

GREENHOUSE RHODODENDRONS

EAST INDIAN SPECIES.

THE beautiful plants comprised in this section of the genus *Rhododendron* known in gardens by the above name are natives of the East Indies, inhabiting the islands of Java, Sumatra, and Borneo, Penang and Malacca in the Malay Peninsula.

The first species introduced to cultivation in this country was *Rhododendron* **jasminiflorum*, sent to Exeter from Malacca by Thomas Lobb, flowered for the first time in September 1849, and exhibited at Chiswick on the occasion of the first show of the year, held by the Royal Horticultural Society in 1850. The flowers pure white with a deep pink eye, somewhat resemble the blooms of a *Stephanotis* or a *Jessamine*. The corolla salver-shaped, pure white, slightly tinted with pink below the limb, 2 in. in length, has five equal wavy lobes: the anthers are red, forming a deep rosy pink eye in the centre of the flower.

The next species named *Rhododendron* †*javanicum*, after the island in which it was discovered, Blume met with on Mount Salak, and Dr. Horsfield on the volcanic range extending through Java, in dense forests, at an elevation of 4000 ft. Received from Java through Thomas Lobb in 1845, with a much darker form previously introduced by Rollison; the flowers orange-coloured, ten or twelve in a head, here and there marked with red spots, have ten dark purple-coloured anthers.

Rhododendron javanicum was followed by a beautiful species *R.* ‡*Brookeanum*, also sent by Thomas Lobb, who met with it in Borneo, where it had previously been observed by Mr. Low. The name was given in honour of Sir James Brooke, the distinguished Rajah of Sarawak, in whose territory it was discovered. The first flowers produced by this species in 1855, when sent to the Royal Horticultural Society's Show, attracted great attention. In its native country epiphytal on trees overhanging water-courses, the plant, when lit by the sun's rays, is a gorgeous sight: closely allied to *R. javanicum*, it differs in having a crisped margin to the petals, more prominent stamens, and broader petioles to the leaves. There are two varieties, one having yellow flowers of slender growth received the varietal name *gracile*, whilst the other, as the typical form, has a more robust habit of growth and flowers of a full orange or buff-yellow colour.

* *R. jasminiflorum*, Bot. Mag. t. 4524.

† *R. javanicum*, Bot. Mag. t. 4336.

‡ Low in Jour. R.H.S. vol. iii. p. 82 with fig.; Gard. Chron. 1855, p. 454 with fig. Bot. Mag. t. 4935.

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In 1855 Thomas Lobb sent a species with small cerise-crimson flowers from Sumatra, subsequently found to be the species *Rhododendron* *malayanum of Jack, figured in the Botanical Magazine with the following remarks:—"Dr. William Jack, of the late East India Company's Service, a very able botanist and author of 'Malayan Miscellanies,' was the first to make known this fine plant (in about 1823) which he discovered on the summit of Gunong Bunko, a remarkably insulated mountain, commonly called by the Europeans the Sugar-loaf, in the interior of Bencoolen, Sumatra. Dr. Jack observed of this mountain that, though estimated at only 3000 ft. in height, the character of its vegetation is decidedly alpine, which he attributed to the form and consequent exposure of the sharp conical peak. *R. malayanum* has since been gathered repeatedly on Mount Ophir, Malacca, at an altitude of 4000 ft., and is clearly the same plant as the Javanese *R. tubiflorum*.

"The Celebes Island *R. celebicum* differs only in the paler under surface of its leaves, and was originally introduced by Lobb in 1854, probably from Borneo where he was travelling: as that indefatigable collector had already visited Mount Ophir, whence he had sent excellent dried specimens, now in the Hookerian Herbarium, it is probable that the Bornean habitat is a mistake."

The plant is said to form a shrub or small tree with elliptic or elliptic-lanceolate leaves 3 to 4 in. long; the flowers, in terminal few-flowered umbels, are $\frac{3}{4}$ in. long by about $\frac{1}{2}$ in. across at the mouth, dull-scarlet or cerise-crimson in colour.

Curtis followed Thomas Lobb as collector in the East, and sent home many plants, amongst them being two new species of *Rhododendron*, named respectively *R. †Teysmanni* and *R. ‡multicolor*.

Rhododendron Teysmanni, a lax shrub, is a native of Penang and Sumatra, with golden-yellow flowers $2\frac{1}{2}$ in. in diameter. Exhibited for the first time in flower in March 1885, a certificate was awarded.

Though not in itself a first-class garden plant, the flowers reflexed and the trusses small, *R. Teysmanni* has for cross-breeding proved one of the best, and entered largely into the present race of hybrids.

Rhododendron multicolor is distinct from the Malayan species in the form of its funnel-shaped corolla, and approaching *R. citrinum*, differs from that species in the absence of calyx-lobes, and in the possession of twice as many stamens. The most marked characteristic of the species is the great variability in the colour of the flowers, in the type yellow, and in the variety § *Curtisii*, rich crimson.

This last-mentioned received a First Class Certificate at the meeting of the Royal Horticultural Society on November 13th, 1883, when it was greatly admired.

HYBRIDS.

From the fore-mentioned seven species of *Rhododendron*, all of which are natives of the various islands of the Malay archipelago, there have been produced, by hybridizing and cross-breeding in a variety of ways, several hundred new

* Bot. Mag. t. 6045.

† Bot. Mag. t. 6769.

‡ Bot. Mag. t. 6850, as *R. javanicum*, var. *tubiflora*.

§ Fl. and Pom. 1884, p. 113.



RHODODENDRON JAVANICO JASMINIFLORUM
"NE PLUS ULTRA"

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forms, many, from a horticultural standpoint, exceed the original species in brilliant and varied colours, large size of truss and individual blooms, compact habit of growth, and the ease with which they can be cultivated.

A classic paper by Professor Henslow, on the Hybrid Rhododendrons raised in the Veitchian houses, read before the Royal Horticultural Society and afterwards printed in the *Journal*, vol. xiii. pt. ii. (1891), contains a full account of the various hybrids, with their genealogies, and the various phenomena exhibited by them as the result of cross-breeding and hybridizing. To this paper we are largely indebted for much of the following information.

With regard to the colours of the flowers of the original species, Professor Henslow remarks:—"They are all reducible to two, yellow and rose-red. The former is produced by the presence of yellow granules scattered within the cells of the epidermis or underlying tissue, while the reds are due to various degrees of concentration of the coloured fluid, both in individual cells, as well as by superposition of cells containing the rose-coloured fluid. The buffs or orange-colours are due to combinations of the pink fluid with yellow granules, either in the same cell, as occurs in some epidermides, or in adjacent cells, as occurs in orange-coloured anthers examined. If there be a pink throat with a yellow or orange border to the corolla, this is due to the epidermal cells containing a more concentrated solution of the pink fluid."

"The first hybrid raised was named Princess Royal, the product of a cross between *R. jasminiflorum* (white) and *R. javanicum* (yellow), and the result is remarkable. The flowers of Princess Royal show no trace of yellow, but are of a delicate pink or rose colour. Another hybrid produced later from the same cross, named *jasminiflorum carminatum*, resembles Princess Royal in all but colour, which approaches crimson. By combining Princess Royal (pink) with one of its parents (*jasminiflorum*, white) a white-flowered variety was produced, which received the name of Princess Alexandra."

"The dissociation of colours by crossing, in other plants, may give rise to a striped, flamed, or blotched appearance, as in *Calceolaria*, and in some varieties of the Snapdragon: but this has never occurred in these Rhododendrons. Sometimes, however, the flower has the interior of the tube or throat of a more strongly tinged hue than the lobes, and *vice versa*."

Our *employé*, the late George Taylor, accomplished much with the species of this genus, and raised several excellent varieties. His first success, named *Duchess of Edinburgh, a scarlet-flowered hybrid from *Rhododendron Lobbii* crossed with *R. Brookeanum*, was exhibited at the Royal Horticultural Society's meeting in March 1874, and distributed in 1877, in which year it was figured and described in Messrs. Veitch's Plant Catalogue. A seedling, named in compliment to its raiser †Taylori, was sent out the same year, a pink-flowered variety of the third generation, the parents Princess Alexandra (white) and *Rhododendron Brookeanum*, a Bornean species with bright yellow flowers.

In 1879 two new varieties were distributed, named respectively Duchess of ‡Teck and §Prince Leopold. The first resulted from crossing Princess Royal with *Rhododendron Brookeanum*, and produced flowers of a light buff-yellow,

* Fl. and Pom. 1874, p. 145, col. pl.

† Veitch's Catlg. of Pl. 1877, p. 19, fig.; Fl. Mag. 1877, pl. 242.

‡ Veitch's Catlg. of Pl. 1879.

§ Fl. and Pom. 1876, p. 145.

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shaded with orange-scarlet. *R.* × *Prince Leopold*, from *R. Lobbia*, a Bornean species with red flowers, and *R. Brookeanum*, had flowers of fawn suffused with rose, deepening in intensity towards the centre.

Duchess of Connaught, from the same parents as *Prince Leopold* and Duchess of Edinburgh, was sent out in 1882, the flowers, in shape those of the Duchess of Edinburgh, but the colour a rich glowing red.

From the commencement of hybridizing experiments with this genus up till the year 1882, the following varieties, as well as those already mentioned, had received certificates of merit from the Royal Horticultural and Royal Botanic Societies:—

Queen Victoria (*R. Lobbia* × *R. Brookeanum*), Princess Frederica (*Princess Royal* × *R. Brookeanum*), **Maiden's Blush* (*Princess Alexandra* × *R. Brookeanum*), *Excelsior* (*Princess Royal* × *R. javanicum*), *Monarch* (*Princess Alexandra* × *Duchess of Edinburgh*), *Favourite* (*Princess Alexandra* × *R. javanicum*), *Crown Prince of Germany* (*Princess Royal* × *R. Brookeanum*), and *Aurora* (*Crown Prince of Germany* × *R. javanicum*). These hybrids were all raised by John Heal, who received charge of the *Rhododendrons* on the retirement of George Taylor. All possess large flowers, varying much in colour and form.

Heal's great success was achieved when varieties appeared with double flowers, which now constitute what is known as the *Rhododendron* † *balsamæflorum* hybrids. This section originated by impregnating the stigma of a flower which had one of the filaments slightly petaloid, the others being normal, with the pollen from its own anthers:—self-fertilization. From the seed capsule which resulted, about twenty plants were raised, and when these flowered they were found to produce double or semi-double blooms. The section received the name of *balsamæflorum* from the resemblance the flowers bore to those of the double *Balsams*.

The colours of the offspring show great variety, from white and pink to dark red or crimson, from pure yellow to various shades of orange; the foliage is also very variable, and frequently there is a want of symmetry between the two halves of the leaf-blade. The principal seedlings in this section are named *album aureum*, *roseum*, *carneum*, indicating the colour, and the handsome *Rajah*, with bright fawn-yellow segments tinted with rose towards the margin.

The *balsamæflorum* hybrids cross with other *javanico-jasminiflorum* hybrids or with species, but in all cases the progeny have single blooms, and the tendency to petaloidy is apparently overcome by the natural vigour of the true species or crosses.

In 1886 *Favourite* and ‡ *Lord Wolseley* were sent out. The former, a hybrid of the third generation, from *Princess Alexandra* (white) crossed with *Rhododendron javanicum* (orange-yellow), has flowers of a satiny rose colour, with a white tube and crimson filaments. *Lord Wolseley* raised from *Duchess of Teck* (buff-yellow) and *R. javanicum* (orange-yellow), has flowers of an orange-yellow, tinted with rose at the margin, in large trusses.

In the year 1887 *Rhododendron album* and *R. aureum* of the *balsamæflorum* section were distributed, and also a new single-flowered variety, a cross between

* *L'Horticulture Belge*, 1888, p. 141, col. pl.

† *Fl. and Pom.* 1883, p. 31.

‡ *Veitch's Catlg. of Pl.* 1886.

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Crown Prince of Germany and *R. javanicum*, called President. The flowers of this last-named resemble those of *R. javanicum*, but are an improvement, to be preferred for decorative purposes. These varieties were followed in 1888 by *R. × balsamæflorum carneum*, *R. × jasminiflorum carminatum*, and Princess Christian (*Princess Frederica × R. javanicum*), the last-named remarkable for large trusses of bright nankeen-yellow flowers.

Rhododendron × luteo-roseum distributed in 1889, as the name implies, had flowers satiny rose, toned with yellow,—a very charming tint.

Rhododendron × balsamæflorum Rajah, sent out in 1890, is well figured in the Plant Catalogue for that year. The figure typical of the whole of the *balsamæflorum* section, shows a high decorative value, but no mere picture can convey an idea of the durability of these flowers, perfect for several weeks, and, when cut, surpassing in lasting qualities many commonly grown plants. *Souvenir de J. H. Mangles* was distributed the same year, and figured in the same issue of the Catalogue of Plants. Derived from Crown Prince of Germany and *R. javanicum*, it was named in compliment to the late distinguished amateur of Rhododendrons, to whom experiments with his favourite genus were a source of great interest.

The varieties *Ophelia* (light-rose), *Brilliant* (brilliant scarlet), and *Aphrodite* (blush-white) sent out as novelties in 1890, were followed in 1891 by *Minerva* (nankeen-yellow) *Militaire* (orange-scarlet) and *Princess Beatrice* (yellow suffused with pink).

In 1893 appeared the superb variety **Exquisite*, which originated from crossing the two species *Rhododendron javanicum* and *R. Teysmanni*. The flowers produced by this hybrid, nearly 3 in. in diameter, have a short broad funnel-like tube. The colour toned with a faint fawn-yellow with a slight tinge of rose-pink in the centre of each segment, bright crimson anthers, add greatly to the beauty of the cross.

With this novelty there were also described in the Catalogue upwards of fifty others then in cultivation, including such fine forms as †*Ceres*, ‡*Primrose*, §*Minerva*, ‡*luteo-roseum*, and ‡*R. jasminiflorum carminatum*.

All the hybrids mentioned are the products of crosses between the five species *Rhododendron jasminiflorum*, *R. Lobbii*, *R. javanicum*, *R. Teysmanni*, *R. Brookeanum gracile*, and their offspring, but, with the introduction of *R. multicolor* from Penang through Curtis, fresh material came, which proved invaluable; promptly used in connection with the best forms of the javanico-jasminiflorum hybrids, many varieties, the flowers of which, though inferior in size to the last named group, are unparalleled in brilliance and depth of colouring.

Professor Henslow remarks with regard to the form of the small-flowered *Rhododendron multicolor*, that whenever this species is crossed with any other, or a descendant of them, it universally reduces the size, so that the offspring, though intermediate, are nearest to that of multicolor. The short funnel-shaped tube is more or less traceable in all offspring of the multicolor section.

One of the most beautiful of multicolor hybrids, that named Mrs. Heal is

* The Garden, 1889, vol. lvi. pl. 1232.

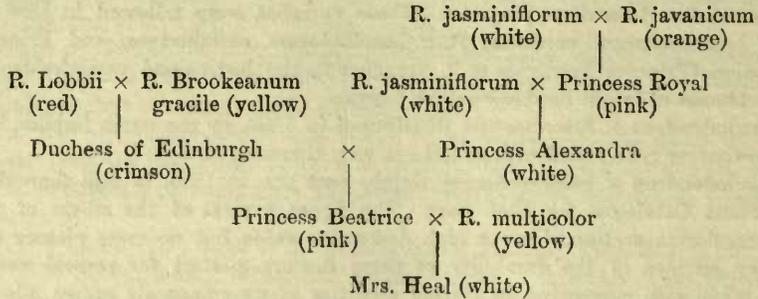
† The Garden, 1892, vol. xli. pl. 845.

‡ The Garden, 1892, vol. xli. pl. 852.

§ Cassell's Dictionary of Practical Gardening, vol. ii. p. 270, pl. 16.

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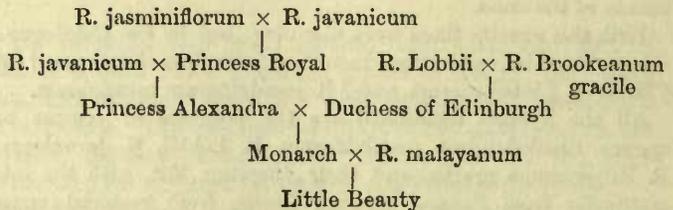
one of the fourth generation, and a combination of five distinct species. Its genealogy is as follows:—



The flowers produced by Mrs. Heal are of a delicate pure white, funnel-shaped, and nearly 2 in. in diameter, and other distinct varieties belonging to the multi-color series are Ruby (*R. jasminiflorum carminatum* × *R. multicolor Curtisii*), dark coral red; *Rosy Morn, soft rose-pink, Latona, cream-yellow, Neptune, brilliant scarlet, *Hippolyta, crimson, and *Virgil, yellow.

The Malaysian species, with small cerise-crimson flowers, *Rhododendron malayanum*, has also been used as a parent, the result a charming variety † Little Beauty, which, apart from its interesting pedigree, has many excellent qualities, not the least the compact habit of growth; a fit subject for a small structure where the larger-growing varieties cannot be used.

Little Beauty is the product of a cross between the javanico-jasminiflorum hybrid known as Monarch and the Sumatran species *Rhododendron malayanum*, containing a combination of five species, and consequently a hybrid of the fourth generation. Its pedigree is as follows:—



The flowers are of a uniform-growing carmine-scarlet tint, the tube being somewhat less than 1 in. long, the segments of the limb spreading to little more than the length of the tube. It is one of the most brilliant of all *Rhododendrons*, and has the further advantage of a dwarf and compact habit.

Difficulty was found in crossing the East Indian section with the Sikkim and American species. Success, however, after many attempts was ultimately obtained by crossing *R. Aucklandii*, a Sikkim species with white flowers, with Princess Royal (*R. jasminiflorum* × *R. javanicum*), a pink-flowered hybrid, the former being the pollen parent. The result was a small white-flowered cross called Pearl, as the male parent had eliminated the pink colour from Princess Royal, scarcely affecting the shape or size of the flower, and leaving a hybrid closely resembling Princess Alexandra.

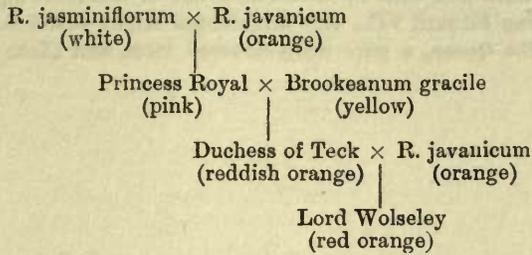
* The Garden, 1892, vol. x. lii. pl. 871.

† The Garden, 1889, vol. lvi. pl. 1241.

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Another interesting cross resulted from a variety of the Indian Azalea Stella with Lord Wolseley, a javanico-jasminiflorum hybrid, the latter being the female parent. This bigeneric hybrid did not flower until it was six years old.

Professor Henslow gives the following account of this hybrid in the paper above referred to:—"The female parent is of the third generation, the descent being as follows:—



"The male-parent has a dark rose-coloured corolla, with crimson spots over the upper petals. The corolla of the cross is smaller than that of either parent, having a broadish, nearly straight tube, slightly bulging above; the lobes of the limb are much shorter than is the case with either parent. The colour is a rather redder orange than that of the female parent; the anthers are crimson, as well as in both parents. With regard to the foliage of the cross, though smaller in size, the leaf agrees, both in form and anatomical details, with that of the Rhododendron or female parent in every detail of importance. The leaf of Azalea is markedly different, being obovate instead of lanceolate; toothed, and not entire; covered with fibrous hairs instead of being glabrous above, with minute peltate scales below; the cell-walls of the epidermis being sinuate instead of straight; and the proportion of stomata being less than in the Rhododendron as well as the cross.

"The hairs of the Azalea are very peculiar in structure. They grow on the branches, petioles, midrib, and veins below, and are generally scattered over the upper surface of the leaf. They are composed of numerous fibres resembling short libre-fibres, graduated in length so that the longest form the point of the hair, like a fine camel's-hair brush.

"With regard to a dwarf Sister-plant (this plant is now twenty-one years old, but does not exceed five inches in height:—it has never flowered), the anatomical details exhibited a very considerable amount of arrest of structure, the number of cells, in consequence of their minute size, being nearly twice that of the Rhododendron in the same area, with fewer stomata. It also agreed in most other respects both with the sister-cross as well as with the Rhododendron, except that the shape was more elliptical, and possessed glandular hairs instead of scales. It is observable that this case followed the supposed rule in so far as that the female parent gave its likeness to the foliage. Of the numerous hybrids and crosses raised by Messrs. Veitch, amongst these seven East Indian species, the above rule was found to fail very generally, in that each parent would impart certain peculiarities either to the flowers or leaves, according to its own prepotency, but the cause of such power is unknown."

The great value of the javanico-jasminiflorum hybrids for the decoration of conservatories, corridors, and for cut bloom, is now generally recognized, and

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provided a sufficient number of plants be grown, it is not difficult to have flower throughout the year. This perpetual-flowering property was demonstrated in 1897, when at every fortnightly meeting held by the Royal Horticultural Society, throughout that year, a tray of cut blooms from the collection at Chelsea was exhibited.

Many of the early hybrids, which, on their first appearance, were valued as improvements, have now been discarded in favour of still more highly developed varieties, as King Edward VII., with magnificent bright yellow flowers borne in bold trusses, The Queen, a pure white-flowered form, and Cloth of Gold, pale yellow.