

Unraveling a Rainbow

1. A Brief History of Vanda Hybridizing

No other genus of large-flowered orchids displays the diversity of color and patterns that modern vandas do. But how did this floral kaleidoscope come to be? The wealth of hues and markings reflect the contribution of genes from numerous species which often manifest themselves at five, six and more generations removed from their source. That hybridists have been able to develop qualities of color and marking in large flowers that are essentially *Vanda sanderiana* in shape and size is a monument to the power of selective breeding. This article and subsequent ones will seek to trace and analyze that process and, I hope, yield a fuller understanding of our modern hybrids and perhaps provide some insight into possibilities that would be of use to future hybridists.

Strap-leaf vandas were first bred in Europe, far away from the part of the world we associate with these colorful tropical plants. However, *Vanda tricolor* and *Vanda coerulea*, the species favored by early European hybridists, possess a cold tolerance that is lacking in many other *Vanda* species, most notably in *Vanda sanderiana*. The usefulness of this cold tolerance persists, as do the other qualities that these species transmit to their progeny. Much of the floriferousness and vegetative vigor of modern vandas trace their origins to these ancestors.

Vanda Tatzeri, the hybrid of *Vanda tricolor* and *Vanda sanderiana*, was registered by the Prague Botanical Gardens in 1919. This cross possesses true hybrid vigor

Creating Vanda Hybrids



and is an example of the floriferousness that made *Vanda* hybrids desirable.

Vanda tricolor is a robust and attractive plant. When well grown, it will flower three or more times per year and is more tolerant of cooler temperatures than any large-flowered *Vanda* except *Vanda coerulea*. Although the flowering season of *Vanda tricolor* is described best as indeterminate, there are definite strong seasons in which you can expect these plants to bloom. March through May is one of the periods of peak blooming activity and this fact is significant, not only for the commercial grower thinking of Easter and Mother's Day. *Vanda tricolor* blooms in spring in response to lengthening days and, hence, while somewhat indeterminate in its blooming season, behaves in large part as a long-day plant.

Vanda sanderiana, on the other hand, is a classic short-day plant, blooming only once in the fall to early winter on inflorescences initiated in response to the shortening days of late summer. When crossed with spring-blooming long-day plants, *Vanda sanderiana* produces exceptionally free-flowering hybrids, the classic example being the ascocendas which result from

¹Motes Orchids, 25318 S.W. 162nd Avenue, Homestead, Florida 33031.



The spring-blooming *Vanda tricolor* var. *suavis* produces numerous sweet-smelling flowers on long inflorescences, as seen in the photograph by C. E. Poulsen above.

The distinctive flowers of *Vanda tricolor* var. *suavis* bear vivid red-purple spots and a two-toned purple lip, as seen below in a close-up photograph by Martin Motes.



crossing *Vanda sanderiana* (and its hybrids) with the long-day ascocentrums.

The effect is the same when *Vanda sanderiana* is crossed to spring-blooming vandas. *Vanda Tatzteri* succeeds in this admirably well. *Vanda tricolor* contributes sufficient vegetative vigor to make plentiful leaf axils for numerous inflorescences. This energy doubtless was appreciated in Europe, which is hardly the most hospitable climate for vandas. But it was to find its true apotheosis in the tropical gardens of Hawaii and Southeast Asia.

The flowers of *Vanda Tatzteri* are intermediate between the two parents but strongly favor *Vanda tricolor*, which contributes its heavy substance and more open shape as well as its distinctive spots. The *Vanda sanderiana* color influence is present in the lateral sepals and in the fuller sepals and pet-

als. The *Vanda tricolor* contribution of color as a yellow background and its deepening and enriching of the *Vanda sanderiana* browns with a red tone made the flowers of *Vanda Tatzteri* appear even more distinctive to early orchidists who were, of course, unaware of the color of the improved, modern forms of *Vanda sanderiana*. The vivid color of *Vanda Tatzteri* contributes to the breeding lines of nearly all modern pinks and to the dark purple-blues as well.

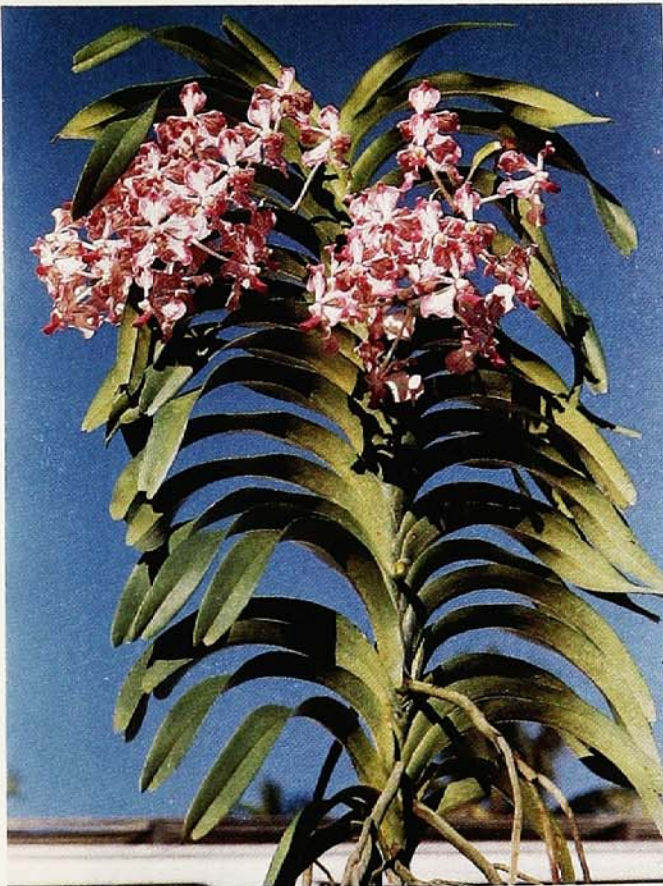
When the highly desirable *Vanda tricolor* var. *suavis* (formerly considered a distinct species) was crossed with *Vanda sanderiana*, the result was *Vanda Burgeffii*, registered by the Munich Botanical Gardens in 1928. Although *Vanda tricolor* var. *suavis* is said to grow in nature intermingled with the yellow-red forms of *Vanda tricolor* and

although its lip structure is virtually identical, var. *suavis* is sufficiently distinctive to make its separation from the typical forms understandable. Benjamin Samuel Williams in *The Orchid-Grower's Manual* (7th edition, 1894) called *Vanda tricolor* var. *suavis*, "A truly magnificent species . . ." The attitude of early orchidists toward it is reflected in his comment, "So noble and sweet a plant should find a home in every Orchid collection." An assessment still true today.

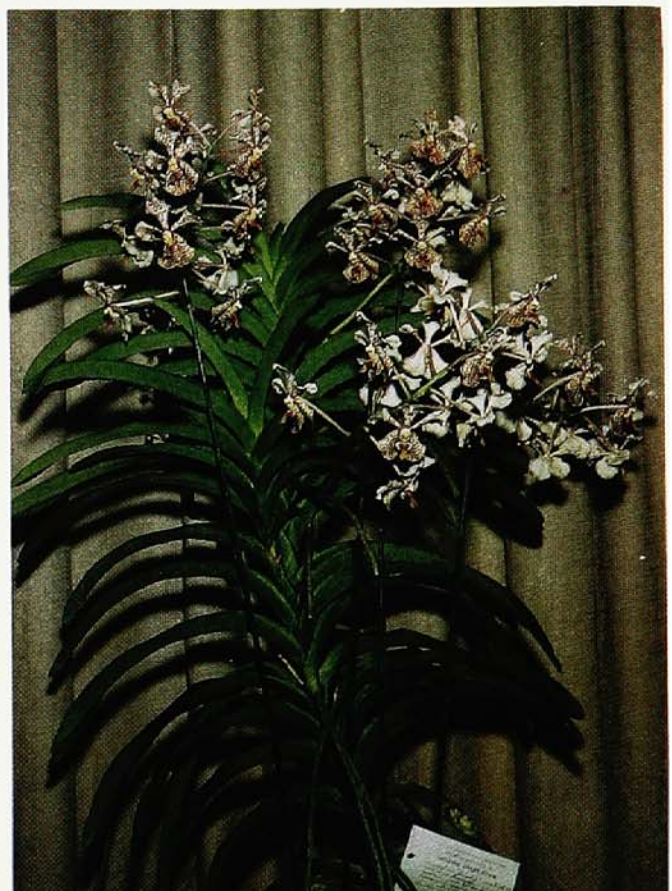
Vanda tricolor var. *suavis* produces nearly pure white flowers with vivid spots of purple-red and a distinctive two-toned purple lip. They are carried on long inflorescences of 14 or more 3½" flowers. The beauty of these flowers, coupled with the form's strong tendency to bloom in spring, make this variety particularly desirable to hybridists.

Clearly, *Vanda Burgeffii* was an attempt to capture these qualities in a fuller flower of yet greater vigor. At its best, *Vanda Burgeffii* can be described as a bright pink flower heavily spotted with rich chocolate brown which, as in *Vanda Tatzeri*, is neatly arranged in the lateral sepals in a pattern that echoes — but does not exactly reproduce — the masking of *Vanda sanderiana*. Your first impression of *Vanda Burgeffii* is of a vivid, small-flowered form of *Vanda sanderiana* carried more gracefully on a better-arranged stem. *Vanda Burgeffii* brings the color and graceful stem of *Vanda tricolor* var. *suavis* into many modern hybrids.

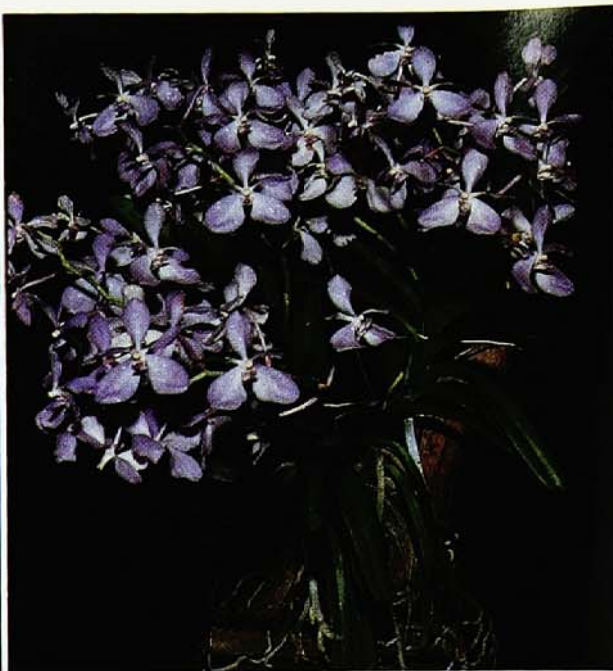
The interest of early European hybridists in *Vanda tricolor* and var. *suavis* also is manifest in *Vanda Gilbert Triboulet*, registered in 1919 by Dr. Jean Gratiot, and in *Vanda Herziana*, registered by P. Herz in



Vanda Burgeffii (*sanderiana* × *suavis*) was registered by Germany's Munich Botanical Gardens in 1928. The cultivar 'Wisenuer', CCMAOS (81 pts.) shown below was exhibited by L. C. Wisenuer of Miami, Florida, on October 9, 1957.



The Munich Botanical Gardens registered *Vanda Faustii* in 1934. It is a hybrid of *Vanda Gilbert Triboulet* and *Vanda luzonica*. The specimen shown above was grown by Alberts & Merkel Bros., Inc. and photographed by Jean Merkel on November 25, 1954.



Early cultivars of *Vanda* species were very different from the superior nursery-raised clones we have today. Two species were more influential than any others in *Vanda* breeding. *Vanda sanderiana* from the Philippine island of Mindanao is shown at left in a photograph by William H. Moore, M.D. The "blue"-flowered Southeast Asian *Vanda coerulea* is illustrated at right by the cultivar 'Beatrice', CCMIAOS (82 pts.), exhibited by Mrs. A. E. Sackett of Miami, Florida, on December 14, 1955.

1921. These hybrids combine *Vanda tricolor* and *Vanda tricolor* var. *suavis* with *Vanda coerulea*.

Vanda coerulea was regarded by early orchidists as the finest of the *Vanda* species. Its long scapes of large flowers and wonderful color, coupled with its cold tolerance, made *Vanda coerulea* the premier parent of *Vanda* hybrids during the early years. Combined with *Vanda tricolor* and var. *suavis*, the result is long stems of intensely colored flowers. The color dominance of *Vanda coerulea* produces wonderful shades of blue-purple clearly distinct in a polka-dot pattern contributed by the *Vanda tricolor* parents.

Vanda Gilbert Triboulet and *Vanda* Herziana are strikingly attractive plants that are still worth growing and even more worth recreating with new and improved forms of *Vanda coerulea* to yield larger, fuller and brighter polka-dot flowers. The possibility of creating primary *Vanda coerulea* hybrids of this type of the quality that we have seen

in primary hybrids with *Vanda sanderiana* types should be irresistible to breeders seeking new color types in vandas.

The potential of this line of breeding is illustrated in *Vanda* Mary's Dimity 'Mary's Dimity' (Hilo Queen × Monacensis), shown on the front cover of this issue. The vivid markings and graceful habit of this cross is the result of the combined influence of *Vanda* Gilbert Triboulet and *Vanda* Burgeffii in the *Vanda* Monacensis parent. Richard D. Mizuta, the originator of the cross, kindly gave me permission to register this grex after my clone received a Highly Commended Certificate from the American Orchid Society. The unusual grex and varietal epithet came to be because my wife, Mary, always referred to this cross as her "dimity ones." They reminded her of dimity cloth. So distinctive a pattern is almost archetypically appealing, finding favor in flowers as well as traditional floral prints.

The most famous *Vanda coerulea* hybrid, *Vanda* Rothschildiana (*coerulea* ×

sanderiana), was registered in 1931. In many ways, it has never been surpassed. With improved strains of both *Vanda coerulea* and *Vanda sanderiana* constantly being developed, *Vanda Rothschildiana* cultivars have improved consistently. An average plant from a modern remake frequently surpasses an awarded clone of a previous generation.

In another and more important way, *Vanda Rothschildiana* has never been surpassed because it embodies many of the very finest qualities of vandas. The brilliant color, distinctive pattern, large flowers and long, multi-flowered stem of *Vanda coerulea* and the large, well-shaped flowers of *Vanda sanderiana*, combined with the resultant hybrid vigor that permits these plants to produce as many as 50-60 5" flowers, surely approach the ideal of *Vanda* breeding. Novices and lay people universally proclaim these the most magnificent orchids they have ever seen.

Indeed, the more sophisticated would do well to reevaluate *Vanda Rothschildiana*, a

constantly changing bench mark of the best in vandas. An idealized *Vanda Rothschildiana*, one which was fuller in shape and which appeared in a full range of color, should be the objective in the breeding of standard vandas.

Vanda coerulea and *Vanda tricolor* were both recombined with the primary hybrids already noted by the European hybridists of the 1920s and '30s to produce an array of brilliantly colored pink and blue flowers which form the basis of modern hybrids in these colors. The 1940s saw a shift in the locale of *Vanda* hybridization to Hawaii and Southeast Asia and an increased interest in two additional species, *Vanda dearei* and *Vanda luzonica*.

The cultivation of terete vandas, mostly *Vanda* Miss Joachim and semi-terete hybrids from it, for use as cut flowers was the major interest of growers in Hawaii, Singapore and Malaysia. The cultivation and improvement of strap-leaf hybrids was a side-show in the '40s. With attention focused on cut flowers rather than pot plants, strap-leaf vandas, which required elaborate structures and more intricate care to produce fewer flowers, appealed less than the vigorous semi- and quarter-terete vandas. Nevertheless, the late 1940s and the '50s saw great interest in the development of strap-leaf vandas as horticultural plants. It should be remembered that until and even during the 1950s, vandas still were reckoned "botanical" orchids.



The inevitable crossing of Vanda coerulea with Vanda sanderiana resulted in Vanda Rothschildiana, one of the most popular Vanda hybrids of all time. The cultivar 'Malibu Beauty' received a First Class Certificate of 90 points from the American Orchid Society when exhibited by Arthur Freed Orchids, Inc. on May 9, 1977. More recent clones may equal or surpass this one from just a decade ago. The photograph is by Richard Clark.



Vanda Manila (*luzonica* × *sanderiana*), registered by the Rapella Orchid Co. of Hawthorne, California, in 1943, is one of the most influential *Vanda luzonica* hybrids, introducing high flower count and pink color to its progeny. The plant shown at left was grown by Alberts & Merkel Bros., Inc. and was photographed by Jean Merkel in June 1951.

The yellow color and strong, pervasive sweet scent of *Vanda dearei* stimulated its use in hybrids. The first *Vanda dearei* hybrid, *Vanda Memoria* T. Iwasaki (*dearei* × *tricolor*) was registered by T. Shimadzu of Tokyo in 1934. This heavily spotted flower of yellow overlaid with rich reddish brown combines the two most fragrant large-flowered *Vanda* species. Primary hybrids from *Vanda dearei* can fill an entire greenhouse or tropical patio with their fragrance. The rich color of *Vanda Memoria* T. Iwasaki is in the background of many modern yellows and reds.

Interest in *Vanda dearei* as a parent was not evident again until the mid-1940s, when a group of hybrids from it were registered. Most of these followed the pattern of earlier breeding and involved species other than *Vanda sanderiana*. *Vanda Helen Adams* (*dearei* × *suavis*), registered by Ernest de Saram of Ceylon in 1944, produces sprays of seven or eight flowers of creamy white to apricot orange overlaid with reddish brown dots. *Vanda Memoria* G. Tanaka (*Memoria* T. Iwasaki × *dearei*) is another heavily spotted yellow hybrid. *Vanda Lester McCoy* (*coerulea* × *dearei*) was considered by many early *Vanda* enthusiasts to be the finest primary hybrid after *Vanda Rothschildiana*.

The addition of a long flower stem from *Vanda coerulea* overcomes one of the chief problems of *Vanda dearei* hybrids, i.e., the short scape, which tends to present the flowers between rather than above the foliage.

Vanda Ellen Noa (*dearei* × *sanderiana*), the ancestor of nearly all modern yellows, was not registered by J. K. Noa until 1946. This hybrid, which preserves the yellow color of *Vanda dearei* and much of the fuller shape of *Vanda sanderiana*, started the direct line which has culminated in the yellow hybrids of today. The development of *Vanda Ellen Noa* foreshadowed the direction that *Vanda* breeding was to take in the 1950s.

The pattern of breeding with *Vanda luzonica* parallels that of *Vanda dearei* in many respects. The first *Vanda luzonica* hybrids were *Vanda Boschii* and *Vanda Faustii*, both made in Germany in the 1930s. *Vanda Boschii* resembles an improved *Vanda luzonica* but possesses a longer lip and more intense spotting from the *Vanda tricolor* parent. Many clones of *Vanda Boschii* in South Florida frequently are shown under the name *Vanda luzonica*. Indeed, one awarded plant of "*Vanda luzonica*" ('Fuchs', HCC/AOS) appears to be this hy-

brid. On the other hand, a recently awarded clone of *Vanda Boschii* ('Evelyn', AM/AOS) appears indistinguishable from *Vanda luzonica*.

Vanda Faustii (Gilbert Triboulet \times *luzonica*) is a spotted blue of some importance in blue breeding. *Vanda Flammerolle* (*coerulea* \times *luzonica*), registered by Maison Henri Vacherot-Lecoufle in 1945, also produces bright blue flowers in abundance, emphasizing that *Vanda luzonica*, after *Vanda coerulea*, carries more flowers per stem (as many as 19) than any other large-flowered *Vanda* species.

In the 1940s, breeders began to see the possibility of *Vanda luzonica* as a parent of pinks. *Vanda Manila* (*luzonica* \times *sanderiana*), registered by the Rapella Orchid Co. in 1943, was perhaps the most influential *Vanda luzonica* hybrid. *Vanda Manila* demonstrates the ability of *Vanda luzonica* to transmit a high flower count (up to 15 or 16) and to produce flowers in which pink shades predominate. *Vanda Joan Swearingen* (*luzonica* \times *Rothschildiana*), registered in 1948, is also an important ancestor of most modern pinks. Either *Vanda Joan Swearingen* or *Vanda Bill Sutton* (*Manila* \times *sanderiana*) or both contributed to the

background of nearly every significant modern pink.

By the time *Vanda Bill Sutton* was registered by Oscar Kirsch of Honolulu in 1951, most of the primary and secondary hybrids that are ancestors of our modern hybrids had been produced. In the 1950s, the center of *Vanda* hybridization was, without a doubt, in Hawaii, focused in the work of Oscar Kirsch, Robert Warne, B. Tanaka, T. Ogawa, M. Miyamoto and the Kodama Orchid Nursery, among others. These hybridists continued to produce primary and secondary hybrids involving *Vanda* species. But increasingly, their efforts concentrated on imparting a fuller shape and larger size to already-existing types.

You could characterize this as the relentless "*sanderiana*-ization" of vandas. The results were gratifying. Larger, fuller flowers more nearly like *Vanda sanderiana* were produced in a range of colors that preserved much of the richness of hues of the true *Vanda* species. The detailed analysis of this process will be the subject of subsequent articles. The greatest generalization that could be applied to this involved and intricate process was that the Hawaiians succeeded in recreating *Vanda sanderiana* in a

Vanda Boschii (*luzonica* \times *tricolor*) was registered in Germany in 1933. It is so similar to *Vanda luzonica* that some clones of *Vanda luzonica* exhibited today are probably actually *Vanda Boschii*. *Vanda Boschii* 'Nishida Orchids', HCCIAOS (77 pts.) is shown at right. It was grown by Nishida Orchids of Kihei, Maui, Hawaii.



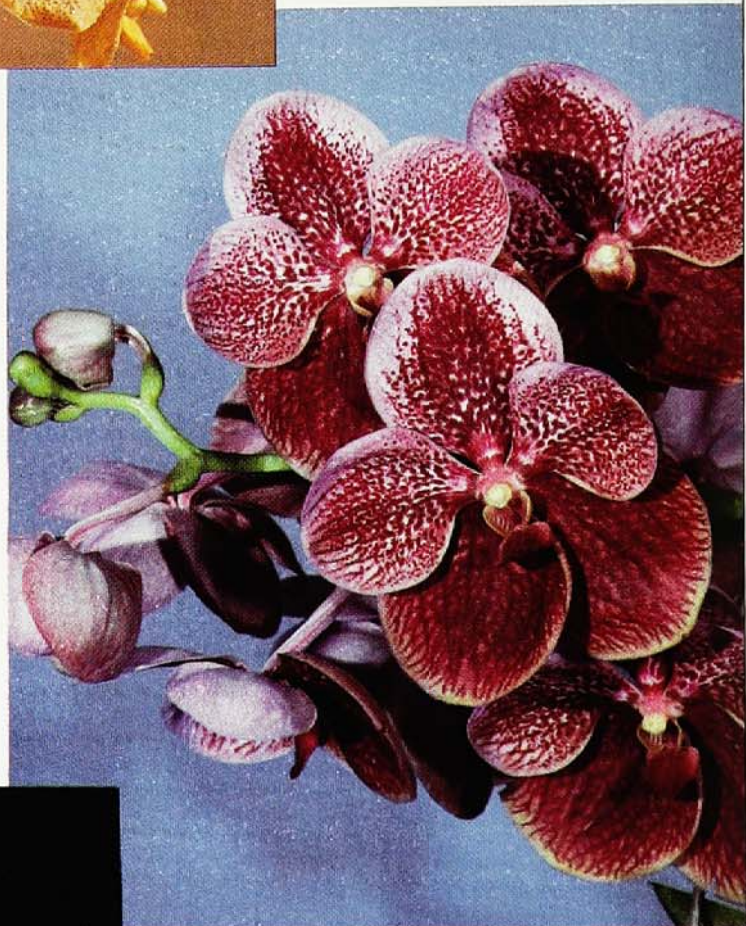


LEFT
Vanda Waipuna
'Kodama', AM/AOS (80 pts.)
(Ellen Noa × Rothschildiana)

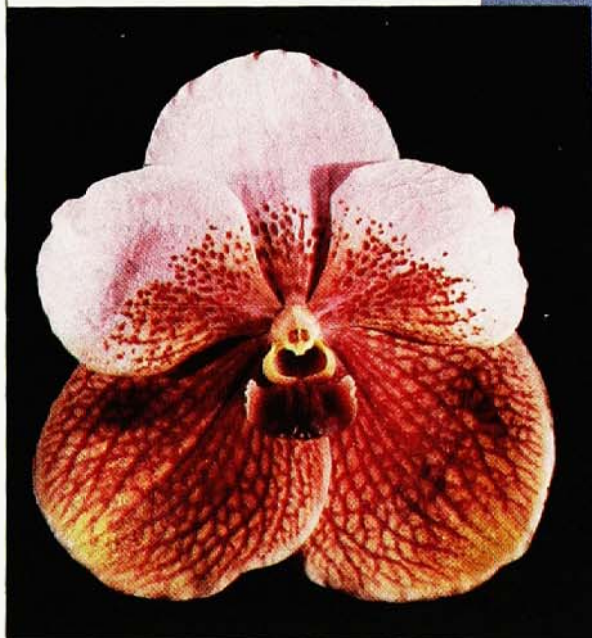
Grower: Kodama Orchid Nursery
Photographer: Henry Kawamoto

RIGHT
Vanda Madame Rattana
'Barbara Fuchs',
AM/AOS (82 pts.)
(Sun Tan
×
Memoria Madame Pranerm)

Grower: Worth's Orchids
Photographer: Beauford B. Fisher



Grower: R. F. Orchids
Photographer: Richard C. Steele



LEFT
Vanda Bill Sutton
'Magnificent', AM/AOS (84 pts.)
(Manila × sanderiana)



Vanda Fuchs Delight (*Kasem's Delight* × *Gordon Dillon*) was registered by R. F. Orchids of Homestead, Florida, in 1982. Its complex genetics creates handsome hybrids of striking variability, drawing on *Vanda sanderiana*, *Vanda coerulea*, *Vanda luzonica*, *Vanda tricolor* and *Vanda dearei* in its ancestry. Shown above is the cultivar 'Robert', HCC/AOS (77 pts.), grown by Robert Fuchs.

variety of color forms which possessed considerable hybrid vigor and floriferousness.

The 1960s saw the continued contribution of Hawaiian breeders. But the beginnings of a new center for *Vanda* hybridization, sparked by Rapee Sagarik, emerged in Thailand. Professor Sagarik saw the climate of Thailand as ideally suited to the cultivation of vandas and saw as well the potential for creating a viable new industry for his country. The cost of labor and land being lower in Thailand than in Hawaii and Singapore helped to make Sagarik's forecast accurate. Thailand rapidly became a center for cut-flower vandas and, like Hawaii before it (and from which its initial stock was imported), cut-flower production gave Thai breeders vast *Vanda* populations from which to select future parents. The complex hybrids produced by the Thais in such quantities allowed for segregation of genes in the

progeny. This, in turn, permitted new color types to be produced on a consistent basis. Details of this process will be treated in subsequent articles.

Vanda Memoria Madame Pranerm (*Waipuna* × *Eisenhower*), registered by Palm Orchids in 1962, is an example of the direction *Vanda* breeding was to take in Thailand — and an example of its success. One parent, *Vanda Waipuna* (*Ellen Noa* × *Rothschildiana*), contributed an underpinning of *Vanda coerulea* qualities to a basically yellow flower. When combined with the *Vanda sanderiana*-type flowers of *Vanda Eisenhower*, it produced full-formed yellow flowers with reddish markings of heavy substance borne on strong stems. *Vanda Memoria Madame Pranerm* is the parent of *Vanda Thananchai* and, hence, the ancestor of nearly all of the finest modern yellows: *Amphi*, *Southeast Beauty*, *Seeprai*, *Seeth-*

ong, Motes Butterscotch, Rasri, Thananchaisand, Rasri Gold, Kultana Gold, Charles Goldfellow, Ladda and Phetchaburi Gold, among others.

This is not surprising, considering *Vanda Memoria Madame Pranerm*'s heavy *Vanda dearei* ancestry. What is surprising is that *Vanda Memoria Madame Pranerm* is also the ancestor of many of the finest blues, purples, reds and pinks. When crossed with *Vanda Sun Tan* (Beebe Sumner \times *sanderiana*), *Vanda Memoria Madame Pranerm* yields *Vanda Madame Rattana*, which is the parent of Gordon Dillon, Wirat, King Naresuan, Piyaporn, Charungraks, Robert's Delight and Ponpimol, among many other significant blues and pinks, and is grandparent

Vanda Kasem's Delight 'Tom Boykin', AM/AOS (86 pts.), grown by R. F. Orchids and photographed by Charles Knapp, features flowers in rich dark grape purple tones. This hybrid of *Vanda Sun Tan* and *Vanda Thospol* was made by Kasem Boonchoo and was registered by Thai-Am Orchids of Bangkok, Thailand, in 1978. The grex has been an important parent.



of Keeree's Sapphire, Robert Smith, Fuchs Delight, Motes Indigo, Faye Bennett and Rung Roeng, among others. The addition of the *Vanda tricolor* genes from *Vanda Beebe Sumner* widened the range of color patterns and allowed for the deepening of both the pinks and the blues.

Vanda Fuchs Delight (Kasem's Delight \times Gordon Dillon), which appears to have been made by several hybridists simultaneously in Florida and Thailand, illustrates the complex genetics of modern vandas from Thai breeding. Individual clones of both *Vanda Gordon Dillon* and *Vanda Kasem's Delight* range from dark purple to bright pink. *Vanda Fuchs Delight* 'Motes Orchids', HCC/AOS is representative of the dark *Vanda tricolor* influence which can be seen in *Vanda Gordon Dillon* 'Lea', AM/AOS and *Vanda Kasem's Delight* 'Tom Boykin', AM/AOS, whereas at the other extreme, *Vanda Fuchs Delight* 'Motes' Jubilation', AM/AOS exemplifies the perfecting of the *Vanda sanderiana* shape (so full that even the sepals overlap) while achieving a concolor pink with faint tessellations — exactly reproducing the coloration of the pink forms of *Vanda coerulea*.

Complex hybrids such as those from *Vanda Memoria Madame Pranerm*, from which selections can be made isolating specific genotypes, are characteristic of Thai breeding for the past two decades. The Thai breeders, you might say, passed the earlier hybrids through a genetic prism and separated out *Vanda sanderiana* qualities of form in colors and patterns characteristic of the other species. The degree to which many of these also conform to the goals of early breeders is remarkable. The future of *Vanda* hybridization clearly involves recapturing yet more positive qualities from yet more species, adding other hues to the rainbow. Future articles will detail the breeding of various types of vandas (and attempt to classify them) and suggest the direction *Vanda* breeding is taking — and perhaps should take. ■