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The two following vrieseas are hybrids:

- V. Van Geertii Hort. Duval. A dwarf plant developing a stem that is quite short, terminated by an oblong, narrow spike formed of bracts that are yellowish at the base and on the interior edge, red on the exterior side.
- V. retroflexa (V. psittacina-scalaris) Hort. Floral stem pendent, very long, carrying 12-15 flowers, widely spaced; bracts red at the base, yellow at the top. A plant for hanging containers.

#### HYBRIDS OF THE VRIESEAS

These species which we have just described provided (when crossed among themselves) all the hybrids obtained until 1930. In 1882, the first hybrid was produced when E. Morren crossed *V. psittacina* with *V. carinata*. In 1888, Duval's first hybrid appeared. It would be followed by a number of others of top quality. In 1889, Truffaut, at Versailles, Makoy, and Maréchal, chief gardener of the Jardin Botanique de Liège, produced their first innovations. Finally, during these last years, and with outstanding success, M. Charles Chevalier, Conservateur Honoraire of the Jardin Botanique de Liège, created numerous and superb varieties. It is, therefore, to Liège and to Versailles that we owe almost all of the known magnificent hybrids.

Of all these hybrids—about fifty—obtained between 1882 and 1894, only one, the V. kitteliana Wittmack (V.  $barilletii \times V$ . saundersii) has a branched floral stem.

The important role played by certain species is noteworthy. For example, *V. barilletii* is found in 15 crossings, *morreniana* in 12, *duvaliana*, *splendens* and *psittacina* in eight, *morreno-barilletii*, and *fulgida* (Duval) in seven, *incurvata* in six.

From 1895 to 1938, about sixty other hybrids were created and among them, a good half had a branched floral stem.

OBSERVATION—The hybrid *V. viminalis rex*, produced at Ghent, was probably the same as the *V. viminalis erecta* that answers to the same description: a vigorous plant, strong floral stem, erect, carrying several fat spikes with bracts that are often red, sometimes yellow or orange. M. Charles Chevalier, in his *Etude sur les Tillandsiées*, considers the name *viminalis* erroneous. Indeed, the *V. viminalis* E. Morren is quite different. It has a single spike, narrow, with green bracts, on a long, frayed-out floral stem, and of poor lasting qualities. Could it, by having been fertilized by *V.* Rex which has a voluminous and brilliantly colored, but single spike, have produced a hybrid with the large, branched and colored inflorescence such as in question? One could answer that *V. rodigasiana*, with green bracts, fertilized by this same *V.* Rex, has produced *V. vigeri*, red like the sire, and which, itself, also transmits its vivid coloration to its descendants. But, *V. rodigasiana* has a branched stem. There is nothing changed here but the color, not the form, and it is extremely rare that two species with a single spike, crossed between themselves, produce a branched spike.

However that may be, this *V. viminalis rex*, much cultivated in Ghent, is a very beautiful plant, but one can find fault with the extreme heaviness of rigid and too upright spikes. The stiffness of the inflorescence takes away much of its grace....

The branched floral stems are much more elegant whenever the spikes are less broad and less stiff as is generally the case among the hybrids of V. Poloniavigeri and vigeri major, kitteliana, and saundersii.

It should be noted that in this last series of hybrids, vigeri occurs ten times as the parent, Mephisto eight times, Rex seven, witteana six, barilletii and incurvata five times.

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## A Selection of Some Hybrids.

It would take too long to give the description of each one of these hybrids. Let us be content with describing in summary 12 varieties with a single spike and 12 with a branched stem, each series composed of plants as varied as possible in size and color. Most have already served in some hybridizations, the others appear capable of giving fertile results in the crossings to come.

## Varieties with a single spike:

- V. Aurora Maréchal (V. morreniana × ensiformis), stem upright, 60 cm high, flowers widely spaced, of a beautiful, bright orange-red color. Rare coloring.
- V. brachystachys major Maréchal (V. morreniana × barilletii). Medium sized plant, spike broad and compact, with bracts red at the base, yellow at the top. Could be likened to V. closoniana and V. leodiensis to which it is very similar.
- $\bullet$  V. cardinalis Duval (V. brachystachys  $\times$  krameri). Small plant, beautiful, upright, scarlet spike.
- V. Gemma Duval (V. morreno-barilletii × fulgide (Duval). Small plant, short, fat spike, bright red.
- V. leopoldiana Maréchal (V. splendens × malzinei). Very distinctive, brown leaves, long spike with red-brown bracts.
- V. morreniana Hortus ex Morren (V. psittacina × brachystachys). Mediumsized plant, bracts vividly colored with red and yellow.
- V. Menelik Maréchal (V. witteana × Baron de Sélys). Strong plant, short, thick spike, bracts violet-red, almost black.
- V. Mephisto Maréchal (V. barilletii × brachystachys), broad spike, very upright, with blood-red bracts.
- V. poelmanii Duval (V. gloriosa × V. Van Geertii). Very much cultivated; medium-sized plant, strong spike, bracts bright red.
- V. Rex Duval (V. morreno-barilletii × cardinalis). Large spike, 25 cm tall, 6 cm broad, scarlet bracts.
- V. rubens Maréchal (V. conferta × leodiensis). A thick-set plant, spike of mahogany red, separate bracts.
- V. Wallonia Chevalier (V. leodiensis × Van Geertii). A vigorous plant, spike 45 cm long, red bracts, tinted with yellow.

### Varieties with branched stem:

- V. Africain Chevalier (V. lubbersii × Mephisto). Strong stem, bracts dark purple, almost black.
- V. Belgica Chevalier (V. kitteliana × vigeri). Strong stem, yellow bracts.
- V. Boduonnat Chevalier (V. Administrateur Dehalu × vigeri). A strong plant, stems well branched, orange-red, spaced bracts.
- A. crousseana Maréchal (V. warmingii × amethystina). A strong plant, leaves marbled brown, yellow bracts.
- V. Louis Dutrie Chevalier (V. poelmanii × splendens). Medium sized plant, stem 50 cm long, bright red bracts.
- V. kitteliana Wittmack (V. barilletii × xaundersii). Leaves stippled with brown at the base, bracts brown-red.
- V. Pax supérieur and Pax superba (V. Pax × rexaundersii). Stem well branched, red bracts.
- V. Polonia Chevalier (V. kitteliana × vigeri). Strong plant, medium sized, well branched, red bracts, carmine at the base.
- V. Prince Charles Chevalier (V. kitteliana × vigeri). A strong plant, well branched, bracts salmon red.
- V. Prince Léopold Chevalier (V. kitteliana × vigeri). Plant rather large, spaced bracts, salmon, flushed with yellow.
- V. vigeri Duval (V. rodigasiana × cardinalis). A small plant, very interesting, space bracts, cardinal.
- V. vigeri major, origin not determined; plant a little more robust, abundantly branched, bracts bright red.

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Hybrids recently obtained, New crossings.

Several horticulturists of Ghent have worked in the course of these past years particularly with the species having decorative foliage, whether among themselves or with the species having flowers. The results obtained have certainly been interesting, but the dream of bringing together in the hybrids the characteristics of the two parents has not been fully realized.

We know of only one crossing that has given such results; it is the one by M. Chevalier of V. Mephisto by V. pastuchoffiana. The hybrid has retained the decorative foliage (the fine network of dark green lines) of the sire completely while improving the color of the bracts which, from the brown of pastuchoffiana, has passed to the blood-red of "Papa Chevalier," the name given by the originator to this new hybrid. With me, the crossing of V. pastuchoffiana by V. viminalis rex produced plants where the transverse lines were hardly apparent, with flowers of little interest.

M. R. Morobé obtained from V. hieroglyphica  $\times V$ . viminalis rex a beautiful hybrid to which he gave the name of V. intermedia (Morobé non Hort. leod.). It is a quite robust plant, it looks like V. hieroglyphica, with broad leaves where the blackish brown zones of the mother are replaced by the fine, wavy, but very clear, dark, brownish green lines, equidistant, less closely drawn together than in V. pastuchoffiana but much more connected. The floral stem, strong and very upright, carries as many as 12 secondary spikes, rather narrow, 10-12 cm long, semi-upright, with bracts of a brown-red, more or less bright. The first specimen of this crossing displayed at the meeting of May 1, 1944 was rewarded with a Certificat de Mérite, by acclamation. Under the name of V. intermedia pax, another received on July 1, 1945 a Certificate de Mérite, first class.

M. Piens, of Gentbrugge, pollinated V. hieroglyphica with V. splendens major. It is curious that the plants obtained had the same appearance and the same transverse lines as the V. intermedia of M. Morobé. The plant and its floral stem appeared, however, a little less strong. The inflorescence, less branched, had upright spikes and dark, brown-red bracts. Nothing about it recalled V. splendens.

With the goal of obtaining a type of *V. fenestralis* with red flowers, I had pollinated this species with *V. poelmanii* and with *V. viminalis rex* in 1937. In a lot of about forty plants that flowered, eleven had flowers that were cherry-red, a spike strong and longer than those produced normally by *V. fenestralis*. The plants were, in general, visibly stronger than the mother, but the variegation of the leaves, although still very apparent, was, however, much less distinct and brilliant than I had wished for. The results seemed to me, however, sufficiently interesting to call to the attention of M. Chevalier who must remember it.

I had given one of these plants to MM. Bier, of Melle, who used it to pollinate a *V. saundersii*. The plants are still small but show already many different characteristics. Some cannot be distinguished from *V. saundersii*, others, much stronger, are clearly different. They are of a brilliant red-brown, darker on the reverse side, or of the gray-green of *V. saundersii*, but with large violet-red dots on the upper surface and brown on the underside. At this time, the cross-lining of *V. fenestralis* is not apparent. It seems at present, that we shall have some plants with interesting foliage. As for the flower, we shall see later.

The crossing by MM. Bier of *V. splendens major* with *V. tesselata* gave plants that are still young scarcely a dozen centimeters in height, which have all the characteristics of *V. splendens major* but are perceptibly stronger than those coming from the same mother plant, but not crossed.

Vriesea fenestralis with red flowers has been pollinated with V. tesselata. Since those two species are very similar as to type of variegation, one could expect hybrids to be very much like the parents. This seems, actually, to be the case, the young plants seeming to be lined and striped with brown.

Among the species with flowers, M. Ch. Spae, of Melle, having pollinated V. Polonia with V. viminalis rex, obtained some similar intermediate plants like V. Polonia in size and like V. viminalis rex in flowers. Their spikes however, were a little less heavy and of a very beautiful bright red color. The appearance of the plant and of the floral stem is excellent in spite of a little heaviness inherited from the mother.

M. R. Morobé displayed a group of hybrids of *V. viminalis rex* × *V. psittacina coccinea* at the meeting of November 4, 1945. The plants, in spite of the rather large size of the mother, hardly exceeded that of the sire. They are, however, of a darker green and of better appearance. The floral stems, very erect, carry single spikes that are very compact, with bicolored or red bracts, in general, of a bright and vivid color. A Certificate de Mérite was awarded by acclamation.

A specimen from this group of seedlings presented separately under the name of *V. coccinea*, and particularly brilliant, was awarded a Certificat de Mérite, first class.

## PERSONAL HYBRIDS OF VRIESEAS

After having pointed out and described the best hybrids obtained principally at Liège and Versailles, I believe it will be permitted me to speak of the attempts I have made in my greenhouses.

In 1935, I began planting seed obtained from hybridizations made in 1934. I stopped proceeding with these crossings in 1944 only for a very good reason.<sup>1</sup>

I carried out more than 100 plantings issuing from those crossings between species and hybrids of the most diverse kinds. I shall describe here the results obtained. Many other crossings had been made but, for the same reason, I was not able to harvest the seed.

In December 1938, I displayed at the meeting, under the names of V. pulchella and V. nitida, two hybrids of V.  $brachystachys \times V$ . cardinalis, small plants with a spike about a dozen cm long on a very erect stem of 25 or 30 cm, the first with light red bracts, the second, red, flushed with yellow (if I remember rightly), forming pleasing miniatures quite superior to the classic V. brachystachys. Each of them was awarded a Certificat de Mérite with congratulations.

Two months later, the 5th of February 1939, I displayed a third product of the same crossing that I had christened *V. medio rosea*. It was a charming plant with a flower of the most delicious color. On a rose-colored stem of 35 cm, the spike, somewhat triangular, 12 cm long, was rose at the base of each bract, this passing from rose at the base to red at the center and golden yellow at the top. I know of no other vriesea of which the color is so fresh and pleasant....

In October 1939, I displayed, without giving them a name, a group of six hybrids of V. Africain  $\times V$ . cardinalis. The plants, in rosettes of about 25 cm in diameter, carried floral stems very upright, rigid although slender, with spikes 12–15 cm long, all of different colors, going from rose to a red that was almost black....

From 1940 on, the flowering of the hybrids followed one another at an accelerated pace. In 1941–1942, about a hundred were in flower, many of which had branched stems. They ran the gamut in size, form, and color. I was, unfortunately, absent at the time of their most abundant flowering, but a good number flowered again after my return from France at the end of March 1942 and the flowering continued at a much slower rhythm, but without interruption, until April 1944.

It was difficult for me to establish the exact origin of many of these hybrids. During my absence, in the course of repotting and successive change of position of the plants, many labels were lost. It was, however, easy to recognize in the species with broad spikes and bicolored bracts, the descendants of *V. brachystachys major* and *closoniana*. They, crossed with *V. vigeri, V. vigeri major*, and *V. kitteliana* were, without any doubt, the parents of the branched bicolors of which I formed a group under the name of *V. polybrachystachys*.

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# VRIESEA HYBROS



Among these last, the position of the two colors, bright red and gold, corrected happily the dullness of the inflorescence of the spikes of the same width but of only one color. Other bicolors, having a less heavy spike, were obviously descended from V. Polonia or vigeri.

The species with a very large single spike up to almost a meter in length issued indubitably from V. Wallonia, the violets and blacks from V. Mephisto and V. Africain, and from V. kitteliana, and of the two vigeri, the hybrids had slender spikes of all shades.

Is it necessary to give names to all this mishmash? The task offers no difficulty. I have had a long list quite ready. But a name, even if descriptive, reveals very little of the plant. *Aurantiaca*, *violacea*, indicate, indeed, the color; *minima* or *excelsa* give an idea of the size, but nothing more. As for the proper names, one must evoke the recollection of an old unyielding Gaul, of a famous painter, or of a conquering negus at Adoua, without anything to teach us about the plant.

To avoid having to consult my notes every moment, I got the idea of replacing for the time being and for my personal account, the names by numbers, of which each figure, according to the place it occupies in the number, should recall one characteristic of the plant. The species with single spike were thus represented by a number of three figures. Those with a branched stem, by a number of four figures.

In both cases, the first figure classes the plants by order of size, 1 representing the smallest size, such as that of *V. brachystachys* of 10–15 cm in diameter, 2 indicates a diameter of 20–25 cm, 3 of 30–35 cm, approximately.

The second figure gives in decimeters the total height of the floral stem.

The third figure, for the species with a single spike refers to the color, following the scheme below:

1. Yellow

2. Orange

- 3. Light red, scarlet, cardinal
  4. Bright red to cherry red
- 5. Cherry red to purple

6. Violet or black

- 7. Bicolor, light red and yellow
- 8. Bicolor, cherry red and yellow
- 9. Bicolor violet or black and yellow
- 0. White.

For the plants with branched stem, the third figure gives the number of branches; the fourth refers to the color.

The simple reading of the label thus put, so to speak, the plant before my eyes. Reading, for example, 138, I saw a small plant with a single stem, of 30 cm in height, with cherry and yellow bracts. If I read the number 2553, I would instantly picture to myself a plant of about 25 cm in diameter, a floral stem 50 cm in height, carrying five branchings, and with scarlet bracts. These indications, even though brief, are amply sufficient for me.

I endowed with names, however, some characteristic hybrids, such as:

- No. 132 V. Aurora minor, a pretty, smaller edition of the beautiful hybrid, Aurora.
- No. 352-V. macrostachys, enormous red spike, flushed with yellow, attaining a length of 32 cm, and 8 cm in breadth, must be descended from V. poelmanni.
- No. 24252-V. tricolor, an issue from V. kitteliana  $\times$  V. medio rosea; the flower has the freshness of the latter. The rachis and base of the bracts are bright rose, the middle light red, the point yellow; the coloring very delicate.
- No. 2534—*V. roseo-salmonea*, of the same origin, rose in the center, salmon on the edges; the coloring of a great freshness. *[the author continues with four more examples.]*

DUTRIE 1946