Fiery Love-flower.

Natural Order—ACANTHACEÆ.

WE are indebted to M. Linden for this pretty addition to our rather large family of stove acanthads. He obtained it from South America in 1866, and very shortly after distributed it in commerce. It has been best known hitherto on account of the beauty of its leaves, which are oblong, of a dark bottle-green colour, the midrib and primary veins forming bold copper-coloured lines. But in common with other species of this interesting genus, its flowers are extremely

beautiful, and the cultivator who has once seen them will desire a repetition of the pleasure.

A considerable number of beautiful-leaved plants more or less related to this have been introduced during the past few years. We have figured a small selection of them, (*vide* Plates IV, IX, XII,) and under each have offered a few suggestions on cultivation. We refer especially to pages 10 and 11 for practical advices applicable to the plant before us. By this plan we are enabled to avoid repetitions.

POINSETTIA PULCHERRIMA.

The specimens of this useful winter-flowering plant usually met with, decorated with gorgeously-coloured bracts, are tall and ungraceful, frequently destitute of leaves for some distance from the base. Perhaps there are not a dozen persons in England who can grow it in perfection, though thousands succeed in producing gawky plants very richly coloured. We have seen very beautiful specimens produced by twisting the branches round, and fixing them firmly with sticks, so as to constitute of three or four long shoots a neat dwarf bush. If the leaves quite cover the sticks and ties, these examples are a credit to their cultivators, but a disgrace if the harness is visible. We offer to cultivators of this fine plant a hint that may prove vastly more valuable than appears at first sight. It is to defer propagating until June, and then to take short cuttings and push them along smartly in a moist stove. They have not time to run up and become giants, and yet they flower as richly as the tallest and ugliest.

Having said this much, we may as well occupy the space at our disposal to add a few words more. It is then a delusion to grow this plant wholly in the stove or tan-pit; excessive heat causes it to run up and lose its leaves, and present the miserable appearance we are accustomed to. Let us suppose we have a lot of plants that have flowered well. We keep them in a warm house, but not in forcing heat, and with small supplies of water, until February, and then cut them down, placing them in a viney or geranium-house, where they have no attention at all until they begin to grow, which occurs about the middle of April. By the middle of May the new growth is sufficiently advanced to allow of re-potting; they are then shaken out, and re-potted into *small* pots, and shut up close in a frame. As they become stronger they are allowed more air, and as they grow they are shifted on until they occupy their flowering pots. In October we put them in the stove for flowering.



ACER NEGUNDO VARIEGATA.

ACER PALMATUM SANGUINEUM.



ACER NEGUNDO VARIEGATA.

PLATE XXXI.—FIG. I.

Acer negundo variegata, syn. *Negundo fraxinifolia variegata*, The Variegated
Ash-leaved Negundo.

Natural Order—ACERACEÆ.

THE two fine Maples here figured are important because of their intrinsic merit, and also for the hint they afford us of our present wealth of beautiful-leaved hardy trees. Within twenty years our shrubberies and gardens have been as it were wholly replanted,—another vegetable kingdom seems to have been developed during the experiences of persons who are not yet old in rural life and observation. A large proportion of our most recent and most valuable

acquisitions to the lists of hardy ornamental trees are of the coniferous order, where, if we were to search diligently, we should find many worth a place in this connection on account of the beauty of their leaves. We have seen at least half a dozen varieties of the noble *Salisburia*, or "maiden-hair" pine, with leaves of most elegant outline; and the variegated *Wellingtonia*, several variegated varieties of *Cupressus* and *Thuia*, to say nothing of the splendid autumnal colours of the deciduous Cypress, are examples of such as might have a place here could we venture to figure all the good things that demand our admiration. But the range of choice for beautiful leaves expands amazingly when we go amongst the oaks, beeches, maples, alders, and poplars. It is true that some of the finest varieties of these have been in cultivation for centuries, but they have within the past few years been added to immensely by importations from distant countries; North America and Japan having more especially enriched us with valuable contributions. We have selected for the accompanying plate two hardy trees which we think should have the first place here for their distinct, peculiar, and splendid colouring. They are both maples, yet as different in aspect and habit as if widely separated in botanical classification.

Acer negundo variegata is a variegated form of a tree that has been known to English arboriculturists now nearly two centuries. The variety originated on the continent, and became famous so quickly after it became known that the demand has always been in excess of the supply, even up to the present time. The principal characteristic of this tree is its excessive whiteness. In the plate the leaves are represented as wholly of a pale creamy tint, or with a suffusion of dull green on either side of the midrib, and the figure is strictly correct; yet when we view the tree from the distance of a dozen yards or so, it appears to be wholly white, so powerful in the mass is the tone of the variegation. In continental gardens this *Negundo* has within the past year or two been largely employed to form striking groups amongst such subjects as *Cannas*, *Musas*, and other of the so-called "sub-tropical" plants. In this capacity it is certainly the most remarkable of all decorative plants, and for just this reason, its ghostly whiteness, it needs to be skilfully and perhaps sparingly used. When employed in this way, as also when grown in pots for the conservatory, it should be grafted low, so as to form compact dwarf bushes; but when required for the shrubbery standards are to be preferred, to afford striking blotches of white amongst the various hues of green of other deciduous trees.

ACER PALMATUM SANGUINEUM.

PLATE XXXI.—FIG. II.

Acer polymorphum palmatum sanguineum, Blood-coloured Palmate-leaved Maple.
Natural Order—ACERACEÆ.

THE Palmate Acer, (*A. palmatum sanguineum*) is one of a group originally published under the specific name of *polymorphum*; whether this is the same as an Acer known a few years back as *Japonicum* we do not know, but strongly suspect it is so, as the name *Japonicum* has quite disappeared, and *polymorphum* is rather an indication of a group that has not yet been well studied, than the accepted name of any one particular variety. Certain it is that we have half a dozen or more richly coloured palmate maples, natives of Japan, all related to a type which may for the present be imagined, since it appears that no one knows it, and of these *palmatum sanguineum* is the most distinct and brilliant in colouring.

As we have referred to the confusion of the nomenclature of these maples, we will here endeavour to convey to the reader a few items of useful knowledge of the trees and the names by which they are known.

Acer palmatum sanguineum is one of the many varieties of *polymorphum*. It has deeply-divided palmate leaves of a fine purplish red or crimson colour. It has been described as *Acer sanguineum*.

Acer ornatum has the leaves more deeply cut, and the lobes again divided into narrow notched segments; it is a fern-like tree, the prevailing colours are purple, red, carmine, and grey. This also is a variety of the *polymorphum* type; an exceedingly beautiful and curious object. It has been described as *Acer polymorphum palmatum fol. dissectis pinnatifidis rosco-pictis!* The simpler and not inappropriate

(though vague and general) designation "ornatum" is surely to be preferred.

Acer Frederici Guillemi is a feathery-looking tree with digitate leaves, which at first are brownish red, and afterwards become greenish red, streaked with rose and white. A beautiful variety.

Acer palmatum viridis has deeply-cut digitate leaves of a delicate green colour; a very elegant and cheerful tree. It has been described as *dissectis fol. pinnatifidis viridibus!* We might find half a dozen more, but it is not our purpose to pursue the subject into all possible ramifications.

A SELECTION OF BEAUTIFUL-LEAVED HARDY TREES.

Amongst our many hardy beautiful-leaved trees, the following are the more distinct and striking after the maples above noticed:—

<i>Acer pseudo-platanus</i> var. <i>Leopoldii</i> , a variety of the common sycamore, with leaves richly mottled red, carmine, and olive green.	<i>Pyrus aucuparia pendula</i> fol. aureis.
<i>Acer pseudo-platanus</i> variegata.	<i>Pyrus vestita</i> .
<i>Castanea Vesca</i> variegata.	<i>Quercus cerris</i> variegata.
<i>Fagus sylvatica</i> variegata.	<i>Quercus coccinea</i> .
<i>Fagus sylvatica</i> purpurea.	<i>Quercus nigra</i> .
<i>Fraxinus excelsa</i> <i>aucubæfolia</i> .	<i>Quercus robur</i> var. <i>eoneordea</i> .
	<i>Ulmus campestris</i> fol. var.
	<i>Ulmus montana</i> purpurea.
	<i>Liriodendron tulipiferum</i> var. <i>foliis aureo-pietis</i> .



FSNERA EXONIENSIS.
XXXII

GESNERA EXONIENSIS.

PLATE XXXII.

Gesnera Exoniensis, Gesnera of Exeter. (hybrid.)
 Natural Order.—GESNERACEÆ.

THE sumptuous velvety leaf of this splendid *Gesnera* would overtax the art of a magician, so if our artist has come moderately near the mark we must be thankful and congratulatory. There is not a herbaceous plant in cultivation that surpasses this for the embellishment of the stove in winter, for its lustrous leaves are in due time lighted up by a glitter of scarlet flowers, and it takes the eye captive with its richness and suggestion of solemnity. We are indebted to Messrs. Lucombe, Pince, and Co., of the Exeter Nurseries, for this novelty, and it is, we trust, sufficiently novel for a place here, as it is being distributed for the first time while this portrait of its leaf is in the press.

Gesneras may be flowered at any season of the year by judicious regulation of their growing and resting periods. They are easiest to manage in the summer, but most valuable in the winter. Those who succeed with *Gloxinias*, *Achimines*, and *Begonias*, will readily enough persuade the *Gesneras* to spread their velvet leaves and give a glow of scarlet flowers. The bulbs after having rested sufficiently, require to be started into growth in a moist heat, beginning at 60°, with very little water, and rising to 80° as growth proceeds, when, of course, the supply of water should be increased. They never require large supplies of water, and it is well if they are never wetted overhead, for that is likely to lead to damage of the leaves. When they have bloomed, and begin to die down, water must be withheld, and the bulbs should rest in the pots they were grown in at a temperature as near 45° as



ANECTOCHILUS SETACEUS.

ANÆCTOCHILUS SETACEUS.

PLATE XXXIII.

Anæctochilus Setaceus intermedius, Hairy-leaved Anæctochilus,
or Golden-netted-leaved Orchid.
Natural Order—ORCHIDACEÆ.

THIS plant is the "King of the Woods" in Ceylon, and is probably the most beautiful-leaved plant in the world. At all events it defies description, and we are somewhat astonished at the success of our artist in depicting it, though the best picture must in such a case fall far below the fact. This section of the great family of orchids has lately become peculiarly popular, being much grown in collections; and many amateurs have taken to them who never tried their hands at orchids of any other kind before. Their distinctive leaf-beauty and peculiar constitution necessarily invite separate and special attention, and they are admirably adapted to furnish recreation to such as incline to the study of a group of plants that abound in interest, and present a few difficulties to the cultivator.

The species before us was the first of its race to come under the notice of English cultivators. It was introduced in 1836, and created no little surprise at Kew, when it began there, under careful treatment, to display its peculiar beauties. There are several varieties of *A. setaceus*, and the particular one we have selected for a figure, (*intermedius*,) is one of the newest, and perhaps the best; but on their relative merits we have nothing to say: fortunate is the man who possesses any one of them.

The number of species to be found in collections is about thirty, but if we add to that number the varieties, no doubt we may say we have about seventy sorts in cultivation. They are peculiar and difficult plants. Botanically, their alliances are the pretty silvery-leaved

Goodyera, the lovely *Spiranthes*, and the unattractive British *Listera* and *Epipactis*. They are grown for their leaves only, and in these velvet, silk, gold thread, lustrous silver, and jewels of many kinds, are represented and outdone. But they are not to be despised for their flowers, which are as pretty as those of *Saxifraga sarmentosa*, a glorious plant when in flower if *well done*, but a wretched thing when starved and insulted.

To grow these orchids to perfection a damp shady stove is necessary. They are usually kept under bell-glasses, which is a good plan to save them from possible splashes of water, but a bad plan if the glasses are not constantly kept slightly open at bottom to afford a slight movement of air about the plants. To be shut down close like mummies in glass coffins is a way to make mummies of them, and has been the cause of many losses; but, on the other hand, to expose them to currents of dry or cold air, or to sunshine, is equally injurious. Damp, shade, and warmth, are the principal essentials for their well doing. The winter temperature should range from 55° to 70°; the summer temperature from 65° to 90°. As for soil, nothing is so good as a mixture of chopped sphagnum, broken pots, and silver-sand; and they must be re-potted once a year at least, and in case of ill health, prompt re-potting, as a rule, is the safest remedy.

The following are the easiest to manage, and both in beauty and habit best adapted for a beginner:—*A. argenteus*, *A. Lobbii*, *A. maculatus*, *A. petola*, *A. striatus*, *A. Turnerii*, *A. xanthophyllus*, *A. Veitchii*.



SORBUS MURRAYI.—UPPER AND UNDER SIDE.

NEW VARIETIES OF COLEUS.

PLATE XXXIV.

Coleus Blumei, vars. *Marshalli*, *Murrayi*, and *Telfordi aurea*.Varieties of *Coleus* named in honour of Messrs. Marshall, Murray, and Telford.

Natural Order—LAMIACEÆ.

THE three leaves figured represent fashionable weeds, beautiful, useful, interesting; nevertheless, weeds which in a few years hence will probably be utterly valueless, and perhaps unknown. Yet they have a right to a place in this series, as we trust our few notes upon them will prove. Let us go back, then, to a few elementary facts, so as to bring these new varieties of *Coleus* before our readers as having a place in history and many uses in art, weeds as they are, and from a certain eclectic point of view comparatively valueless.

Coleus and *Plectranthus* are two closely-allied genera of labiates. We may speak of them in a homely way as tropical nettles, and, in common with a well-known "bedding" plant, *Perilla Nankinensis*, their affinity with the nettles is declared by their looks. Of these two genera, a few distinct and pretty plants have been in cultivation in this country several years, the oldest (perhaps) dating from 1774, when was introduced the somewhat famous *C. fruticosus* or *P. fruticosus*, the "Nettle-leaved Geranium" of the artizan's window, and the plant most frequently seen of any at cottagers' and window gardeners' exhibitions. A few amongst many species have become favourites with cultivators, and none more so than *C. Blumei*, introduced in 1850 from Java. In 1852 *C. Macraei* was introduced from Ceylon. As for others, they are recorded in the books, and there is no occasion here even to name them.

It was in 1860 that M. J. Verschaffelt, of Ghent, introduced *C. Verschaffelti*, which is, without doubt, a variety of *C. Blumei*, and thereby gave a new impetus to the employment of beautiful-leaved plants in English flower-gardens, for this famous Coleus has been unquestionably for several years past the grandest bedding plant known; but whether to be equalled or eclipsed by any of the newer varieties it is at present impossible to say. During the past ten years we have seen immense improvements effected in the colouring of the parterre. The glare of yellow and scarlet has been subdued, leaf-colouring has been made auxiliary to the adoption of half tints in flowers; richness and repose have superseded the vulgar fiery blaze of colour which fashion sanctioned for awhile, and there is every reason to anticipate that in this particular branch of art true taste is gaining the ascendancy. The varieties of Coleus, Amaranthus, Centaurea, and Pelargonium, in which the tones of leaf-colours are rich and decisive, have vastly expanded the range of materials available for garden colouring, and the general desire for further expansion, for increased means of accomplishing chromatic effects by leaves alone, renders the production of a new race of hybrid Coleus a most important and interesting matter.

We have not seen amongst the new Coleus a single one that appears likely to supersede *C. Verschaffelti*. Its splendid tones of chocolate and ruby, and the delicate hues of violet and carmine that overspread the youngest leaves, give it a distinctiveness of character of the highest value, to which we must add in its praise that it is comparatively hardy. The stems are stout and the leaves thick, and in an average English summer it attains to a most luxuriant growth in the open air.

As the varieties agree in their requirements, a few words on the cultivation of this favourite will serve for all the rest. During the winter it is a stove plant strictly; the greenhouse, as a rule, is too damp and cold for its well-being. It may be propagated with the greatest ease at any time of the year by means of cuttings in a moist heat; but usually the plants required for planting out in summer are struck in spring, and a good hotbed, or a bed over a hot-water tank, is essential for the purpose. But in the height of summer cuttings may be struck under bell-glasses without artificial heat. The soil that suits the Coleus best is a rich light loam. Plants that grow fast usually require good living, and to bring out the colours of this beautiful plant, a rich and pulverulent soil is absolutely necessary. As a rule the Coleus may be planted out at the end of May or beginning of June, in a well-prepared bed, and will

soon after grow freely. In such a cold summer as that of 1860 it is a poor thing; in such a hot summer as that of 1868 it is unsurpassed for splendour by any of the most celebrated bedding plants. We believe, however, that the plan adopted by Mr. Gibson at Battersea Park is the best. He prepares a lot of plants in pots, and plunges them thickly, and finishes the bed with an edging of *Centaurea ragusina* or *C. plumosa*, and the success is so complete that his beds of Coleus are the most remarkable of the many wonders of the "subtropical garden" at Battersea, whither every summer thousands of amateur horticulturists wend their way to enjoy a new surprise, some of them travelling hundreds of miles for the gratification.

It was to be expected that a plant so famous for its uses in ornamental gardening should be taken in hand by the hybridists. This, indeed, has been the case to such an extent, that at the time of writing this note the horticultural world may be said to be in a Coleus fever. The most successful hybridist is M. Bause, in the service of the Royal Horticultural Society at Chiswick, the raiser of a number of varieties, several of which are of the highest merit. A first selection of these was sold by auction on the 22nd. of April, 1868, and realized a total of £402 8s. A second lot was disposed of in the same way on the 10th. of December. No sooner was the horticultural world awakened to the commercial value of the new varieties, as indicated by the first sale, than Mr. Bull announced his possession of a collection of original varieties, and soon after made their merits known by exhibiting them. From other sources besides these several new and beautiful varieties have been derived, so that the number of varieties registered as candidates for public favour, cannot now be less than fifty. From amongst the whole we select a few that are most distinct and attractive.

Marshalli is probably the best of the sombre-toned varieties, the leaf being elegant in outline and of the richest purple or red chocolate with brilliant green edge.

Murrayi, a fine expanse of leaf, the ground colour bright green, invaded by patches of a fine deep purple colour.

Telfordi aurea, small and rather flimsy in texture, but very distinct and brilliant in colour, the ground being golden green shading to buff, with central stripe of purplish red.

Crimson Velvet, very distinct, the texture velvety, the colour rich crimson.

Aurea marginata, the plant bushy and robust, the leaf elegantly frilled; in colouring resembles *Verschaffelti* with the addition of a rich gold-coloured margin.

Elegant. Rather diminutive in growth; colour blackish purple, with bright green edge. Extremely beautiful.

Duke of Edinburgh, a fine form of leaf without frill, the colour clear buff shading to lemon yellow.

Veitchi, extremely neat in habit, leaf elegantly ovate of a deep chocolate colour, and margin of bright green. A charming plant for pot culture.

Some of the varieties that prove to be of least value for bedding will be invaluable for the conservatory or the exhibition. We have seen specimen pyramids of *Verschaffelti* nine feet high and as much through at the base,—wondrous masses of richly-coloured leafage. To grow such plants requires only steady attention; skill is almost out of the question.



PASSIFLORA TRIFASCIATA.

PASSIFLORA TRIFASCIATA.

PLATE XXXV.

Passiflora trifasciata, Passion-flower with three-banded leaf.
Natural Order—PASSIFLORACEÆ.

THIS noble climber was introduced into Europe in 1867, by M. Baraquin, one of the most successful botanical explorers of the tropical parts of the new world. It is at once remarkable for its beauty, its variableness, and its rarity, for in the great family of Passion-flowers, there is not, we believe, another example to be found of true-leaf variegation, though there is a variety of the common *P. cœrulea* with leaves of a milky green or glaucous hue.

P. trifasciata is a stove climber of robust habit, growing freely, and producing beautiful white flowers which are richly odoriferous. Its attractions consist mainly in its beautiful leaves; these are distinctly trifid, the central lobe being the largest. When young these leaves present a pleasing combination of full grass green, overlaid with three irregular bands of mottled grey and pale green, following the course of the principal ribs and coalescing near the petiole. As they advance towards maturity the grey changes to rose, afterwards to deep red, and even to scarlet; and at a later stage of growth, sombre purple, brown, and maroon tints occur, forming a splendid and unique blending of leaf colours. When the leaf begins to decay, these colours fade in the reverse order of their appearing, until at last when the leaf falls it is almost white.

On several occasions last summer, more especially at the exhibitions at Kensington, Manchester, Leeds, and Taunton, we saw specimens in

which the colours were fully developed, and there could be no doubt of the distinctness of this plant, and its fitness for the grandest conservatory, and possibly it might form an admirable screen for the roof of the orchid house. Lately we saw a lot of young plants in the propagating house, at Mr. B. S. Williams's Nursery, Holloway, and the colouring of the newly-formed leaves was so clear and delicate, that we thought them well worth associating with such plants as Bertolonias and Fittonias, until by their determination to outstrip them in growth their removal became compulsory.



CHALÆNOPSIS GONNELLERIANA.

PHALÆNOPSIS SCHILLERIANA.

PLATE XXXVI.

Phalænopsis Schilleriana, Consul Schiller's Butterfly Orchid.

Natural Order—ORCHIDACEÆ.

AN orchid house in which there are no promising specimens of this charming *Phalænopsis*, will be considered by the orchid amateur as sadly incomplete, for however richly it may be furnished, the visitor will, soon or late, begin to look for the peculiar mottled leaves of *Schilleriana*, and his disappointment will be great should his search be unavailing. It is, in fact, one of the most celebrated of its family, although of recent introduction; and to ensure a vigorous development of its lovely flowers is the constant anxiety of the cultivator.

In common with others of this genus the plant is of Asiatic origin, the principal importations having hitherto been from Manilla. There is no definite record of the first introduction of this species to Europe, but it is certain that in 1858 Consul Schiller, of Hamburgh, had it in his noble collection, and that it was there first seen and named by Reichenbach. Somewhere about the same time it became known at Paris, Berlin, and London, M. Marius Porte having sent specimens to M. Duchartre, while English collectors were also busy in obtaining it for their own horticultural houses. The English cultivator who has the honour of first introducing it to public notice in this country is Mr. B. S. Williams, of Holloway, one of the most able cultivators of orchids in the land. Although always high priced, and regarded as the most choice of choice orchids, it has probably never been very scarce since the time it became known, for it is found plentifully in its native habitats, and the importations have usually been large in quantity.

It is so common for individuals of the species of orchids to differ, that the reader need not be surprised to be told that scarcely any two, even in a large collection, are exactly alike. There are differences in the markings of the leaves, in the colours of the flowers, and in the numbers of flowers in a scape. The flowers present delicate shades of mauve, white, and yellow, with reddish brown spots, but the depth of the colours varies, as do also their proportions. Rarely does it flower under cultivation with a vigour equal to that it manifests when wild and at home, for dried flower spikes measure three to four feet long, and indicate that they have borne upwards of a hundred flowers. A spike bearing twenty to thirty flowers is considered by English cultivators satisfactory proof of good cultivation. But at the time of writing these notes there is a specimen in flower in the nursery of Messrs. James Carter and Co., Forest Hill, the spike being forty inches long, with eight lateral shoots, and an aggregate of fifty-seven flowers. In like manner the leaves vary both in the tone of the dark green ground, and their grey or whitish markings; but in every case they are exquisitely beautiful, so that the plant, unlike many other orchids, is an elegant and interesting object when destitute of flowers.

It appears to be worthy of remark that, in many instances, the leaves of this orchid lose much of their ordinary beauty of colouring as soon as the flowers begin to expand, but occasionally we meet with it in flower with leaves as bright and plump as in the finest specimens not flowering. We suspect this is not so much a constitutional peculiarity of the plant as a fault of the cultivator, who does not sufficiently consider how the flowering taxes the energies of the plant, and renders increased nourishment necessary at that season.

In its native country this orchid is an epiphyte, growing high upon the trunks and branches of trees in the dry parts of the forests: it is never met with in damp localities, and therefore when under cultivation does not need so much moisture as the majority of Indian orchids.



CRUTON IRREGULARE.

J. MILL.

CROTON IRREGULARE.

PLATE XXXVII.—FIG. I.

Croton irregulare, *Codiaeum variegatum irregulare*, Irregular-leaved Croton.

Natural Order—EUPHORBIACEÆ.

THE mysterious personage known as the "general reader" has an intuitive dread of any plant bearing the name of *Croton*, and it may be as much out of consideration for his feelings as for the requirements of nomenclature, that the botanists have lately suppressed the Linnæan designation, and adopted that of Rumphius instead. All that the general reader is supposed to know of this family of plants is that they furnish to medical science that most powerful of all cathartic drugs, *croton oil*, a few drops of which may prove sufficient to kill the strongest man. Yet, for all this, the Crotons and their congeners are eminent benefactors of the human race, and we may admire their beauty not only with no admixture of painful associations, but with the added pleasure of the reflection that they minister largely to the service of man, both in the cure of disease and the amelioration of suffering. In all our facsimiles we shall find nothing more interesting, both in themselves and their surroundings, than the plants brought to mind by the figure now before us. To write at the head of this notice that they belong to the Spurges or Euphorbias, is to suggest the whereabouts of a romance of natural history. The *Euphorbiaceæ* is undoubtedly one of the largest, most important, most various, and most wonderful families of plants. Compare the weird *Euphorbia Canariensis*, so admirably photographed in Professor Piazzi Smith's work on "Teneriffe," with *Euphorbia Jacquiniflora* or *Poinsettia pulcherrima*, and how striking is the apparent disparity between them, how

occult, as we may reasonably suppose, their physiological relationships. Yet there are certain broad features which afford the basis of a real unity in this great family, and are found to appertain in common to the two thousand five hundred species that are known. Not the least important of their common characteristics is their active virulent property as irritants, not one of the number making a good claim to be considered an esculent, scarcely one that may not be justly regarded as a poison.

By far the larger proportion of the species of *Euphorbia* are tropical plants. Their varieties of form are the most remarkable feature in their general history. Some are tall trees, as, for example, the poisonous Manchineel, the curious and useful Chinese Tallow Tree, (*Stillingia sebifera*.) Others are shrubs, as the Brazilian Caoutchouc or "bottle India rubber" of commerce, (*Siphonia elastica*,) the richly-painted Crotons of our stoves, and the evergreen box-trees of our gardens. Some are cactaceous and grotesque, as *Euphorbia cereiformis* of the Cape of Good Hope; others herbaceous, growing with marvellous rapidity and grace, as the castor oil plant, which, by the way, is by some believed to be the "kikayon" or "gourd" of the Old Testament, and a particular subject of Jonah's occasion for murmuring that the great city of Nineveh was not destroyed. Then again many of the inhabitants of temperate climes are humble, and, in some cases, insignificant herbs, as the Sun Spurge and the Mercury, and amongst these a few are handsome and peculiar garden plants, as the Caper Spurge (*Euphorbia coralloides*.)

"Croton oil" is obtained from several species, but chiefly from the nuts of *Croton tiglium*, which is the most active and dangerous of them all. The leaves of this plant are so acrid as to inflame the mouth, lips, and fauces of those who merely chew them, causing soon afterwards swelling and a burning sensation all over the body. The "Casearilla bark" is the product of *Croton Cascarilla*, a native of the Bahamas and St. Domingo. The barks of several species are mixed with the cinchona barks, the mixture forming what is known in the tropics as "Gray Fever Bark."

The Crotons are widely scattered in the tropics, and in cultivation here are known as stove plants of the highest value, on account of the elegant forms and splendid colours of their leaves. The old *C. variegatum* is a sub-variety of *C. lancifolium*, of which there are many distinct forms. It is a free-growing, extremely handsome shrub, a great favourite with exhibitors, notable for its splendid blendings of purplish red, bronzy brown, brilliant green, and golden yellow; when well grown one of the most attractive plants in cultivation. Possibly

the most striking of all the established varieties is *C. angustifolium*, with long, narrow, pendulous leaves, which give to a well-grown specimen the appearance of a dripping fountain of green and gold. Few families of plants offer us such an abundant variety of variegation; it appears to be a physiological peculiarity of the race to produce these curious and striking combinations of colour, and without a few good Crotons a stove cannot be regarded as efficiently furnished.

The subject of our illustration is one of a series of new species and varieties introduced by Messrs. Veitch and Son, through Mr. John Gould Veitch, from the South Sea Islands. They constitute an extraordinary group of plants, and rich as our collections are already with such varieties as *variegatum*, *pictum*, *angustifolium*, *elegans*, and others, the newer kinds are so distinct and splendid that there is ample room for them without fear of repetition, sameness, or satiety. Mr. Veitch's acquisitions in Crotons alone make a distinct mark in the history of horticultural botany, and very worthily enhance the fame of one of the most successful of modern explorers.

Croton irregulare is a free-growing, elegant, evergreen shrub. The name indicates one of its peculiar characteristics, for its leaves assume a variety of forms; indeed it is seldom that two can be found on the same branch exactly or nearly alike, and they not only vary in shape but in attitude, some being lax and pendant, others gracefully arched, and others quite rigid and upright. The prevailing form of the leaf is linear-oblong, the blade being eight to ten inches in length, and one inch to one inch and a half wide near the base, the petiole comparatively short and stout. In colouring the leaves vary considerably, but the typical characters comprise a fine dark green ground, a broad golden band in the line of the midrib, and blotches and spots of yellow. The under surface of the leaf is dull green.

All the Crotons require good stove cultivation. It demands considerable experience to produce fine specimens for exhibition, especially as in proportion to the increased vigour of growth induced by liberal treatment, the variegation declines in brilliancy and power. The cultivator has to aim at the "golden mean," which may be taken in a twofold sense in this case, and while maintaining a sufficient vigour of growth, securing also an abundant variegation. A substantial turfy soil, rich and mellow, without admixture of animal manure, suits them best; and full exposure to solar light will, with other favourable conditions, tend materially to enhance the richness of their colours. We see these plants to best advantage when they are skilfully intermixed with a good general collection, comprising plenty of such

subjects as *Dracænas*, *Caladiums*, *Alocasias*, *Ferns*, and *Rhopalas*; for being different in tones of colour, the golden lines of the *Crotons* flash out from amongst them, and light up the whole with a beauty and brightness obtainable only from these particular plants.

CROTON HILLI.

PLATE XXXVII.—FIG. II.

Croton Hilli, *Codiaeum spathulatum Hillianum*.

THIS *Croton* belongs strictly to the exhibition class, being of the most stately habit, and wonderful in colouring. When inspecting Messrs. Veitch's collection we marked this down as the most desirable of all for cultivators whose accommodation for such plants would not permit them the luxury of a collection, as it is peculiarly distinct, and makes a fine companion plant to *pictum* and *variegatum*. In growth it is naturally compact and bushy; the leaves oblong, sub-spathulate, about six inches in length, and two or more inches wide; the upper surface purplish green, the midrib and secondary veins bright crimson, the lower surface lurid purple or sanguineous crimson. The abundance of red in the foliage can only be brought out fully by keeping the plant near the glass.



SANCHEZIA NOBILIS.

SANCHEZIA NOBILIS.

PLATE XXXVIII.

Sanchezia nobilis, Noble Sanchezia.

Natural Order—ACANTHACEÆ.

THE genus of acanthaceous shrubs, of which this brilliant plant is the best-known representative, was named by Ruiz and Pavon in commemoration of J. Sanchez, Professor of Botany at Cadiz, who died prematurely at the commencement of the present century. We are indebted to Messrs. Vitch and Son, of the Royal Exotic Nurseries, Chelsea, for the introduction, through their industrious and fortunate collector, Mr. Pearce, of this peculiarly new and interesting plant to our gardens. The genus *Sanchezia* properly embraces several fine subjects which are known under other names, as, for example *Ancylogyne longiflora* and its allies, which differ in no important particulars of structure or even appearance sufficient to justify separation. We know very little about these plants, and, judging by the attractive characters of the two already named, and such others as *Sanchezia oblonga* and *S. ovata*, we may reasonably anticipate that many species remain to be discovered, which in beauty will equal and perhaps eclipse the plant now under consideration. While we are waiting for fresh results of exploration, let us not fail to do justice to the noble *Sanchezia*, for it is unquestionably one of the finest amongst hundreds of the most beautiful-leaved plants.

Although in attitude and aspect this plant may be described as a shrub, it is in reality herbaceous, like the majority of the Acanthads. The stems are obtusely four-sided; the leaves oblong-obovate, obtusely toothed, attaining a length of nine inches in vigorous specimens; the colour a fresh bright green, richly embellished with yellow midrib and veins. The flowers are produced in a terminal panicle, consisting of separate fascicles of eight or ten yellow flowers, each enclosed in

a pair of large concave bracts of a bright red colour. The abundance and brightness of the colours of leaves and flowers together render this plant, when in full perfection, so extremely showy that many cultivators prefer to nip out the flower-stems in order to enjoy the more simple lustre of the leaves alone.

It has been many times exhibited, and in almost every case without flowers, the exhibitors appearing to fear that its excess of colour might damage its reputation. The finest specimen we have yet seen was one shown by Messrs. Veitch and Son at the Manchester Botanical Society's Exhibition, on the 30th. of May, 1868. It presented an even surface of the richest leafage, about two feet in diameter, and was generally regarded by the exhibitors present as one of the most valuable novelties amongst the many new plants then presented to public notice.

This plant requires good stove cultivation, a light and rich soil, and full exposure to sunshine at all seasons. The cultivator accustomed to subjects of this class will have no difficulty in its management or propagation.



YUCCA ALOIFOLIA VARIETA

YUCCA

YUCCA ALOIFOLIA VARIEGATA.

PLATE XXXIX.

Yucca aloifolia variegata, Variegated Aloe-leaved Adam's Needle.
Natural Order—LILIACEÆ.

THE Yuccas are the best of such as we may call "grand plants" for cultivators less rich than Cœsus. Ten thousand amateurs, to whom orchids and Crotons are as forbidden fruit, may find in the Yuccas, Agaves, Dasyliirions, and Beauearneas, abundant entertainment, lasting interest, and deep gratification of their love of vegetable beauty. They are all so nearly hardy that in the southern and western parts of Britain they may be planted out as permanent occupants of the garden; and in less favoured climates the shelter of glass alone, with little or no aid from artificial heat, is sufficient for their preservation. For the terrace garden *Y. recurva* is, without doubt, the noblest of all; but for the conservatory, and for vases anywhere, nothing can be more graceful, cheerful, and dignified, than the variegated *Y. aloifolia*, which we venture to characterise as the best poor man's plant of its class.

The requirements of the Yuccas are extremely simple, but as they are peculiarly constituted there must be some discretion exercised in their management. A sound loam containing plenty of sand and nodules of brick will suit them all. The most perfect drainage is essential, as excess of moisture is as poison to them. They should be quite dry during the winter months, and at all seasons should be fully exposed to solar light, for that indeed is life to them.

All the Yuccas have pointed leaves, and tough silky fibres; they may, in fact, be called "needle-and-thread" plants. The particular species under consideration has a peculiar interest, commercially considered; for not only does it furnish an abundance of valuable fibre, but the epidermis of the leaf is now prepared in a way which renders it available for several purposes.

In the Memoirs of Margaret Fuller, (Ossoli,) by Channing and

Emerson, occurs the following interesting episode, strangely characteristic of Margaret's sentimental habit of observation:—"I had kept these plants of the *Yucca filamentosa* six or seven years, though they had never bloomed; I knew nothing of them, and had no notion of what feelings they would excite. Last June I found in bud the one which had the most favourable exposure. A week or two after, another, which was more in the shade, put out flower-buds, and I thought I should be able to watch them one after the other,—but no! the one which was most favoured waited for the other, and both flowered together at the full of the moon. This struck me as singular, but as soon as I saw the flower by moonlight, I understood it. This flower is made for the moon, as the Heliotrope is for the sun, and refuses other influences, or to display her beauty in any other light. The first night I saw the flower, I was conscious of a peculiar delight, I may even say, rapture. Many white flowers are far more beautiful by day: the Lily, for instance, with its firm, thick leaf, needs the broad light to manifest its purity. But these transparent greenish white leaves, which look dull in the day, are melted by the moon to glistening silver; and not only does the plant not appear in its destined hue by day, but the flower, though as bell-shaped it cannot quite close again after having once expanded, yet presses its petals together as closely as it can, hangs down its little blossoms, and its tall stalk seems at noon to have reared itself only to betray a shabby insignificance. Thus too with the leaves, which have burst asunder suddenly like a Fan Palm, to make way for the stalk; their edges in the daytime look ragged and unfinished, as if Nature had left them in a hurry for some more pleasing task. On the day after the evening when I had thought it so beautiful, I could not conceive how I had made such a mistake. But the second evening I went out into the garden again, in clearest moonlight I stood, my flower more beautiful than ever. The stalk pierced the air like a spear; all the little bells had erected themselves around it in most graceful array, with petals more transparent than silver, and of a softer light than a diamond: they seem to have been made for the moon's rays. The leaves, which had looked ragged by day, now seemed fringed by the most delicate gossamer, and the plant might claim with pride its distinctive epithet of *filamentosa*. I looked at it till my feelings became so strong that I longed to share it; the thought that filled my mind was, that here we saw the type of pure feminine beauty in the moon's own flower. I have since had further opportunity of watching the *Yucca*, and verified these observations, that she will not flower till the full of the moon, and chooses to hide her beauty from the eye of day."



BECONIA FALCIFOLIA.

BEGONIA FALCIFOLIA.

PLATE XL.

Begonia falcifolia, The Sickle-leaved Begonia.
Natural Order—BEGONIACEÆ.

THE plant here figured is unique in its character, whether botanically or artistically considered. Dr. J. D. Hooker is "at a loss" to which section of the genus to refer it, because of the peculiar structure of the flower; and as to its aspects, we can liken it to no other Begonia in any way, except as to the most general resemblances, such as the configuration of the perianth and the unequally-lobed base of the leaf. This is another of the long series of valuable acquisitions of the late Mr. Pearce, who transmitted it to Messrs. Veitch and Son in 1867.

Begonia falcifolia is an extremely elegant plant, admirably adapted for the embellishment of the stove or intermediate house in winter, and well suited for the decoration of the dinner-table, and for any purposes for which usually the smaller winter-flowering Begonias are employed. In habit it is strictly herbaceous; but, as it branches freely, it has, when well grown, a shrubby appearance. The leaves are four to seven inches long, elongated-falcate in form, the base unequally two-lobed, the margins irregularly serrate, four to six small teeth occurring between the larger. The under surface of the leaf is of a pleasing reddish purple colour; the upper surface deep green, sometimes bronzed, covered with short stiff hairs, and when young freely spotted with white or pale rosy spots. The flowers are borne in short panicles consisting of six to ten flowers each; they are rose-coloured, and abundantly produced.

Mr. Richard Pearce, whose name has been frequently mentioned in these pages as the discoverer of plants here figured, ended his career in a manner too much like that of scientific explorers, the majority of whom have fallen victims to the inevitable accidents of travel in unfrequented lands. In the summer of 1868 he started from England to make collections in South America for Mr. William Bull, of the King's Road, Chelsea. He arrived at Panama on the 7th. of July, was taken ill on the 13th., and died on the 19th., the malady which caused his death being a fever peculiar to the marshy district in which he commenced his new search for botanical treasures. During nine years previously he had been abroad collecting plants, and throughout the whole of that period had corresponded with a lady in England to whom he was deeply attached. On his return from Peru, after the journey in which he discovered this *Begonia* and many more valuable plants, he married the object of his affections, and soon after set out again on the adventure which cost him his life—a melancholy end to a career which until then was as bright with future promise, as it was already lustrous with achievements beneficial to mankind. Of how many martyrs of science do the contents of our gardens remind us, and how many memorials of them have we in the names of the most familiar plants! It is well we should sometimes meditate on the enormous cost at which many of our most cherished enjoyments have been obtained for us.

For a few practical remarks on the cultivation of *Begonias* see page 6.



PANICUM PLICATUM.

PANICUM PLICATUM.

PLATE XII.

Panicum plicatum fol. niveo-vittatus, Folded-leaved Panic Grass, with snowy stripes.

Natural Order—GRAMINACEÆ.

THIS pretty grass, which is commonly known as “Panicum Variegatum,” has become a general favourite for the embellishment of suspended baskets, the dressing of epergnes, and to form edgings in the stove in the same way that Lycopods and *Isolepis gracilis* are frequently employed. One of its recommendations, apart from its intrinsic beauty, is that throughout the winter it presents a pleasing appearance, though the summer growth is far more vigorous, and is more richly coloured. We have several times met with it at exhibitions in the form of a large specimen in a shallow pan, and when treated in this way a fine tuft forms a pleasing and peculiar adornment, for it is seldom we meet with grassy forms of vegetation at exhibitions, and this is so distinct in colouring that it affords a welcome change from the prevailing fashion. Probably it may become useful as a bedding plant, at all events, we planted out a tuft in the summer of 1868, and it grew freely, and formed an extremely elegant object, being brighter in its tones of red than any other variegated grass in our gardens. *Agrostis colorata fol. var.* and *Phalaris arundinacea fol. var.*, are extremely elegant, and being quite hardy serve admirably for masses and edgings in the flower garden; but neither of them afford so much colour as the subject of this note, and therefore we hope it may prove as well adapted for bedding in ordinary seasons as in the extraordinary season in which we made trial of it.

As to history this grass has none, and for description the plate will pretty well suffice. The plant is tender, and requires the stove all the winter. It is probably widely diffused in tropical countries, whether in its normal green colouring or variegated, this particular variety having come from New Caledonia. It appears to be identical with *P. sulcatum* of Linnæus, *P. asperatum* of Kunth, and the *P. plicatum* of Willdenow, Lamarek, and Roxburgh. It is, however, no easy matter to determine its exact place and relationships, as there are hundreds of species of Panicum, very few of which have been accurately described.

We are indebted to Messrs. Veitch and Son for the introduction of this plant. They obtained it in the year 1866.



CROTON INTERRUPTUM.



CROTON INTERRUPTUM.

PLATE XLII.

Croton interruptum, *Codiaeum variegatum interruptum*, Interrupted-leaved Croton.
Natural Order—EUPHORBIACEÆ.

THIS is certainly not the handsomest of the new Crotons, but it is the most curious and interesting, and it especially merits the watchful observance of the student of vegetable physiology, for the likelihood of its affording light on some dark problems of that branch of science. It is a very curious plant indeed, as variable in the forms of its leaves

as *C. irregulare*, but, if we may say it, ludicrously so; for in some cases the leaves are horned at the point; in others there is an interruption of the blade, the central portion consisting of midrib only, forming a connecting link between the two portions of the blade at the apex and the base. In other cases, again, the leaves are spiral in the centre; and in a few instances a small pitcher is formed at the end of the naked midrib. It belongs to the linear-leaved series, and is a good companion to *C. irregulare*, from which it differs strikingly both in form and colour. Here the prevailing tones are red, whereas in *C. irregulare* yellow predominates. Though so strangely variable in the forms of its leaves, *C. interruptum* is pretty constant throughout in colouring. The upper surface of the leaves is a deep purplish green, the midrib crimson; the under surface is purplish, the midrib on this side also being distinguishably crimson. The plant grows freely, and soon forms an effective specimen, so no doubt we may expect it to become a favourite with exhibitors.

The following outline of Dr. Masters's arrangement of the varieties of *Croton (Codiaeum) variegatum* will be useful for purposes of reference, as affording a ready key to their relationships.

CODIÆUM VARIEGATUM, (Müller.)

VAR. PICTUM, Müller.—Leaves cordate at the base.

1. *Pictum*.—Usually grown as "*pictum*" in gardens. "It may be recognised at once by its truly cordate-ovate or oblong leaves.....In some gardens another plant is grown under this name without cordate leaves, and which is therefore not the true *var. pictum*."

VAR. LINEARIFOLIUM.—Leaves not exceeding one inch in breadth at the broadest part, usually very long, and tapering at the base. There are six sub-varieties, namely:—

2. *Angustissimum*.—The "*angustifolium*" of some gardens. Extremely handsome when grown to a fine specimen.

3. *Johannis*.—Probably the same as "*tæniosum*" of Müller. Like No. 2, but freer in habit, with larger leaves and a deeper colour. A splendid exhibition plant.

4. *Wisemannianum*.—Probably a form of "*longifolium*," Müller.

5. *Interruptum*.—Closely related to "*tæniosum*."

6. *Parvifolium*.—Identical with "*elegans*" of gardens.

7. *Dominyanum*.—Long narrow leaves, with much red colour.

VAR. OBLONGIFOLIUM.—Leaves one to two inches in breadth at the widest portions, rounded or tapering at the base.

8. *Cornutum*.—Curious and beautiful; the projecting horn-like process from the midrib and its heteromorphous blades render it distinct and interesting.

9. *Irregulare*.—Closely related to No. 3.

10. *Erosum*.—Leaves spatulate, contracted in the centre.

11. *Maculatum*.—A speckled variety of *angustifolium*.

12. *Ensifolium*.—Leaves leathery, ensiform.

13. *Veitchii*.—Leaves richly painted with shades of pink, green, and claret-colour. One of the finest of the series.

VAR. LANCIFOLIUM.—Leaves half an inch broad, five to eight inches long, lanceolate, tapering at the apex and base.

14. *Undulatum*.—Leaves crisped at the margins. A very handsome plant.

15. *Acutum*.—Grown in some gardens as "*pictum*," but has not cordate leaves.

16. *Hortense*.—Known in gardens as "*longifolium*," but is not the *longifolium* of Müller.

17. *Lacteum*.—Veins milky white or yellowish; the whitest of the series.

18. *Medium*.—A bad form of the variety grown as "*variegatum*."

19. *Medium variegatum*.—This is the true "*variegatum*" of gardens. A splendid exhibition plant.

VAR. SPATHULATUM.—Leaves spatulate, two to three inches wide at the widest portion, tapering at the base.

20. *Aucubæfolium*.—Richly coloured with tones of red, yellow, and green.

21. *Areolatum*.—An improvement on *variegatum* in size and colour of leaves.

22. *Hillianum*.—Unlike all the others in its reddish yellow foliage, as well as in its compact bushy habit.

23. *Tricolor*.—Richly coloured green, yellow, and red. A very handsome and distinct form.

24. *Betifolium*.—A large, free-growing form, of loose habit; the foliage is rich in colour, but somewhat coarse.

VAR. MACROPHYLLUM.—Leaves oblongo-lanceolate, seven to ten inches long, three inches wide, rounded at the base.

25. *Maximum*.—A grand variety of *variegatum*, exceedingly rich in its tones of yellow.

26. *Aureum*.—Margin, midrib, and secondary veins golden yellow.

27. *Flavum*.—Marked like “milkmaid” holly.

28. *Arcuatum*.—Leaves arched and folded; midrib and secondary veins yellow. A singular variety, totally unlike any of the rest.

A NOTE ON THE DEVELOPMENT OF COLOUR IN THE LEAVES
OF CROTONS.

In our suggestions to the cultivator at page 99, the necessity of “full exposure to solar light” is insisted on. A comparison of our experiences of exhibitions and gardens, adds to the force of this direction. In many instances we have met with specimen Crotons intensely rich in colour, far exceeding in this respect the best average examples exhibited. In every such case that we have had an opportunity of inquiring into, we found that the intensity of the colouring was due to intensity of light, the plants being placed only a few inches from the glass, and without shading at all seasons.



AUCUBA JAPONICA AUREO-MACULATA.

AUCUBA JAPONICA AUREO-MACULATA.

PLATE XLIII.

Aucuba Japonica fœmina, var. *aureo-maculata*, Female Japanese Aucuba, with gold-spotted leaves.

Natural Order—CORNACEÆ.

IT has often been said that if we want romance, we must look for it in the things nearest to us, and in the most common place. The history of the *Aucuba Japonica*, or "Spotted Laurel" of English gardens, affords a new and pleasing example of the truth of the observation. At all events, there is no history more entertaining, and if we fail to interest our readers in the few remarks that follow the fault will be ours, for the subject is all that we would desire. One of the commonest of hardy evergreen shrubs has within the past few years become possessed of entirely new and most valuable properties; not new to the plant, of course, but new to us; for whereas its character appeared to be fixed up to a certain moment, from that moment it offered a series of new attractions; leaves of many forms and colours, and berries of the most brilliant scarlet hue produced in vast profusion. We will relate the particulars in the fewest words possible.

The *Aucuba Japonica* was discovered by Engelbert Kœmpfer, a Westphalian naturalist, in 1690, or thereabout, but was not then introduced to Europe. In 1783 it was introduced to Europe by Thunberg, a noted Swede. The distribution of new plants was a different affair then as compared with the present day. Exhibitions and horticultural papers now keep amateurs in a perpetual state of preternatural excitement about novelties; but ninety years ago such stimuli to plant collecting were unknown.

The Aucuba slowly found its way into a few great gardens, and being known as a Japanese plant, was considered too tender to be exposed to the rough climates of northern Europe, and so was treated as a "hothouse" plant. Observant cultivators noted that whenever it was grown in a cool temperature, instead of languishing, it improved, and its ultimate acclimatization occurred as the result of such observations.

At what date the Aucuba was first planted out as a hardy tree, we do not know. It is described in Aiton's "Hortus Kewensis," (1813,) as a hardy tree, as introduced to Kew in 1783, by Mr. John Græffer. In the twenty-first edition of Abercrombie's "Every Man his own Gardener," (1818,) there is no mention of it to be found, though there are abundant directions for propagating and planting evergreen shrubs of many kinds. Though known to botanists as a far more interesting shrub than to ordinary eyes it appeared to be, it was by the gardener regarded simply as a useful member of the mixed shrubbery, and particularly valuable to plant near towns, on account of its patient endurance of smoke and dust. In Don's "Dichlamydeous Plants," (1834,) the following remarks occur in the description of the Aucuba:—"This genus was included by Jussien in the order *Rhamnii*; but from its having no affinity whatever to either of the families into which that order has been divided, its place in the natural system has remained undetermined; and perhaps also from the *want of novelty, the plant has been despised by botanists*, and its characters and affinities consequently overlooked. Like the *Salix Babylonica*, or Weeping Willow, too, we possess only one sex of the tree in Europe, and that the female, which circumstance has likewise prevented its being accurately examined."

Although the Dioecious character of the Aucuba, and its natural fruitfulness of berries, were facts recorded, the importance of securing the male plant was felt by comparatively few, even amongst advanced botanists and horticulturists. Siebold brought with him from Japan a collection of varieties differing in the dimensions, forms, and markings of their leaves, but they all proved to be females. It was reserved for our Robert Fortune, the most successful of modern plant collectors, to obtain the male plant, and to bring it to England in safety. This, to botanists, was one of the first fruits of the opening of Japan to European commerce. The plant secured by Fortune was the only one he had been enabled to discover; it was obtained with difficulty, and when at last it fell into the hands of Mr. Standish, then of Bagshot, the purchaser of Fortune's acquisitions, it was in such poor condition, through the vicissitudes of the voyage, that great skill and patience

were needed for its recovery. But the usual good luck attended Robert Fortune's labours, the plant not only grew, but soon flowered, and every particle of pollen was applied to its destined purpose, and thus the first Aucuba berries were produced in England.

On the 5th. of March, 1864, Mr. Standish exhibited for the first time a female Aucuba loaded with glistening coral-coloured fruit, and a thousand amateurs were thenceforth fired with ambition to grow the plant in such a way as to fully develop every one of its characters. The demand for male Aucubas was immense; the first plant we purchased for our own use cost us at the rate of a guinea for every leaf upon it. There was no difficulty in selling at almost any price all that could be produced; the only difficulty was to multiply them fast enough, though every bud that could be cut was converted into a plant by grafting, and hastened into growth by stove temperature.

The general public were scarcely interested in all this, though the excitement of horticulturists was intense. To Mr. Bull must be awarded the credit of publicly demonstrating the capabilities of the Aucuba by his exhibition of some fifteen or more varieties, many of them covered with scarlet berries, at the great Flower Show held in the Guildhall of the city of London, on the 14th. of November, 1865. The commonest of all known garden trees was thus re-introduced to public notice as an altogether new, interesting, and remarkable subject; and thousands who never before reflected upon the laws which govern reproduction in the vegetable kingdom, resulting in so beautiful a replication of the phenomena of the increase of animal life, were led to inquire into the first principles of vegetable physiology, and thereby to discover that in the common-place we have for all intellectual and perhaps moral inquiry, an emblem of the inexhaustible. Since Mr. Bull's famous exhibition of Aucubas covered with scarlet berries, the fact of the separateness of the sexes in this plant, and the certain development of its complete character in our gardens, in the course of a very few years, has become part of the stock of every-day knowledge; but nevertheless it will be long before the air of novelty is worn away from the subject.

Our own garden at Stoke Newington was amongst the first of private establishments in which full justice was done to the Aucuba. We are inclined to believe, but will not insist upon it, that it was *the* first, for on the original distribution of the male plant we made the utmost of its pollen, and by fertilizing a number of small handsome female plants, previously potted for the purpose, secured a number of fruitful specimens, which, when the berries were ripe, were grouped to form a bed in the experimental garden. This was done in 1866. In the following

autumn we had a collection of seedling plants, and have been raising seedlings every season since, hoping some day to find a few distinct and novel forms amongst them.

We have not left space sufficient for any particulars of the structure and botanical characteristics of the plant, nor need we say a word about its cultivation. The time has passed by for it to be necessary to relate how fertilization is effected by application of the pollen to the flowers of female plants under glass, for the fact is, the male plant is cheap, and being perfectly hardy, needs but to be planted out amongst the females, and the bees will take care to secure their fruitfulness. Our collection comprises twenty-four named varieties, besides numbers of un-named seedlings. The following is a list of them:—

FEMALE AUCUBAS.

Aucuba Japonica femina viridis.—This is the green-leaved or wild form of the female plant. The leaves are smallish, sharply toothed, and a most lively green colour. When well covered with berries it is extremely handsome, and the smallness of the leaves favours the display of the fruit, which is more or less hidden from view in larger-leaved varieties. It is the most productive of berries of any in the collection.

Aureo maculata.—A variegated variety, which originated in the nursery of Messrs. Cutbush and Son, of Highgate. It was exhibited at the "International," 1866, and will probably be distributed in the autumn of 1869.

Elegans.—Variegated; the leaf is large, and is marked with a broad band of rich amber in the centre.

Flavescens.—Variegated; the young leaves being wholly of a rich gold yellow colour.

Grandidentata.—Variegated with whitish spots, the leaves deeply toothed.

Lanceolata.—A green-leaved variety; the leaves are narrowish and pointed.

Latifolia.—A green-leaved variety; the leaves broader than the average, and extremely handsome.

Longifolia.—A green-leaved variety; the leaves long and narrow.

Longifolia variegata.—Variegated with bars of pale amber.

Macrophylla.—A green-leaved variety; the leaves very broad and a foot long.

Mirabilis.—A green-leaved variety; the leaves ovate, boldly notched, and handsome.

Maculata.—Variegated with yellowish blotches, dots, and stripes. This is the common garden variety, that is to say, the oldest and best known of all Aucubas. It varies very much: we have amongst our common Aucubas at least a dozen sub-varieties, one of which produces leaves which average (petiole included) twelve inches in length.

Lati-maculata.—A variegated variety, with splendid broad central band of yellow, and rich yellow spots. It is the next best to the one figured, *Aureo-maculata*.

MALE AUCUBAS.

Aucuba Japonica mascula viridis.—The green-leaved male, corresponding in all characters (except sex) to the first-named plant in the list of females. We believe this will ultimately prove to be the best for pollen, as its companion is the best for berries; but we have not had it long enough to determine.

Bicolor.—Variegated and handsome; the majority of the leaves one half green, the other half deep amber.

Corymbiferum.—Variegated with light splashes of a yellowish or creamy colour; the leaves large and handsome; the flowers in large corymbs.

Grandis.—Variegated; the leaves very large and handsome, with occasional large, bright, gold yellow spots. So few leaves are variegated that perhaps it should be classed with green-leaved varieties.

Macrodonia.—Green-leaved; the leaves large, broad, and boldly toothed.

Maculata.—Variegated, and in every respect (except sex) the counterpart of the common garden female plant bearing the same name. This is said to be the best for pollen, and such we have found it; but we expect the green-leaved male will supersede it in that respect in a year or two. At all events this is undoubtedly one of the best male varieties to plant out.

Marmorata.—Variegated, and in every respect a sub-variety of *maculata*.

Maculata robusta.—A larger leaved sub-variety of the last.

Ovata.—Green leaved; the leaves large, ovate, a fine dark green colour. A grand variety.

Picta.—Variegated; the leaves coarsely serrated, with broad central blotch of yellow, and irregular margin of bright green. This produces abundance of pollen, and is one of the handsomest in leafage.

Aucuba Himalaica is a beautiful green-leaved species from the Himalaia Mountains. In leafage it is scarcely to be distinguished from the green-leaved Japanese Aucuba, but the berries differ, as instead of being wholly of a deep vermilion colour, as is the case with all the Japanese species, those of *Himalaica* are of a rich deep red, with a green circle near the apex. All our plants of the Himalaian Aucuba are females; the male plant not having been as yet introduced to this country. It can however be fertilized with the pollen of any of the Japanese males.



PLATE 117
1861

CYPRIPEDIUM CONCOLOR.

PLATE XLIV.

Cypripedium concolor, Self-coloured Lady's Slipper.
Natural Order—ORCHIDACEÆ.

To the orchid grower this is a peculiarly interesting plant, differing from all others of its genus. The leaves are compactly arranged, beautifully mottled on their upper surface, and of a rich reddish purple below. The flowers are borne in pairs on a short hairy scape; they measure two inches across; the colour is pale yellow sprinkled with minute crimson dots.

The Ladies' Slippers constitute a peculiarly distinct section of the great orchideous family of plants, the construction of their flowers presenting a curious series of departures from the prevailing characteristics of the order. The plan of an orchid is *ternary*, and its elemental parts are (theoretically) fifteen in number. There are three *sepals*, three *stamens*, three *pistils*, three *carpels*. In many instances certain of these organs never attain development, and others are so modified that it is difficult to trace them. Thus the *labellum*, or lip, one of the most conspicuous features of an orchid flower, is but a transformed petal. Usually only one stamen out of three is developed, and this is confluent with the pistil forming the column. In *Cypripedium* all three stamens are determinable, two being fully produced and placed right and left of the column; the third is placed between them, but is sterile, and it is no easy matter to recognize it. There are three sepals in a *Cypripedium* flower, yet there appear to be but two; one of them stands up and forms the banner or topmost piece of the flower, the other two are conjoined, and form one, corresponding in position to the banner, but directed downwards from the centre. Right and left of the centre are placed two petals like wings, and in front is the labellum representing the third petal. In some instances the two side-petals are prolonged

into tails, which give the flower a most eccentric appearance. The elder Darwin saw in the peculiar structure of the *Cypripedium*, and notably so in *C. calceolus* and *C. spectabile*, a resemblance to a spider, the swollen pouch representing the body, and the anthers the eyes; and in the fourth canto of the "Botanic Garden," (501-510,) he thus fancifully alludes to it:—

"See where the humming-bird in Chili's bowers,
 On murmuring pinions robs the pendent flowers;
 Seeks where fine pores their dulcet balm distil,
 And sucks the treasure with proboscis bill;
 Fair CYPRIPEDIA, with successful guile,
 Knits her smooth brow, extinguishes her smile;
 A spider's bloated paunch and jointed arms
 Hide her fine form, and mask her blushing charms;
 In ambush sly the mimic warrior lies,
 And on quick wing the panting plunderer flies."

Cypripedium concolor is a native of Moulmein, where it was found growing on rocks by the Rev. C. Parish. Colonel Benson also found it in the same localities. It may now be found in all good collections of orchids in private gardens, where it is esteemed chiefly for the beauty of its leaves, in which respect it forms a companion plant to the beautiful spotted-leaved *Cypripedium* which has been named in commemoration of Dr. Hooker.

This plant, in common with all other exotic Ladies' Slippers, (except *C. insignis*, which thrives in a cool house,) requires good stove temperature, with plenty of moisture, and but little rest. The compost which best suits this class of plants is one consisting of rough peat, sphagnum, and sand. In the case of *concolor* nodules of chalk may be added with advantage.



ACALYPHA TRICHOCHA.
XLV

ACALYPHA TRICOLOR.

PLATE XLV.

Acalypha tricolor, Three-colour-leaved Acalypha.
Natural Order—EUPHORBIACEÆ.

THIS beautiful-leaved plant was introduced from New Caledonia by Mr. John Gould Veitch, for Messrs. Veitch and Sons, of Chelsea, who first offered it to the public in 1867, having established its character at the International Exhibition of 1866, where it was exhibited, and obtained a first-class certificate. It is a very distinct and handsome stove shrub, with ovate leaves of a coppery-tinted green, washed here and there in splashes, dots, and large patches, as though smeared and stained with red lead.

Some five and twenty species of *Acalypha* are recorded as in cultivation, but it might be a difficult task to find half a dozen of them in English gardens. The reader needs not to be told that they are unknown because they offer few attractions to the cultivator. The plant here figured, however, is quite worthy of a place in the stove, both for its intrinsic beauty and its distinctive habit and colouring.

In common with other plants of the same class, *Acalypha tricolor* requires a good stove temperature, with a moist atmosphere to bring out its characters fully. It is however an easy plant to grow, and is especially useful in winter, when many of the best fine-foliaged plants, and notably the *Caladiums*, are *hors de combat*. It may be readily propagated by cuttings in a strong heat.

The natural order of Spurge-worts, to which this plant belongs, offers us many fine subjects worthy of cultivation on account of the beauty of their bracts or leaves. A few of the true spurges, as, for example, *Euphorbia Jacquinæflora* and *E. splendens*, are notable for the brilliancy of their flowers; but they stand almost alone in their

large family, which has few floral attractions. In the lovely *Poinsettia pulcherrima* we have the most gorgeous floral bracts; in the *Crotons* we have the richest leafage, many of the species being distinguished by their brilliant golden variegation; and the species of *Ricinus* presents us with leaves of most elegant outline, many of them unsurpassed for elegance of form amongst all the plants with which, in the garden, they are usually associated. One of the most interesting plants of the Spurge family is *Siphonia elastica*, the "bottle India-rubber" tree of Brazil, a more important plant than *Ficus elastica*, which yields the principal supply of rubber from the eastern continent.



CINERARIA CUNEATA FA. PR. 2001 JV.
XLVI

CINERARIA MARITIMA FAIRBAIRNIANUM.

PLATE XLVI.

Cineraria maritima, var. *Fairbairnianum*, Fairbairn's gold-striped variety of the Silver-frosted Plant, or Sea Ragwort.

Natural Order—ASTERACEÆ.

THE "silver-frosted plant" of English gardens had but little celebrity in spite of its intrinsic beauty, until it proved to be a valuable agent in the development of the "bedding system." Since its adoption for the formation of sharp silvery lines, and to mix with dark-leaved plants in the parterre, it has become one of the most popular of beautiful-leaved subjects for the embellishment of the summer garden, and where bedding plants are largely grown, we may expect to meet with it in thousands, seedlings being always preferred for the formation of edgings and marginal bands.

Apart from the popularity of the Sea Ragwort as a parterre plant, it has an interest of its own arising out of its habit and character. It is a native of Southern Europe; has never, we believe, been found wild in Britain, but is quite hardy in the southern parts of these islands if growing in a sheltered and dry position. It thrives on a chalky soil, and when cultivated will be found to grow most freely, and have its own proper silvery lustre most fully produced, if nodules of chalk or old mortar are added in plenty to the compost in which it is potted. Like many other hardy plants that are treated with contempt because they happen to be cheap, this is rarely grown into a good specimen. Yet there are few plants more worthy of the little care required, for fine specimens have a most beautiful appearance, and form desirable additions to the embellishments of the terrace and the lawn during summer. We have had specimens two and a half feet through, the result of only two years cultivation.

To describe the plant must be needless. It has been known to

English gardens for upwards of two centuries. The silvery whiteness of its stems and leaves is surpassed by some of the *Centaureas*, and by *C. ragusina* especially; yet the softer grey tone of the Ragwort renders it serviceable in promenade colouring, when the *Centaureas* are too decisively white to harmonize with their surroundings.

The variety figured was raised by Mr. G. Fairbairn, head gardener to His Grace the Duke of Northumberland, Sion House. Its beauty and novelty fairly entitle it to a place in this series, as for many years to come it is likely to be in request as a bedding plant, and to grow into specimens for the conservatory. Its peculiarity is its clear golden yellow variegation—a most unusual occurrence in a plant of this kind, yet one we might expect, for the normal silvery hue of *Cineraria maritima* is not a case of variegation at all; it is the result simply of the thick close down with which the plant is clothed, and which properly belongs to it as one of its normal characters.



ALOCASIA JENNINGSII.
XLVII

ALOCASIA JENNINGSII.

PLATE XLVII.

Alocasia Jenningsii, Jennings's Alocasia.
Natural Order—ARACEÆ.

THIS sumptuous and peculiarly distinct Caladium was introduced from India by Messrs. Veitch and Son, and was accepted by cultivators as one of the choicest of its race on the instant of its first appearance in public. It is a difficult plant to figure, the best possible picture of it must be but a poor shadow of the fact. There are those who should know better, who look upon all prints of new plants and flowers as exaggerative. What an undeserved and undesired compliment they thereby pay the artists. The poet Thomson asks, "who can paint like Nature?" Now observe the possibility of an answer to this effect—Here is one who can paint better than Nature!!!

Proh superi! quantum mortalia petora cœcœ,
Noctis habent!

But let Ovid sing to another tune while we appeal to all who know the plant here figured, to pardon our shortcomings, for this after all is the utmost we can do.

Alocasia Jenningsii has no history. It was first exhibited at the Royal Horticultural Society's Show, May 7th., 1867, and was awarded a silver medal as the best new fine foliage plant of the day. The leaves are ovate-cordate in form, they attain a length of six to eight inches. The ground colour is a delicate glaucous green, over which, between the principal veins, are laid heavy blotches of black, which are remarkably precise in outline and arrangement, as if determined by rule and compasses.

No species of *Alocasia* will bear rough usage, and it is best not to attempt to grow them unless they can have good stove treatment. When started into growth the temperature should be maintained at from 70° to 80° for about six weeks. As the season advances, and the plants acquire a luxuriant growth, the heat may rise to a range of from 80° to 90°. Throughout the growing season the atmosphere of the house should be always heavily charged with humidity, but the plants themselves should be only moderately syringed. As autumn approaches less heat and moisture will be required. A decided season of rest is necessary, but it must not be accompanied by a temperature unduly low. We believe 60° to be a safe winter minimum for *Alocasias*. In common with the *Caladium*, the *Alocasia* will not endure to be desiccated in winter, but in the season of rest very little moisture will be required.

The soil in which these plants thrive best is one consisting of fibrous peat, sphagnum moss, small potsherds, and nodules of charcoal. A pasty peat, in fact a close compact soil of any kind, is utterly unfit for them. Large specimens, if carefully potted, may remain in the same pots several years, but small plants should be shaken out and repotted when just about to start into new growth in spring.





CANNA ATRO NIGRICANS.

PLATE XLVIII.

Canna Indica var. *atro-nigricans*, Indian Canna with very dark leaves.

Natural order—MARANTACEÆ.

ALTHOUGH long and deservedly prized on account of their noble leafage and gaily-coloured flowers, the varieties of Cannas really owe their present importance to the development of "sub-tropical" gardening, in which they have played a conspicuous part. The varieties have now become so numerous that it is difficult to select from amongst them distinct and typical kinds.

The varieties in cultivation number about one hundred and fifty; they are all descendants of two species, namely, *C. Indica* and *C. flaccida*, both natives of the New World, the first being met with in shaded marshy places in Brazil, the second in marshy spots on the banks of the Mississippi.

In 1846 the first attempt was made to employ the Canna as a bedding plant in temperate latitudes. In that year M. Thre. Année, who had been for several years French consular agent at Valparaiso, brought with him to Paris a collection of the various sorts he had met with in his travels through South America, some of which he planted in his garden at Passy. The experiment was so successful that in the year following he planted out all the varieties he could obtain, and in 1848 he commenced systematic crossing with a view to obtain new sorts, and thereby laid the foundations of the splendid collections that are now grown in English and French gardens. In 1855, when the fine public gardens of Paris were assuming their true character, Cannas were, for the first time, planted out extensively; and to M. Barillet Deschamps, the principal gardener of Paris, must be awarded the praise of establishing the plant as one of the most suitable for grand embellishments, and one of the most tractable in the hands of the cultivator. Its tractability may be proved by the fact that in Battersea Park, under the able direction of Mr. John Gibson, there are beds of Cannas that have not been disturbed for several years, the roots being allowed to remain in the ground throughout the winter, having for protection only a light covering of dry straw. One bed in particular, consisting of *Canna limbata*, has thus survived seven successive winters. This indeed is the proper way to treat the plant when it is employed to form masses in the park or flower garden, as when the roots remain undisturbed, the summer growth of leaves and flowers far surpasses in splendour the best that can be obtained by the system of annually taking up and planting out.

To grow the Canna to perfection a rich light soil is essential. When grown as pot plants, or when intended to be prepared for planting out, it is desirable to give the roots a start in a moderate heat.

The following varieties are particularly handsome and distinct:—*Annei*, *atropurpurea*, *gigantea*, *musæfolia*, *nigricans*, *purpurea-spectabilis*, *zebrina-nana*, *Chatei-grandis*, *iridiflora*, *limbata*, *Porteana*, *rotundifolia-rubra*, *Vanhouttei*.



ABUFLOW THOMPSONI.

ABUTILON THOMPSONI.

PLATE XLIX.

Abutilon striatum, var. *Thompsoni*, Thompson's variety of the Striped Abutilon.
Natural Order—MALVACEÆ.

THE normal or specific form of the beautiful plant here figured is a very old and lightly-esteemed inhabitant of our greenhouses, which was once in bad repute as an unmanageable stove plant. While treated to a greater heat than was consistent with its nature it took revenge against the cultivator by perpetually plaguing him by its thin, unwholesome appearance, and its suitability as a breeding-place for all the insect plagues that usually infest plants that are kept in too high a temperature. When it was transferred from the stove to the greenhouse, it acquired better health and considerable beauty; it ceased to be a house of call for vermin; it made a free growth of cheerful light green leaves, and produced abundance of pretty bell-shaped flowers of an orange colour, delicately marked with red stripes. From the greenhouse it was taken to the garden, where it proved so nearly hardy that in many favoured spots in the south of England and Ireland it survived ordinary winters unhurt; and of late years it has been adopted freely by Mr. Gibson in his masterly system of embellishing the parterre with "sub-tropical" plants at Battersea Park. *Abutilon striatum* has never enjoyed the fame it is entitled to, perhaps because, in the first instance, through ignorance of its hardy constitution it was a troublesome plant to keep alive; and in the second, that when reasonably treated it was so easy to keep and to grow, that very few ever took the trouble to do perfect justice to it.

We believe and hope a better fate awaits the beautiful variety "*Thompsoni*." This, like the species, has had to pass through a fiery

ordeal, and at first was thought a worthless thing, because being kept in the stove its beauty was stewed out of it. But *tempora mutantur*, it is the fashion now to try every stove and greenhouse plant that exhibits distinctive characters, especially distinctive characters of leafage, in the open air; and when put to this test it came through the trial bravely, assumed a quite novel and most attractive aspect, and so became established as a nearly hardy fine-foilage plant, which, if planted out during the summer, makes a display of variegated leafage, in the highest degree beautiful and interesting. In proof of its capability for this kind of work we put out at Stoke Newington, in the early part of May, 1869, a few plants which Messrs. Veitch and Son supplied for the experiment. During the five weeks which followed the date of planting the weather was more like winter than summer, bitterly cold, with fitful gleams of sunshine, and bedding-plants, as a rule, becoming all the while small by degrees though *not* beautifully less. Yet these Abutilons were unhurt, and now, (July 30th.,) having had a good spell of genuine summer heat, they are so beautifully coloured, and are growing so freely, that we are bound to pronounce the plant admirably adapted for out-door embellishment, and one of the most distinct and attractive of the class to which it belongs.

Abutilon Thompsoni was introduced by Messrs. Veitch and Son from Jamaica, where it appears to have originated as a garden variety of the well-known *A. striatum*, native of Brazil. To do justice to it is no difficult task. It will grow freely in very light, rich loamy soil, and its proper place in winter is in a warm greenhouse. During the summer a thriving plant will make a growth of two to four feet, and when allowed to grow naturally it forms a freely-branching pyramidal tree, and flowers nearly as freely as the green-leaved species. It is, however, not in need of flowers to secure for it the admiration of such as can appreciate the beauty of its leaves. These are elegantly lobed, the ground-colour is a lively green, over which is spread a delicate mottling of amber and creamy white in many shades harmoniously blended. Full exposure to solar light is necessary to bring out these colours, therefore when grown under glass it should never be shaded unless there is a risk of blistering, which, as a rule, can be prevented by abundant ventilation. The plant may be increased by cuttings at any season, but the summer is the best time; and of course shade and a close atmosphere are favourable conditions for inducing the formation of roots.

There are not many Abutilons in cultivation, but a few continental varieties of *A. striatum* are much valued for their flowers, which are particularly effective when the trees are planted out in groups in the

garden. The best varieties in addition to the type, are, *Duc de Malakoff*, *insigne*, and *vanosum striatum*; these have the free habit of the species and flowers possessing distinctive features.

THE SUB-TROPICAL GARDEN.

Many references to the "sub-tropical garden" occur in these pages, and a few words in explanation of the term may interest the reader. The Parisian gardeners must have the credit of originating the system of out-door decoration to which this term is applied. The first examples, on a scale large enough to attract attention, were presented to public notice in the well-kept public parks and gardens of the city of Paris. Great was the excitement, and almost unbounded the admiration, created by plantations of India-rubber Trees, Dieksonias, Caladiums, Palms, Cannas, Begonias, Wigandias, and other plants of like noble character and tender constitution. Although from the earliest days of horticultural art it had been customary to plant out tender subjects for the summer, yet the scale on which this was now done, and the new and peculiar scenery which resulted from the practice, made the sub-tropical garden at once a novelty and a great attraction. The leading English cultivators were not slow to take lessons from their neighbours. The sub-tropical movement was inaugurated on English soil under circumstances far less favourable than in the better climate in which it originated. Nevertheless, success attended it, and we have learned at least two lessons from the practice up to this time. We have learned that the vegetation of the whole world nearly is at our service for the embellishment of the English garden in the summer season; and also that our climate is far kinder than we supposed it to be, for many tropical plants when planted out in June make a free growth and attain to a fair state of development, and continue attractive and display the distinctive features that belong to them, until far into the month of October.

To select a number of tender plants and commit them to the common soil to take their chance, is not, in the proper sense of the term, sub-tropical gardening. The soil should be of a light mellow texture, rich, abounding in humus, and raised above the general level on a foundation of porous materials. At Battersea Park, where are to be seen the best examples in England of this system of embellishment, the beds are all formed on foundations of broken bricks. This spongy substratum suffers surplus water to escape readily, and retains in its

interstices a large amount of atmospheric air. The soil being placed above a thick layer of such stuff is more freely acted on by the sun than the level ground, and the consequence is that the whole bed is quickly warmed, and in the early part of June the temperature is some degrees higher than that of beds unprovided with a porous substratum. Moreover, if some time during the summer there should occur a change to cold weather, these prepared beds part with their accumulated heat so slowly that it rarely happens the plants in them suffer by the change; they are in fact enabled to endure it, owing to the warmth of the soil, until the natural heat of the season returns, to carry them on safely far into the autumn.

As for the remainder of the routine, it consists for the most part in selecting sheltered sites for large-leaved plants that are likely to be torn by the wind, and in giving throughout the season abundance of water. The details of the system will afford endless amusement to those who practise it, provided the first essential to success, a rich light soil upon a porous foundation, is secured to start with.



ADIANTUM MARGINATUM.

L



SOLANUM MARGINATUM.

PLATE L.

Solanum marginatum, Margined-leaved Solanum.

Natural Order—SOLANACEÆ.

To be related to a potato may be an unfortunate circumstance even for a plant, especially such an aristocratic subject as the one before us. Yet worse things are possible, as, for example, we have heard a human being described as the “son of a gun,” and the “great Prodigrum” of Foote’s “incoherent story,” must have had some queer consanguinities. To see a bed of Solanums in full bloom in one of the best public gardens of Paris, or in our own Battersea Park, where they are handled with remarkable skill by Mr. Gibson, is to experience anew the conviction that Pope was right when, speaking of the superiority of individual merit over all its possible surroundings and relations, he said,—

“Worth makes the man, the want of it the fellow;
The rest is all but leather or prunello.”

A large number of ornamental *Solanums* are in cultivation. They make handsome pot-plants, but to see them in perfection, they should be planted out, when their curious leaf colours, and small white or violet-coloured flowers—which in some cases remind one of the lovely amethyst blossoms of the Borage—attain to fullest development in an average good summer. The species selected for the sub-tropical garden are attractive principally on account of their distinctive leafage.

Solanum marginatum is of tree-like growth, upright and branching, attaining in our stoves a height of six to nine feet. The leaves when young are densely frosted on both sides, when older the upper surface becomes greenish white, and margined with a glittering line of whitish dusty pubescence. When planted out it grows freely, and produces a striking effect if in a mass.

The following species of *Solanum* are the best among many for employment as bedding plants in English gardens:—

S. marginatum.—Leaves very white; flowers purple and white.

S. violaceum.—Leaves purplish; stem thorny; flowers violet rose. One of the best, but rather more tender than most others.

S. amazonicum.—A small woolly plant without spines; flowers large, clear blue. One of the easiest to manage, and comparatively hardy.

S. robustum.—A remarkably fine plant; the large leaves furnished with formidable spines: requires good cultivation.

S. laciniatum.—A strong-growing plant, with smooth leaves and beautiful pale blue flowers. Grows rapidly, and easily kept in winter.

S. pyracantha.—An elegant plant, with fiery red spines; flowers dull white. Beautiful and tender.

S. giganteum.—A robust fast-growing plant; leaves and stems tomentose and spiny; flowers small, pale lilac.

S. auriculatum.—A shrubby plant of large growth; leaves yellowish downy on the under side; flowers insignificant.

S. acanthocarpum.—A tall-growing plant of majestic aspect; leaves deeply lobed, whitish underneath; stems whitish, and clothed with yellowish spines; flowers small, succeeded by berries that look like oranges, except that they are spiny.



TERMINALIA ELEGANS
LI

TERMINALIA ELEGANS.

PLATE LI.

Terminalia elegans, Elegant Terminalia.
Natural Order—TERMINALIACEÆ.

Terminalia elegans belongs to an important group of tropical and sub-tropical trees, known by their fruits as "myrobalans," and in many instances characterized by the production of terminal leaves, which are borne in clusters at the ends of the branches, hence the generic name, which also supplies the name of the order. They are widely distributed, the species being found in Asia, Africa, and America, and wheresoever found they are valued for qualities which render them useful in medicine and the arts. Upwards of twenty species of Terminalia have been registered as having been grown in British stoves, though probably not half so many could be found in any one garden in the British Islands. The roots of *T. alata* are used in India as a remedy for fevers; from *T. argentea* is obtained, in Brazil, a resin resembling gamboge, and possessed of similar powerful qualities when used medicinally. From the fruits of *T. catappa*, in the Mauritius, a valuable oil, equal in purity to the best olive oil, is expressed, and *T. mauritiana* furnishes a resin which takes the place, as serving the same purposes, as benzoin. *T. vernix* and perhaps *T. catappa* also are cultivated by the Chinese to supply materials for the manufacture of black lacquer and Indian ink. From other species, as well as from the closely-allied genera *Bueida* and *Coniocarpus*, are obtained astringent medicines, dyes, and barks for tanning; and the bark of *C. racemosa* is used as a substitute for cinchona bark.

All the members of the order *Terminaliaceæ* are worthy of cultivation, on account of their majestic growth and beauty. *T. catappa* is a favourite tree in the Mauritius for affording shade to dwelling houses

and the public streets: it is one of the handsomest of the group. The species here figured, *T. elegans*, is perhaps best of all the long list entitled to the favourable consideration of British cultivators, on account of the beauty of its leaves, and the noble appearance of a specimen of moderate dimensions. It is a native of Madagascar, and therefore strictly a stove tree, needing a humid atmosphere and high temperature to bring it to perfection.

For this beautiful species we are indebted to Mr. William Bull, of King's Road, Chelsea, who obtained it only three or four years since, and soon afterwards was enabled to present it in beautiful condition as to health and colour at the metropolitan exhibitions. In general appearance it has been likened to *Pavetta borbonica*, but the trifoliate leafage supplies a bold distinction, irrespective of distinctions of structure and affinities. The leaves are elegantly reticulated with dark lines on a bright green ground, the midrib is bright red, and the whole of the leaf is highly varnished. It is in every sense a noble plant, which will not only maintain its value, but if skilfully treated increase in value with every increase of size for many years to come.



VARIEGATED PELARCONIUMS.

1 Peter Grieve. 2 Howarth Ashton. 3 Aurora borealis.

VARIEGATED PELARGONIUMS.

PLATE LII.

Pelargonium zonale variegata, Variegated Zone-leaved Pelargonium;
garden varieties.

Natural Order—GERANIACEÆ.

If we cannot elaim for the varieties of Pelargoniums here figured a degree of importanee equal to that of many other subjects in this work, it may at least be said in their vindication that without a question they are the most popular of ornamental plants in cultivation, not only in this country, but throughout Europe, in the colonies, in North America, and, in fact, wherever ornamental gardening is practised with any degree of enthusiasm. We have but little space left to discourse upon them, we must therefore be very brief.

The “tricolor-leaved Geraniums,” of which three out of the four varieties figured are examples, are of quite recent introduction to our gardens; and they afford the most conclusive and startling evidence obtainable of the power of art to alter the course of nature. The first decisive step towards the establishment of variegated Pelargoniums was taken in 1848, when Mr. Kinghorn raised from Lee’s Variegated Geranium the well-known Flower of the Day. About 1850 the same raiser obtained Attraction and Countess of Warwick, both of them true silver tricolors, (though not then so regarded,) and forerunners of the now famous Italia Unita. Ambition was aroused, and many cross breeders entered the field: amongst these especial mention must be made of Mr. Hally, raiser of Burning Bush, a small-growing silvery-leaved variety. In 1853 Mr. Peter Grieve, the most successful cultivator

of this branch of horticulture, and the raiser of Mrs. Pollock, began to experiment. By crossing Flower of the Day with the pollen of Tom Thumb he raised a fine variegated variety (now discarded) called Culford Beauty. Again he obtained Rainbow, a true silver tricolor. Pursuing his course in this enchanting enterprise, he succeeded in raising, by systematic cross-breeding, the varieties known as Empress of the French, Emperor of the French, and others. In 1855 he began to consider the possibility of obtaining new varieties with golden variegation; and, accordingly, he applied the pollen of the fine old bedding geranium, Golden Chain, to the blossoms of Cottage Maid, and obtained Golden Tom Thumb and Golden Cerise Unique. The next year blooms of the Emperor of the French were fertilized with pollen of Golden Tom Thumb, and one of the results was Gold Pheasant. In the two following years, that is in 1857-58, the pollen of Gold Pheasant was applied to the blooms of Emperor of the French, and the result was those two most celebrated of all the golden tricolors, Mrs. Pollock and Sunset. Subsequently, Mr. Grieve has raised Lucy Grieve, Mrs. Benyon, Lady Cullum, Victoria regina, and a host of others equally celebrated. Here our story must end: those who would know more of the subject will find abundant information in the little "History of Variegated Zonal Pelargoniums," written by Mr. Grieve, and published by Messrs. Blackwood.

We have selected for the plate a group of varieties which may be regarded as representing the highest standard yet obtained in the two classes of gold and silver tricolors, with the addition of one representing the new reticulated-leaved class, the name of which, *Aurora borealis*, appropriately typifies its peculiar style of colouring,—lurid red in lines and suffusing the margin of an otherwise bright green leaf. *Peter Grieve* is a golden tricolor, most perfect in form and tinting, satisfying more nearly than any other the requirements of the critical florist. *Howarth Ashton* and *Miss Burdett Coutts* are amongst the most beautiful and vigorous-habited of their respective classes.



CRACCA REGINA.



DRACÆNA REGINA.

PLATE LIII.

Dracæna regina, The Queenly Dracæna.

Natural Order—LILIACEÆ.

THOUGH we are bound to represent *Dracæna regina* in this series, it must be admitted it makes but a dull picture, the variegation and the ground-colour of the leaf being characterized by dullness and indecision; yet the plant is so distinct, and so quickly forms a noble

specimen, that it is fully entitled to a place here, and happily we have succeeded in rendering it faithfully.

For this fine plant, distinct from all others of the genus in cultivation, we are indebted to the enterprise of Messrs. Veitch and Son, by whom it has been but recently introduced. Wherever it has been exhibited cultivators have regarded it as an acquisition of great value, more especially as in its own particular family it stands alone in style of growth and colouring. It appears to be constantly and uniformly variegated, the broad leaves being striped with bold lines and divisions of a creamy white or amber colour, with two or three shades of dull green between.

The following list of *Dracænas* in cultivation may be useful to many readers. The most desirable amongst them are marked with an asterisk.

STOVE DRACÆNAS WITH COLOURED LEAVES.

Chelsoni, **Cooperi*, *Ferrea*, *Macleayi*, **Magnifica*, *Nigricans*, *Nigroruba*, *Nobilis*, **Regina*, *Rubra*, **Stricta*, *Terminalis*.

STOVE DRACÆNAS WITH GREEN LEAVES.

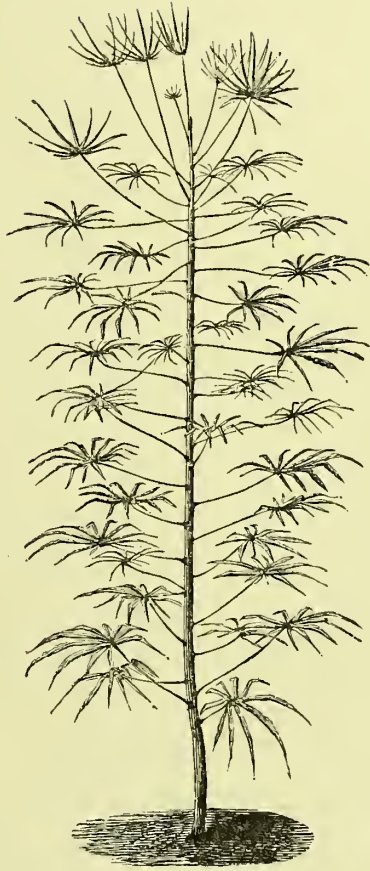
Arborea, *Cannæfolia*, *Cernua*, *Congesta*, **Draco*, *Ensifolia*, *Execlsa*, *Fontainseana*, **Gracilis*, **Heliconifolia*, *Limbata*, **Marginata*, *Robusta*, **Siamensis*, *Tasselata*, *Umbraculifera*.

GREENHOUSE DRACÆNAS.

**Australis*, *Banksi*, *Fragrantissima*, **Indivisa*, *Nutans*, **Veitchei*.



ARALIA VEITCHII.
LIV



ARALIA VEITCHII.

PLATE LIV.

Aralia Veitchii, Veitch's Aralia.
Natural Order—ARALIACEÆ.

THERE does not appear in the half-ghostly, somewhat fairy-like, and decidedly weird-looking leaf here figured, any close relationship to the "ivy green;" but it is next to impossible to think of an *Aralia* or a *Panax* without reverting to *Hedera*, and thence to the social and

literary and scientific memorabilia, into the midst of which the ivies will inevitably induct the reflective mind. The Aralias are undoubtedly the most important plants, all points considered, in this very characteristic order; yet most of us would willingly lose the best examples our stoves and conservatories would furnish, rather than the sheet of green ivy that hugs the ruin and sustains it for centuries unhurt by weather, or the towering Liana-like festoons that have surmounted the tallest trees in the wood, and are fast destroying them with fatal embraces. The Aralias have a place in history, but it is a poor place as compared with the fame of their more humble congeners, a spray of ivy being as a "key to golden palaces" to the mind well stored with poetic lore, for its associations range far away from the allusions of the Greek dramatists, who weave it in Bacchic wreaths and triumphal coronals, to the "female ivy" of Shakespeare that so lovingly "entwines the barky fingers of the elm." Endymion Keats must have had the Ivy in mind when he wrote his glorious hymn to the god Pan:—

"O Harkener to the loud-clapping shears,
 While ever and anon to his shorn peers
 A ram goes bleating: Winder of the horn,
 When snouted wild-boars, routing tender corn,
 Anger our huntsmen: Breather round our farms,
 To keep off mildews, and all weather harms:
 Strange ministrant of undescribed sounds,
 That come a-swooning over hollow grounds,
 And wither drearily on barren moors:
 Dread opener of the mysterious doors
 Leading to universal knowledge—see,
 Great son of Dryope,
 The many that are come to pay their vows,
 With leaves about their brows!"

Unfortunately for the poetical side of the question we have nothing to do with the Ivy here, and the foregoing flight with the poets is simply unpardonable. Let us look then at the Aralias as subjects for cultivation. They are all trees or shrubs, natives for the most part of the northern hemisphere, being distributed pretty freely in China, Japan, and other northern parts of Asia, and again in the United States and Canada.

The cultivator may classify them as to forms and characters, grouping the narrow-leaved species, such as *A. Veitchi*, *A. trifoliata*, *A. reticulata*, together; and the broad-leaved kinds, such as *A. Sieboldi*, *A. macrophylla* and *A. papyrifera*, in another group. But a more convenient classification for us will be one having reference to their climatal

requirements; and it will doubtless be useful to the reader if we here enumerate a few of the most distinct and handsome under the several heads of Stove, Greenhouse, and Hardy species.

STOVE ARALIAS.

A. Duncani has small, thick, hard-textured leaves, averaging six inches in length, by one inch and a half broad. In habit bushy, graceful; colour pleasing: one of the best for small houses.

A. leptophylla.—A strong-growing species, requiring plenty of room; leaves large, compound, remotely resembling those of the horse-chestnut, of a fine dark glossy green; each leaf about a foot in diameter.

A. reticulata.—Leaves fifteen to eighteen inches long, and about two inches wide, dark green, with yellowish midrib, all the leaves standing horizontally. A very graceful tree, and one of the best for the stove, its appearance amongst palms and ferns being particularly attractive.

A. nymphæifolia.—Leaves cordate, about nine inches long, and six inches wide at the base, dark green. Habit bushy, a desirable species.

GREENHOUSE ARALIAS.

A. crassifolia integrifolia.—Peculiar and distinct in habit. The leaves are about twelve inches long, and about three quarters of an inch wide, very hard in texture like those of an Agave, with blunt spines at intervals of two or three inches apart along the margin. An elegant and desirable species, which may be regarded as a curiosity.

A. palmata.—The finest of the genus. The leaves are bright glossy green, and in form resemble those of a horse-chestnut, but stand out rigidly on long horizontal leaf-stalks. A full-grown leaf will measure two feet across, and the leaf-stalk is about half an inch in diameter. It is a companion plant to *A. leptophylla*, which may be placed with it in the conservatory during the summer.

A. trifoliata.—A distinct plant, somewhat resembling in general aspects *Terminalia elegans*, but stronger in habit. The leaves are in threes, that is to say, each leaf consists of three equal-sized leaflets.

A. Veitchii.—An extremely elegant plant, with slender purplish stems and leaf-stalks; the leaves distinctly pinnate, the leaflets linear, averaging from seven to nine on each slender leaf-stalk; the colours comprising curious shades of olive green, greyish brown, and dull cinnamon. A curious and beautiful species, introduced by Messrs. Veitch and Son, of the Exotic Nurseries, Chelsea.

HARDY ARALIAS.

A. papyrifera.—The well-known “rice-paper” plant of China. Leaves dark brownish green, palmate, broad, and peculiarly striking in character. A grand plant for cool conservatories, and for planting out in the garden during the summer. We have known it survive an ordinary winter in several places near London.

A. Sieboldi.—A grand large-leaved species, well adapted for planting out as a companion to the last-named. Our right to class it with the hardy kinds is based upon the fact that specimens have stood out several winters in succession in Battersea and Victoria Parks, near London. A fine specimen at Battersea was much injured by the winter of 1866-7, being cut down to the ground, but in the summer of 1868 it quickly recovered, and formed a fine bushy plant.

A. Sieboldi variegata.—A splendid variegated variety of the foregoing, a trifle more tender in constitution, therefore the word “hardy” must be accepted with an emphatic *cum grano*.

On the subject of cultivation but little need be said, for there is nothing easier to grow than an Aralia. The species will require a temperature suited to their constitution, and, as a rule, all will bear cooler temperature than they usually receive. Fine specimens are the result of constant care and watchfulness, not of any mysterious or peculiar treatment. The stove species, as a rule, require a lighter soil than the greenhouse and hardy kinds; the addition of peat and leaf-mould to good turfy loam will improve the staple for them. Cuttings of the ripe wood of any of the species may be quickly struck in bottom-heat.

