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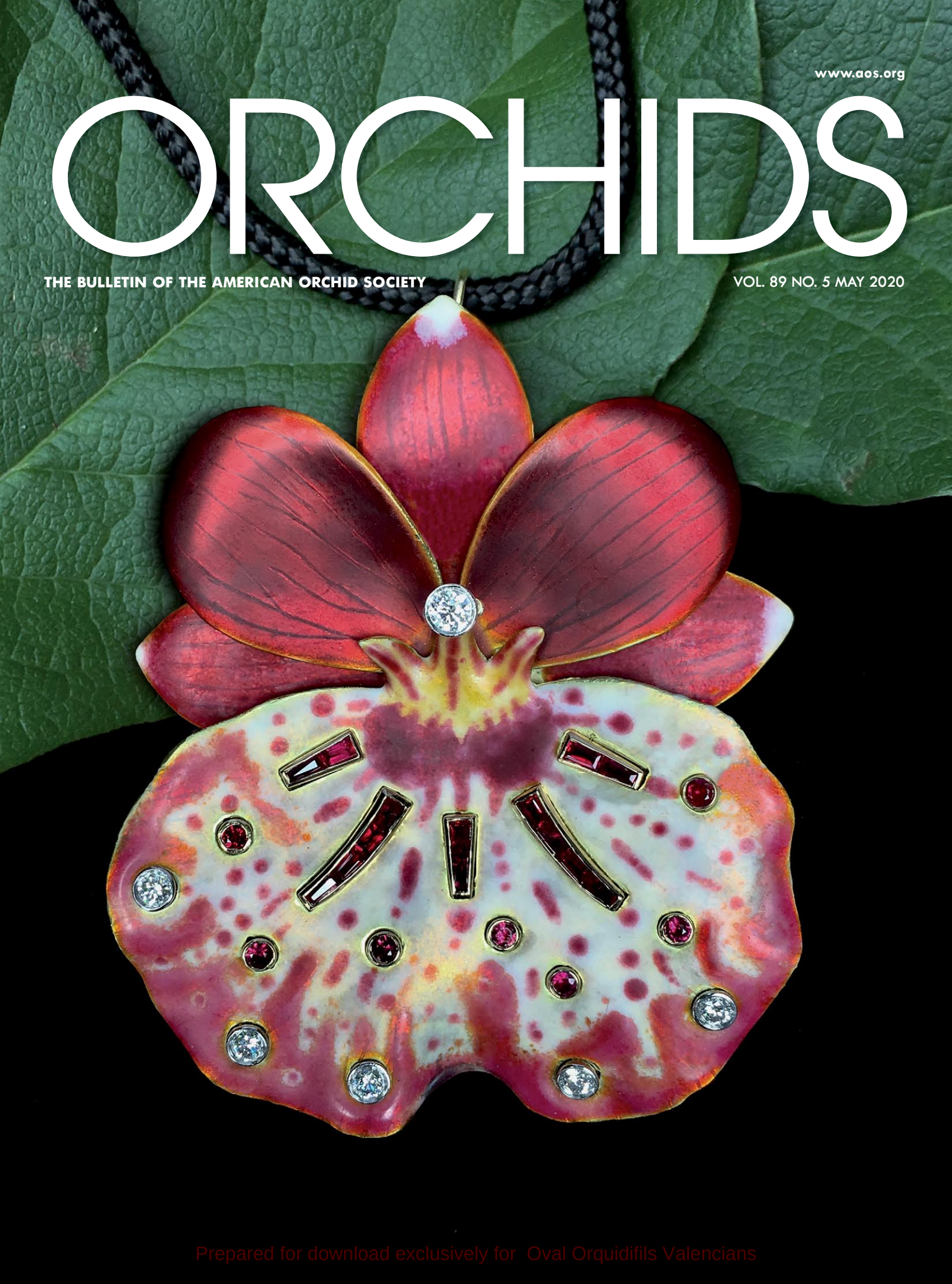
ORCHIDS

THE BULLETIN OF THE AMERICAN ORCHID SOCIETY

VOL. 89 NO. 5 MAY 2020



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ORCHIDS

The Bulletin of the American Orchid Society

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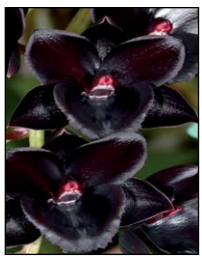
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FRONT COVER

Fine orchid jewelry is almost impossible to find. Historical pieces have disappeared into private collections and only a few famous houses such as Tiffany and Co. and Cartier produced these creations in the past. The magnificent piece gracing our front cover is the modern creation of Sergey Skoropad using *Miltoniopsis* Joan Rosenfeld 'April Waterfall' AM/AOS as his model. Sergey delights us in this issue with the first installment of his research into historical fine orchid jewelry and his passion for creating modern examples.

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A 501(c)(3) Nonprofit Organization Founded in 1921

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The mission of the American Orchid Society is to promote and support the passion for orchids through education, conservation and research

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The American Orchid Society provides leadership in orchids

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Membership in the AOS includes a subscription to *Orchids* magazine that begins with the next available issue at the time of enrollment. For information on membership, please call 305-740-2010, email theaos@aos.org or join online at www.aos.org.
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OrchidPro

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PRONUNCIATION GUIDE

Pronunciation of orchid names can be daunting for the novice and experienced grower alike. Presented below is a simplified pronunciation guide specific to the names found in this issue of *Orchids* magazine. An attempt has been made to represent each syllable using easily recognized sounds or words separated by hyphens and not standard phonetic symbols. Check out the Orchidist's Glossary on our website at https://www.aos.org/orchids/orchidists-glossary.aspx.

acaule (a-KAW-lee)
aclandiae (ak-LAND-ee-eye)
alba (AL-ba)
albata (al-BAY-ta)
amazonica (am-a-ZON-ih-ka)
amboinensis (am-boy-NEN-sis)
amesianum (ames-ee-AY-num)
aquinii (ak-KWIN-ee-eye)
Arethusa (air-e-THEW-sa)
bellina (bell-EE-na)
bicolor (BYE-kuhl-ur)
vipanii (vye-PAN-ee-eye)
boothiana (booth-ee-AY-na)
bracteata (brak-tee-AY-ta)
brunnea (broo-NAY-a)
buccinator (buk-kin-AY-tor)
Bulbophyllum (bul-boh-FILL-lum)
bulbosa (bul-BOH-sa)
Calanthe (kal-AN-thee)
californicum (kal-ih-FORE-nih-kum)
Calopogon (kal-oh-POH-gon)
carmoniana (kar-mon-ee-AY-na)
Catamodes (kat-a-MOH-deez)
Catasetinae (kat-a-SET-ih-nee)
Catasetum (kat-a-SEE-tum)
Cattleya (KAT-lee-a)
Chysis (KYE-sis)
Clowesia (KLOW-see-a)
cochleata (koh-klee-AY-ta)
coerulea (see-ROO-lee-ah)
concolor (KON-kuhl-ur)
conspicua (kon-SPIK-yew-a)
constrictum (kon-STRIK-tum)
cordatum (kore-DAY-tum)
Cycnoches (SIK-noh-keez)
Cymbidium (sim-BID-ee-um)
Cypripedium (sip-rih-PEED-ee-um)
Cyrtopodium (sir-toh-POH-dee-um)
Dendrobium (den-DROH-bee-um)
denisoniana (den-ih-sone-ee-AY-na)
disticha (DIS-tih-ka)
dodsoniana (dod-sone-ee-AY-na)
dowiana (dow-ee-AY-na)
elegans (EL-eh-ganz)
Encyclia (en-SIK-lee-a)
Epidendreae (eh-pih-DEN-dree)
expansum (eks-PAN-sum)
exsanguis (eks-SAN-gew-iss)
Fredclarkeara (fred-klark-ARE-a)
Georgecarrara (jorj-kar-ARE-a)
gigantea (jye-GAN-tee-a)
glaucoglossa (glaw-koh-GLOS-sa)
Guarianthe (gwar-ee-AN-thee)
hygrochila (hye-groh-KYE-la)
intermedia (in-ter-MEED-ee-a)
Jacquiniella (jak-kwin-ee-ELL-la)
jonesianum (jones-ee-AY-num)
limminghei (lim-MING-ee)
liouvillei (lee-oo-VILL-ee)
lueddemanniana (lew-deh-man-ee-AY-na)
Lycaste (lye-KAS-tee)
Maxillaria (maks-ill-AIR-ee-a)
Maxillariella (maks-ill-air-ee-EL-la)
Maxillariinae (maks-ill-air-ee-EE-nee)
measuresiana (meh-zure-zee-AY-na)
micholitzii (mik-oh-LITZ-ee-eye)
Microchilus (mye-kroh-KYE-luss)
Miltoniopsis (mil-tone-ee-OP-sis)
montanum (mon-TAN-um)
Mormodes (more-MOH-deez)
motesiana (motes-ee-AY-na)
niveum (NIV-ee-um)
Obtusiloba (ob-too-see-LOBE-a)
Odontoglossum (oh-don-toh-GLOSS-sum)
oklahomensis (oh-kla-hoe-MEN-sis)
Oncidium (on-SID-ee-um)
panamensis (pan-a-MEN-sis)
Paphiopedilum (paff-ee-oh-PED-ih-lum)
parishii (pair-ISH-ee-eye)
petersiana (pee-terz-ee-AY-na)
phaeanthe (fay-AN-thee)
Phalaenopsis (fail-en-OP-sis)
philippinense (fill-ih-pin-EN-see)
phoenicea (fen-EE-see-a)
Phragmipedium (frag-mih-PEED-ee-um)
phyllocardioides (fill-oh-kard-ee-OY-deez)
pileatum (pill-ee-AY-tum)
plana (PLAY-na)
plantagineus (plan-tag-IN-ee-us)
Platanthera (plat-AN-ther-a)
Pleurothallid (plur-oh-THAL-lid)
Pleurothallis (plur-oh-THAL-liss)
Polychilos (pol-ee-KYE-los)
Prosthechea (pros-THEK-ee-a)
psycodes (sye-KOH-deez)
punctatum (punk-TAY-tum)
puntarenasensis (pun-ta-ray-nas-EN-sis)
Rhynchostele (rin-koh-STEE-lee)
rosea (ROH-zee-ah)
russelliana (russ-ell-ee-AY-na)
sanderiana (san-der-ee-AY-na)
sanguinea (san-GWIN-ee-a)
schilleriana (shil-ler-ee-AY-na)
sinuata (sye-nyew-AY-ta)
skinneri (SKIN-ner-eye)
spitzii (SPITZ-ee-eye)
stangeana (stang-AY-na)
subconcolor (sub-KON-kuhl-ur)
tenebrosum (ten-eh-BROH-sum)
thylaciochila (thy-las-ee-oh-KYE-la)
Trichocentrum (tih-koh-SEN-trum)
undulatum (un-dew-LAY-tum)
Vanda (VAN-da)
Vandopsis (van-DOP-sis)
Vanilla (van-ILL-la)
venosa (vee-NOE-sah)
vestita (ves-TEE-ta)
violacea (vye-oh-LAY-see-a)
viridescens (veer-ih-DESS-enz)
warczewitzii (var-shuh-VITZ-ee-eye)
wyattianum (weye-att-ee-AY-num)
xanthocheila (zan-thoh-KYE-la)
xytriophora (zye-tree-oh-FORE-a)

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Orchid Conservation Alliance

Help Conserve Orchid Habitat!

Seventy-two miles north of Medellin, Colombia, Salvamontes, a Colombian NGO, is asking for help to buy 870 acres of pristine Colombian forest, home to all the world's known individuals of *Dracula lemurella,* perhaps a total of 300 plants. The reserve will also protect many other orchids as well as one of the world's rarest trees, *Magnolia hypsophila;* there are only 39 of them.

Please help us help them – Donate Now – Every dollar helps.

Dracula lemurella *Lepanthes tibuchinicola* *Dracula chimaera*

For more information and to donate:

www.orchidconservationalliance.org

Please note: The trip to Colombia advertised here last month has been cancelled due to COVID-19. The orchids are still there and they still need your help!

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AS I WRITE this message for the May issue of *Orchids* magazine, it is the first of April and we are self-isolating and keeping a safe distance. Many of you are working from home so at least that gives you something to do for part of the day. But what to do with the rest of your day? Some people are more social and miss the day-to-day contact we usually have with others. If you find yourself with too much time on your hands, here are a few suggestions to make your self-isolation more enjoyable.

Have you ever participated in any of our webinars? If you have attended a few webinars, why not visit our website (www.aos.org) and view the rest of the webinars that have been archived. If you are interested in judging or wonder how a judge sees a plant, there are several webinars on how to judge certain genera. To find the webinars, go to www.aos.org and scroll to the bottom of the page. There you will see several clickable buttons, just click on the picture labeled "webinars." This will redirect you to the upcoming webinar page. The archived webinars appear just below those listed as upcoming. Surely you will find one or more that will be of interest to you.

Whether you are a new member or a long-time member of the AOS, you should know that we have also archived *Orchids* magazine. Why not research one of your favorite genera to gain more knowledge? Or just read an older magazine with articles by some of the legends of the orchid world. This may give you more insight into the wonderful world of orchids! In the fall of 2019 most browsers stopped supporting Adobe Flash, the format we used to archive magazine issues. Newer issues, those after October 2019, are formatted in FlippingBook and we are in the process of converting issues published prior to October 2019 — a time-consuming and relatively expensive process considering the number of issues. So, if you have trouble reading a particular magazine, please know this problem is being resolved. To find archived *Orchids* magazines, click on About Us, then on *Orchids* magazine. This will redirect you to the magazine listings.

For those that miss attending orchid shows and still want to increase your collections, please contact those orchid vendors via their website or phone to place your order. Most orchid vendors rely on shows to support their businesses and families. Also, many vendors probably had to order in blooming stock for your purchasing pleasure. Another idea is to order a gift certificate for an upcoming birthday or anniversary, or just to help your favorite orchid vendor. If you can help them today they can be there for you tomorrow.

As you know, the Annual Meeting of Members to have been held in Sacramento, California in April has been postponed to October 21–24 (still in Sacramento). If you made hotel reservations, those reservations for April have been cancelled by the hotel. If you had already registered for the show, you need do nothing to keep your registration in place. If you cannot attend the new meeting date, please contact AOS headquarters for a full refund. An election by proxy will be held during the summer on a date to be determined. Once the actual date has been set, notification and proxy will be sent to all members by email. Paper proxies previously returned remain valid and will be counted in the final election tally. As you can tell, we are very optimistic that we will be able to hold a large gathering again in the not too distant future.

Our staff is now mandated to shelter in place. They are working from home so they can still answer your questions via email or phone. Please note that if you purchase a book, the shipment of the book will be delayed until the staff can return to the office. The same thing is true with respect to receiving your new or renewal membership card. Just like our members, we want our staff to be safe.

I hope you enjoyed our Orchid Madness game we had on Facebook starting in late March. It was one way to help engage our membership for at least a few minutes while you looked at each orchid "bracket" to make your choice. I am sure the Membership and Marketing Committee is trying to come up with other ideas to help keep you entertained, even if it is just for a few minutes.

I just wanted to give you some ideas to help you pass the time while you are sheltering in place. Please stay safe and hopefully this will be over sooner rather than later. Until next time, happy growing! — *Susan Wedegaertner, AOS President (email susan@aos.org)*.

Webinars-Coming Attractions!

When	**May 12, 2020** 8:30pm EST Tuesday	**May 21, 2020** 8:30pm EST Thursday	**June 16, 2020** 8:30pm EST Tuesday	**June 23, 2020** 8:30pm EST Tuesday
Topic	Greenhouse Chat (Orchid Q&A) *Send in your Questions!*	Australian Dendrobiums	Greenhouse Chat (Orchid Q&A) *Send in your Questions!*	Growing Coelogyne
Presenter	**Ron McHatton** Chief Education and Science Officer	**Fred Clarke** AOS Judge, Orchid Hybridizer & Greenhouse Owner	**Ron McHatton** Chief Education and Science Officer	**Charles Wilson** AOS Judge, Committee Member Education and Conservation

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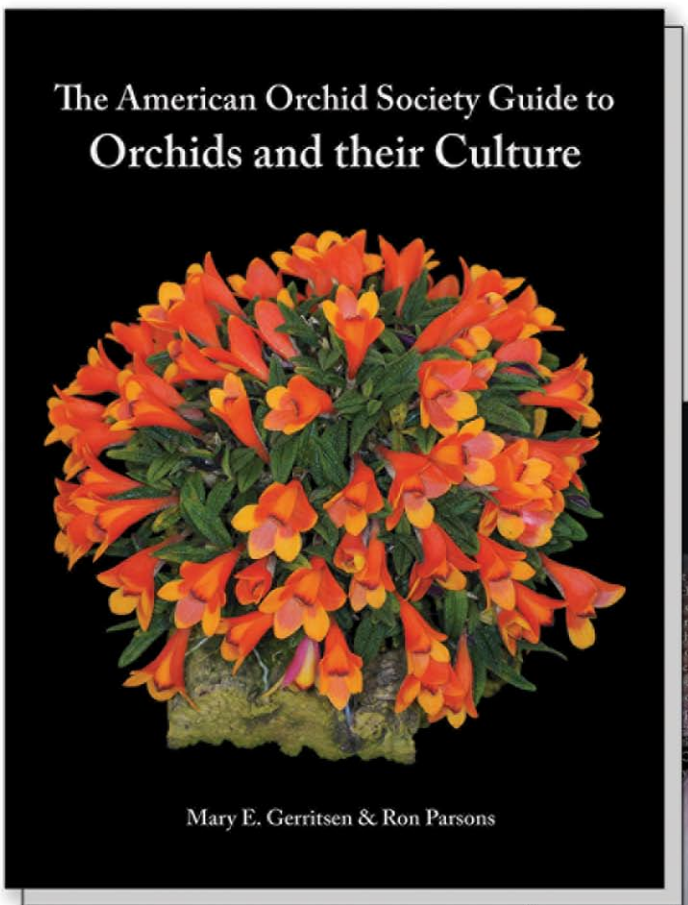

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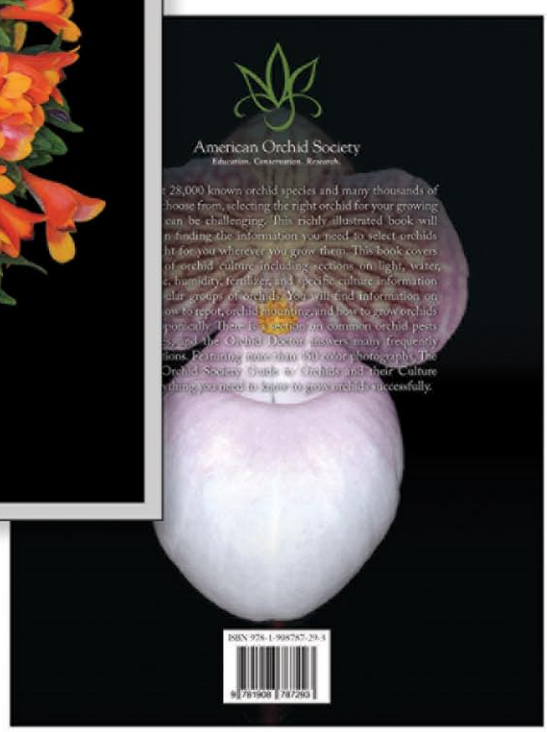

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May: The Month of Distance

By Thomas Mirenda

A DARK AND foreboding chasm lies before us as I write this. In such ominous times, we cannot know what will happen or even what the world will be like by the time this is printed. Events seem to be moving so rapidly, yet ironically, that has caused everything to slow down to a crawl. It is not possible to predict if the next step is on solid ground or off a precipice. Let us hope for the former and prepare for the latter with our caution and intellect. It is strangely comforting to know that this is a worldwide occurrence and that, indeed, we are all in this together. Knowing that our friends in distant lands face the same enemy should make us forget our petty differences and embrace worldwide compassion for each other and every other creature we share this island in space with.

Thomas Mirenda

Perhaps this is the wake-up call the world has needed. As people sequester in their dwellings, and the entire earth takes a breath, pollution has dissipated, cruel animal markets have been shut down and condemned, family members have reconnected and are spending quality time together, and human empathy is making a comeback. But perhaps most importantly, we have learned that when we abuse the natural world, those actions can, and will, and *HAVE* come back to us with a fury. Have we learned our lesson? It is hard to say, but the next few months will certainly be a test of humanity.

The orchid world has been severely impacted with heartbreaking cancellations or postponements of important and popular events, most notably the World Orchid Conference, The Santa Barbara show, the Redland International Orchid Festival, and myriad local and regional events including most local orchid society meetings. Many of us look forward to these events all year, carefully planning our travel and eagerly anticipating reconnecting with orchid friends across the country and around the world. While we engage in social distancing these next few months, let us not forget to share the joy and wonder of our orchids with each other, any way we can. We need each other.

JORGE ENRIQUE CÉSPEDES TIGUEROS

Lycaste powellii 'Maria Gabriella' AM/AOS; exhibitor: Mireya Cordero.

SILENT SPRING It need not be! Even though we may have to limit ourselves socially, orchids are speaking to us rather loudly this month. Some of the showiest orchids are performing miracles this time of year, especially miltoniopsis, lycastes, paphiopedilums and cattleyas. Orchids are communicating to us with their new growths and roots appearing on just about every plant. As a result, this is prime time for working with your plants. Repot, up-pot, or divide your overgrown plants this month. Most orchids are growing so earnestly now that they will establish quickly in fresh medium. Sharing divisions with your friends is a great way to spread the more desirable fever, orchid fever, to your friends and loved ones.

FRESH AIR Although you might be spending considerably more time indoors due to our "new normal," setting up a growing area in your yard is a perfect way to take advantage of the perfect spring growing conditions that occur outside this month, as well as a way to, at least temporarily, get out of the house. Most orchids, cool-loving pleurothallids and cymbidiums, intermediate cattleyas and oncidiums as well as warmer growing vandas and dendrobiums all relish this comparatively mild spring weather. Depending on your latitude, the timing might vary a bit, but if it is possible for you to do so, the outdoor garden conditions are a tonic for most of the orchids in your collection. Take the time to create a space, well off the ground, with dappled shade and good air movement, and your orchids will reward you with cooperation in growing.

HEALTHY NUTRITION All this growing activity needs to be supported with a fertilizer program. As the majority of tropical orchids we grow tend to be epiphytes, most require less food than terrestrial plants. Nestled in trees, most orchids feed off detritus and naturally occurring mycorrhizal fungi present there, so they are not accustomed nor adapted to nutrient rich soils or excessive composting. While I would not dare to recommend a particular fertilizer, as growing conditions and situations vary with every orchidist, there are many excellent formulations advertised in this magazine. Ask your more experienced local orchid friends to advise you on what works best for them in your particular region and climate.

We humans might be driven to drink in excess this year, but as we drown our sorrows and frustrations, we must keep in mind that it is of utmost importance that our orchids are kept well hydrated this month. Most everything, except summer dormant Australian terrestrials,

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need plentiful moisture while in active growth. Although many orchids tolerate treated municipal water, I have found that the purer your water, the better plants will grow and perform. If you can collect rainwater, or have a purification system, you should see an increase in your orchids growth and overall health. Water is, without a doubt, a precious gift and the most important molecule on our planet. So, use it wisely, and of course, wash your hands!

— Thomas Mirenda has been working professionally with orchids for over three decades. He is an AOS accredited judge and is the chairman of the American Orchid Society's Conservation Committee (email: biophiliak@ gmail.com).

HOME REMEDIES

— Rather than expensive and potentially dangerous herbicides, spray full-strength vinegar to kill weeds between pavers and on greenhouse floors. (Do not spray on orchids.)

— Aspirin (just ¾ of one 325 mg tablet per gallon of water) helps protect plants from fungal and viral pathogens when used as a spray. More is NOT better. Do not exceed this amount.

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Making Plants Bloom

By Ray Barkalow

IT IS NOT unusual for a relatively new grower to ask, "How can I make my plants bloom?" The correct answer is that we do not "make" them bloom at all! Instead, we must do what we can to "let" them do so.

It is useful to think of blooming in term of two things: the plant's "capacity" to bloom and its "ability" to do so.

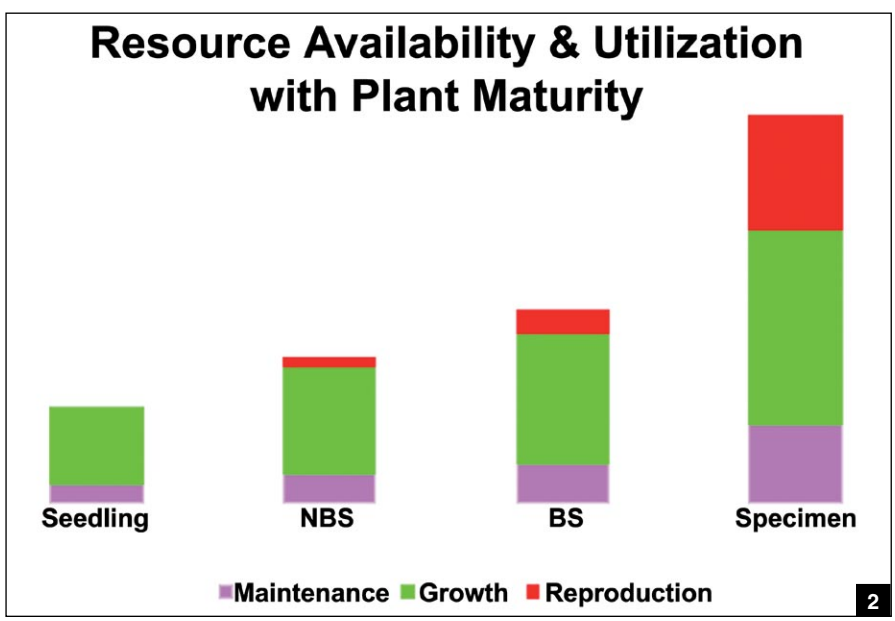
A plant's capacity to bloom is genetic, including flower size, shape, color, conformation, flower count and other features. If the culture is correct in every way, a plant will bloom to its genetically programmed, maximum extent. There is nothing that can be done to force it to do more than that. On the other hand, the ability of the plant to reach that level is cultural in nature, and that is where we must focus our attention, knowing that any shortcomings on our part will detract from it.

Reaching that maximum blooming capacity has much to do with how well the plant can acquire, create and store nutrient and energy reserves in quantities that allow it to comfortably expend them on the blooming process. An immature plant simply does everything it can to grow and reach sexual maturity, dedicating almost all its acquired stores to growth and maintenance, with little held in reserve. That may be why seedlings are so sensitive to changes in their culture, declining rapidly if something goes awry.

As it grows, even a relatively immature plant still dedicates much of the absorbed nutrients and photosynthesized fuel to putting on more growth and maintaining existing tissues, but having more mass and more storage volume, there might be enough excess in the stronger individuals, so-called near blooming size (NBS) to "go for it" with a few flowers — hence the occasional "precocious" plant in a group of siblings.

In a blooming size (BS) plant — one with more leaf pairs in the case of a monopodial, or a greater number of growths in a colony of sympodial plants — a much larger amount is dedicated to collecting, producing and storing nutrients and fuel, relative to the amount of new growth that is added, while only consuming a small amount to stay alive and functioning. That leaves more surplus that can be safely utilized for blooming. It is no coincidence that large specimen plants bloom so well and are often awarded.

1 BRYAN RAMSAY



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All the acquisition and expenditure of resources are chemical processes that can be affected by cultural parameters such as light levels, temperature, water and nutrient supplies, humidity and air movement. As they are niche plants, orchids have relatively narrow, genetically programmed ideals for all cultural parameters, so missing the

[1] *Lycaste* Green Valley 'Cin Cin' CCE/AOS was a riot of color when provided with sufficient nutrients, water and other conditions to its liking; grower: Stephen Shifflett.

[2] As a plant grows, its acquisition of total resources increases, and the amount utilized to maintain existing growth (mauve) increases proportionally. Resources committed to growth (green) is a large fraction of the total early on but decreases in proportion to the total as the plant matures, allowing the resources committed to blooming and reproduction (red) to increase significantly.

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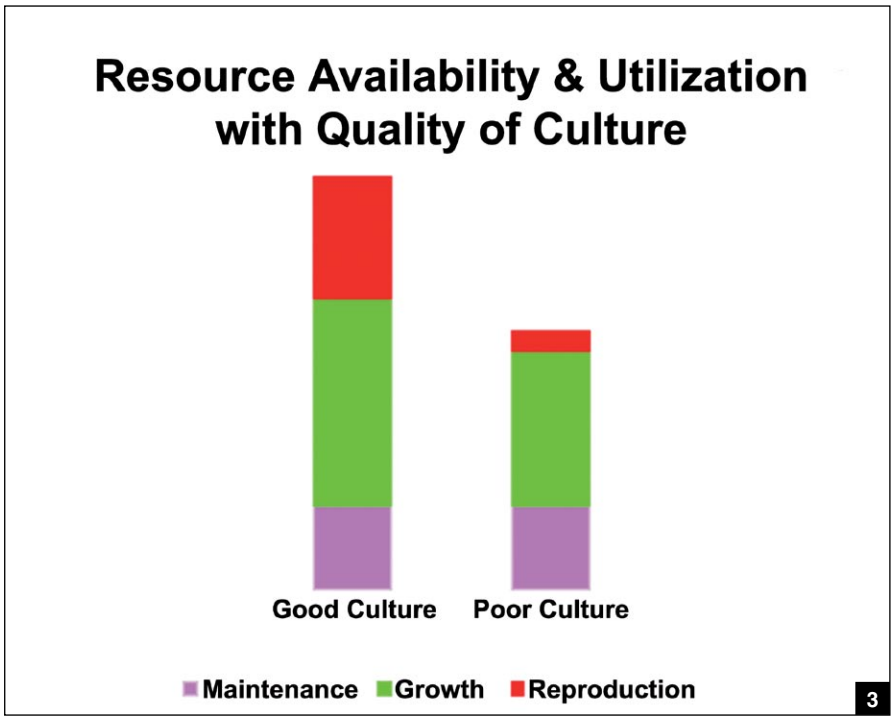
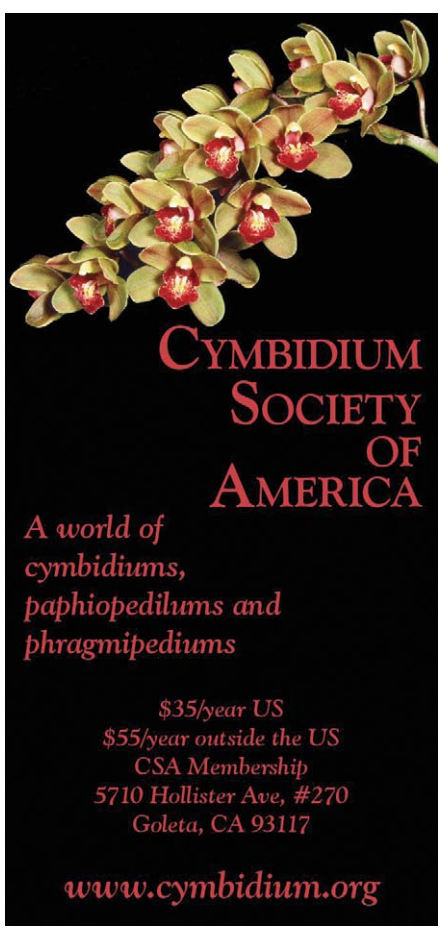
mark for any of them — higher or lower — can affect the rates of those processes and do so independently of each other, slowing some while accelerating others. Such disparities can have significant implications to the net collection and use of reserves that can be "spent" on blooming.

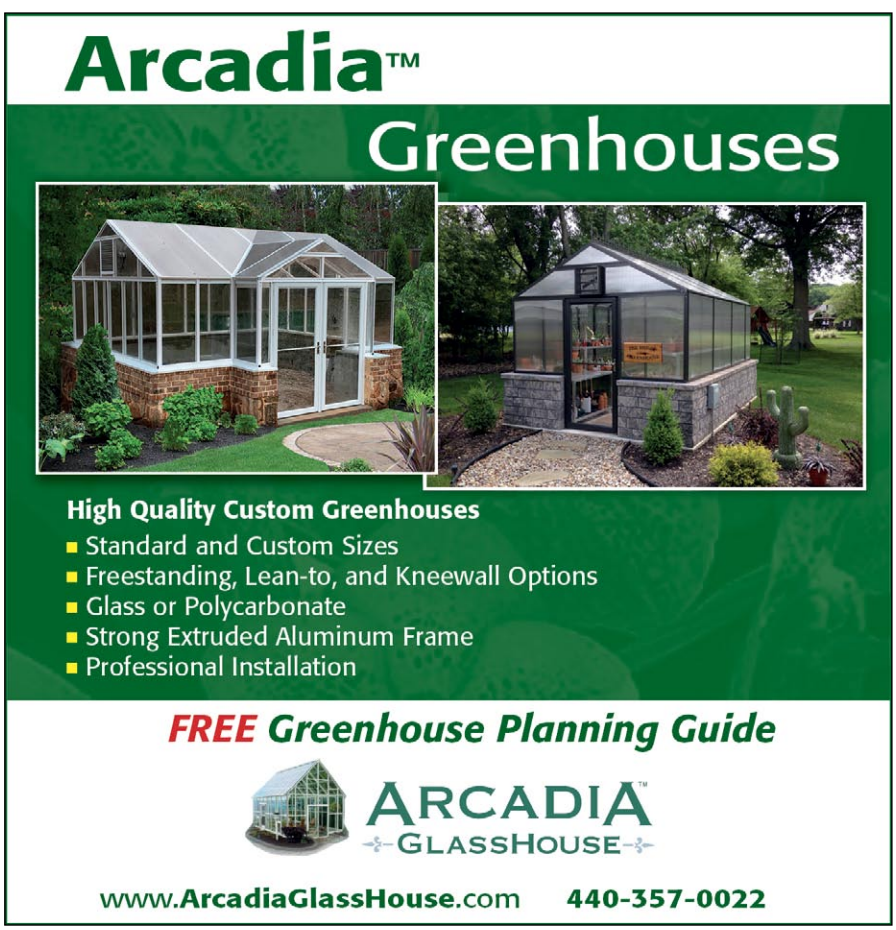
This may provide some insight into the performance of one plant versus another when grown side-by-side, and why two growers have differently performing plants, even if they are the same clone. The practical upshot of all of this is that, to "make plants bloom," one must understand their individual specific needs and provide those well and consistently. Doing so gives the plants the opportunity to acquire adequate reserves and utilize them optimally.

— Ray Barkalow has been growing orchids for over 45 years and maintains a website — firstrays.com – with over 100 informational articles for the hobby grower.



[3] With poor culture, the acquisition of those resources may be reduced, but the expenditure of them to maintain the health of the plant is unchanged. The resources expended on new growth are also reduced, but the net result is that there is less available for reproduction, reducing blooming.





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John Alexander Maylin Vipan and *Vanda vipanii*

RUDOLF JENNY

JOHN ALEXANDER MAYLIN Vipan was born on May 24, 1849 at Thorney, Cambridgeshire, England, as son of John Maylin and Harriett (nee Goodman). John Vipan was educated in Switzerland and later at Sandhurst Military College. He joined the 89th Foot Regiment and served mainly in India and Burma (today Myanmar).

In 1880, Vipan moved with his mother to Stibbington Hall, Huntingdonshire. Stibbington Hall was built in 1625 and included 4.75 acre (7.6 ha) of land. A passionate amateur botanist, he transformed the garden at Stibbington and added several greenhouses. During his service in India and Myanmar, Vipan sent living plants to Sander in St. Albans and to Stibbington where his mother — like her son, also very interested in gardening and botany — cultivated them and reported back to John, giving him the possibility to replace plants that had died. When his service was terminated, John went back to Stibbington Hall, and in the following years he built up a veritable museum with all the ethnological and biological objects he collected in the East. He owned a large collection of butterflies and moths. In several greenhouses, he cultivated a collection of ferns and orchids. Aside from this, John owned several aquaria with tropical fish in one of his greenhouses. A few years prior to his death, his collection was given to the London Zoo. John was a Fellow of the Zoological Society of London and he was the first to cross guppies from Barbados, Trinidad and Venezuela, proving that it was the same species. According to the journal *Country Life* in 1904, his aquarium contained "the finest collection of freshwater fish in Europe." As an excellent photographer, John made photographs of every orchid in flower in his collection and most probably the photograph of *Vanda vipanii* on the type-sheet in Vienna is one of his own pictures. John Alexander Maylin Vipan died on March 20, 1939 and his collection of furniture and ethnological objects was auctioned

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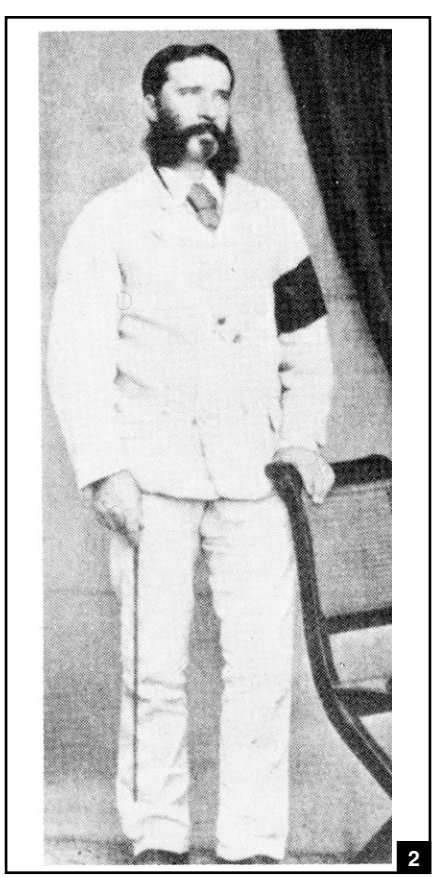

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[1] Stibbington Hall, Cambridgeshire, England, was built in 1625 on the banks of the River Nene. Situated on 19 acres (11.9 ha), it is today considered to be one of the finest examples of Jacobean architecture. Cambridgeshire is perhaps best known as the home of Cambridge University.

[2] John Alexander Maylin Vipan (1849–1939) from Gardeners' Chronicle, 1965.

[3] *Paphiopedilum* Vipanii (*philippinense* × *niveum*) was registered in 1890 by Captain Vipan and is the only hybrid to bear his name. Photograph courtesy of Dorothy Potter Barnett.

[4] Plant of *Vanda vipanii* in cultivation.

[5] Drawing of *Vanda vipanii* from the nursery of Veitch by John Day, 1884 courtesy of the Royal Botanic Gardens Kew.

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by Sotheby's in July of the same year.

Obviously John Vipan was also active in hybridizing orchids. The hybrid *Paphiopedilum* Vipanii (*niveum* × *philippinense*) was registered by him in 1890. Robert Allen Rolfe described it after a flower he got from Sander in St. Albans.

Much confusion has surrounded the group of Himalayan species to which *Vanda vipanii* Rchb.f. belongs: the section *Obtusiloba*, described in 1994 in the *Proceedings of the 14th World Orchid Conference* by Eric A. Christenson. Following his circumscription the section includes *Vanda denisoniana*, *Vanda brunnea*, *Vanda vipanii*, *Vanda subconcolor* and *Vanda bicolor*.

Gunnar Seidenfaden began to unravel some of the mystery when he concluded in 1988 in *Opera Botanica* that the "brown forms" of *Vanda denisoniana* are in fact *Vanda brunnea* Rchb.f. and that *Vanda liouvillei* Finet is the proper epithet for the plants long misidentified in horticulture as *V. brunnea*. Another piece of the puzzle was solved later when Timothy Cholteo (2009) correctly concluded that Reichenbach's *Vanda stangeana* was a plant virtually unknown to horticulture from far northern India and the plants long known in horticulture as *V. stangeana* were in fact a distinct species which he described as *Vanda motesiana* Cholteo. Both Cholteo and Seidenfaden concluded that *Vanda petersiana*, which has a lip ornamented similarly to *V. motesiana*, is a separate species with small side lobes, placing it in section *Vanda*. Now as a result of re-examination of the herbarium material and drawings, current authors have concluded that plants from mainland China and Northern Burma widely identified as *V. subconcolor* Tang and Wang are in fact correctly *V. vipanii* Rchb. f.

When a *Vanda* without a name flowered in the collection of Walter Tresch near Luzern, Switzerland, I took photographs and sent some of them under the name *V. subconcolor* to Martin Motes in Florida. The plant was originally collected on March 18, 2004 by Hans Herrman at 4,900 feet (1,500 m) on a fallen tree in Moulmein, Myanmar (Burma). For several years it grew well, producing roots longer than 3½ feet (2 m) long and finally flowered in the spring of 2010. In his response, Motes wrote: "When Rudolf Jenny sent me images of a species that he had tentatively identified as *V. subconcolor* Tang and Wang, I was


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struck by the prominent lip with orbicular side lobes and distinctive markings. I quickly realized that the specimen in hand matched Day's drawing of Reichenbach's *V. vipanii*, which David Roberts and I concluded from the original drawing at Kew, represented a distinct and valid species. Subsequent research has proven this conclusion correct."

The original discovery of *V. vipanii* was made in Arracan, Myanmar (Burma), by John Alexander Maylin Vipan who in a note to Reichenbach stated that he initially thought the *Vanda* he had discovered was "the white one" based upon its vegetative characteristics. *Vanda denisoniana* in its paler forms was reckoned "white" by Victorian growers and was much prized in an era in which purity was enshrined. Vipan's assumption was astute as *V. vipanii* belongs to the group of vandas that are characterized by large orbicular side lobes (*V. bicolor* Griffith, *V. brunnea* Rchb.f. and *V. denisoniana* Rchb.f.). Like *V. denisoniana*, the leaves of *V. vipanii* have a pronounced twist in their distal third, a character not seen elsewhere in the genus than in section *Obtusiloba*. The lip in *V. vipanii* is also very distinctive. Reichenbach describes its shape and color in detail in 1882 in the *Gardeners' Chronicle*:

"The side auricles of the lip are of the finest camboge-yellow, the middle lacinia is light olive-green, the mouth of the spur white, with numerous minute reddish dots under the column and two stripes consisting of dark purple spots, on each side. Before the base of the middle lacinia stand two calli, so often seen. The conical spur has no hairs inside. The column is white at the base, mauve at the


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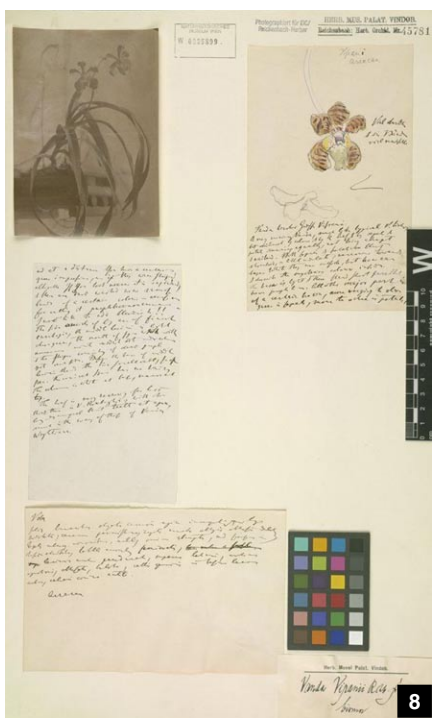
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top." (134)

In the herbarium of Reichenbach in Vienna (no. 45781) we find a black-and-white photograph, most probably by Vipan, taken of the plant in his collection. Aside from this we also have the handwriting of the text published in the *Gardeners' Chronicle* and — most important — a colored drawing of a single flower. Although Reichenbach was not a very good botanical artist, this drawing is clear enough to recognize the species compared with fresh material.

James Veitch flowered *V. vipanii* in 1887, presumably the same plant that Day illustrated in 1884, and described the lip: "Lip deeply three lobed, the basal lobes roundish, white spotted and stained with purple, the front lobe cordate at the base, contracted at the middle, and with a deep sinus in the anterior margin, olive green toned with brown, sometimes rose purple; spur conic, short. Column white." (108–109)

John Day wrote on July 29, 1884 in his *Scrap Books*: "Drawn at Mess. J. Veitch & sons from a plant in flower at their nursery, which is the only one I have ever seen. Though not very showy it is rather pretty and is pleasantly scented." *Vanda vipanii* was seen by Veitch as a very rare and little know species in cultivation, but its validity as a Burmese species was not in doubt. Hooker in his *Flora of British India* cites the species and gives an independent but compatible description that is also quoted verbatim in Bartle Grant's *Orchids of Burma* (1895, p. 259).

Vanda vipanii fell into obscurity following its discovery. With the sealing of Reichenbach's herbarium and the fact that it was first described from Myanmar (Burma) where it is rarer and less widespread than in China, it is not surprising that the very distinct characteristics of *V. vipanii* escaped the attention of later observers who jumped to the conclusion that this otherwise attributable species was Tang and Wang's *V. subconcolor.* The turbulence that engulfed China for the first two-thirds of the 20th century made both botanical and commercial orchid collection rare and dangerous. While the species ranges widely in southern China, it is also present in Myanmar where Captain Vipan discovered it and Hans Herrman has rediscovered it. It may range into Thailand, as Seidenfaden mentioned, as a specimen Rolfe identified as *V. vipanii* from near Chiang Mai.

In recent Chinese orchid literature we find a number of photographs of *Vanda concolor*, *V. subconcolor* and *V. brunnea*. In most cases it is not possible to say which of them are correctly named; at least some of them may depict *V. vipanii*. Tang and Wang's *V. subconcolor* and its variety *V. subconcolor* var. *disticha,* described in *Acta Phytotaxonomica* in 1974, are apparently endemic to Hainan Island. Both belong in section *Vanda* because their lip side lobes are large for


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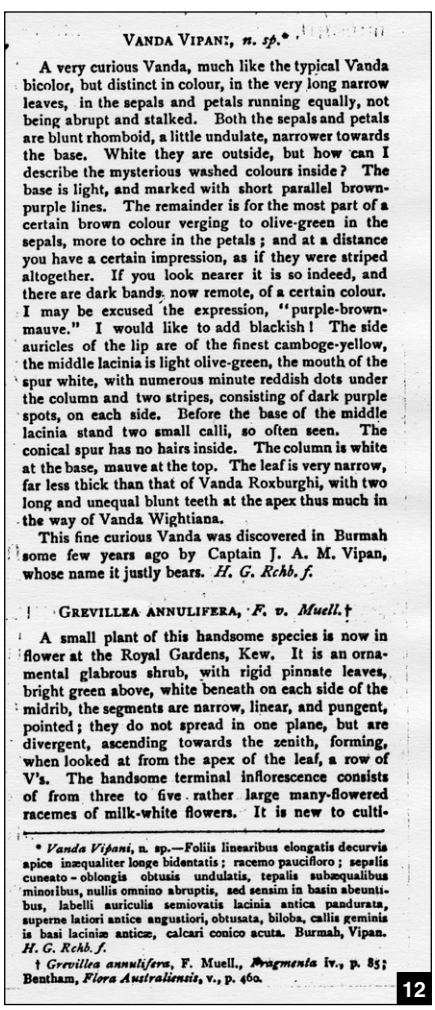

VANDA VIPANI, *n. sp.**

A very curious Vanda, much like the typical Vanda bicolor, but distinct in colour, in the very long narrow leaves, in the sepals and petals running equally, not being abrupt and stalked. Both the sepals and petals are blunt rhomboid, a little undulate, narrower towards the base. White they are outside, but how can I describe the mysterious washed colours inside? The base is light, and marked with short parallel brown-purple lines. The remainder is for the most part of a certain brown colour verging to olive-green in the sepals, more to ochre in the petals; and at a distance you have a certain impression, as if they were striped altogether. If you look nearer it is so indeed, and there are dark bands, now remote, of a certain colour. I may be excused the expression, "purple-brown-mauve." I would like to add blackish! The side auricles of the lip are of the finest camboge-yellow, the middle lacinia is light olive-green, the mouth of the spur white, with numerous minute reddish dots under the column and two stripes, consisting of dark purple spots, on each side. Before the base of the middle lacinia stand two small calli, so often seen. The conical spur has no hairs inside. The column is white at the base, mauve at the top. The leaf is very narrow, far less thick than that of Vanda Roxburghi, with two long and unequal blunt teeth at the apex thus much in the way of Vanda Wightiana.

This fine curious Vanda was discovered in Burmah some few years ago by Captain J. A. M. Vipan, whose name it justly bears. *H. G. Rchb. f.*

GREVILLEA ANNULIFERA, *F. v. Muell.*†

A small plant of this handsome species is now in flower at the Royal Gardens, Kew. It is an ornamental glabrous shrub, with rigid pinnate leaves, bright green above, white beneath on each side of the midrib, the segments are narrow, linear, and pungent, pointed; they do not spread in one plane, but are divergent, ascending towards the zenith, forming, when looked at from the apex of the leaf, a row of V's. The handsome terminal inflorescence consists of from three to five rather large many-flowered racemes of milk-white flowers. It is new to culti-

* *Vanda Vipani*, n. sp.—Foliis linearibus elongatis decurvis apice inæqualiter longe bidentatis; racemo pauciflore; sepalis cuneato-oblongis obtusis undulatis, tepalis subæqualibus minoribus, nullis omnino abruptis, sed sensim in basin abeuntibus, labelli auriculis semiovatis lacinia antica pandurata, superne latiori antice angustiori, obtusata, biloba, callis geminis in basi laciniæ anticæ, calcari conico acuta. Burmah, Vipan. *H. G. Rchb. f.*

† *Grevillea annulifera*, F. Muell., *Fragmenta* iv., p. 85; Bentham, *Flora Australiensis*, v., p. 460.

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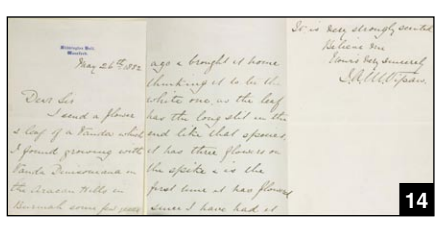
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[6] Left to right: lips of *Vanda brunnea, Vanda denisoniana* and *Vanda vipanii.*

[7–8] Type sheets of *Vanda vipanii* in the herbarium Reichenbach, Vienna.

[9] Inflorescence of *Vanda brunnea.*

[10] Flower of *Vanda brunnea*

[11] Inflorescence and flower of a darker colored form of *Vanda denisoniana.*

[12] First description of *Vanda vipanii* by Reichenbach in Gardeners' Chronicle, 1882.

[13] Flower of the "white" form of *Vanda denisoniana.*

[14] Letter by Vipan to Reichenbach (from the type).

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the section but lack the orbicular shape of flowers in section *Obtusiloba*. The upper margins of the side lobes are arcuate rather than rounded as in the species of section *Obtusiloba*.

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—Rudolf Jenny is a Research Associate at the Jeny Renz Herbarium, University of Basel. Owner of the most complete orchid library in private hands, he maintains the literature database BibliOrchidea and has published a number of papers on the history of orchids (rjorchid@ gmx.ch).

HOME REMEDIES

— Homemade insecticide (mix in a 1 gallon [3.8 L] jug): 1 pint (0.5 L) rubbing alcohol, 1 pint (0.5 L) 409 spray cleaner, and 3 quarts (2.8 L) water. Apply as a spray.

— Isopropyl (rubbing) alcohol can be put into an empty spray bottle and used to treat scale, mealybugs, thrips, aphids, red spider mites and perhaps other pests. It works only while wet and must contact the insect.

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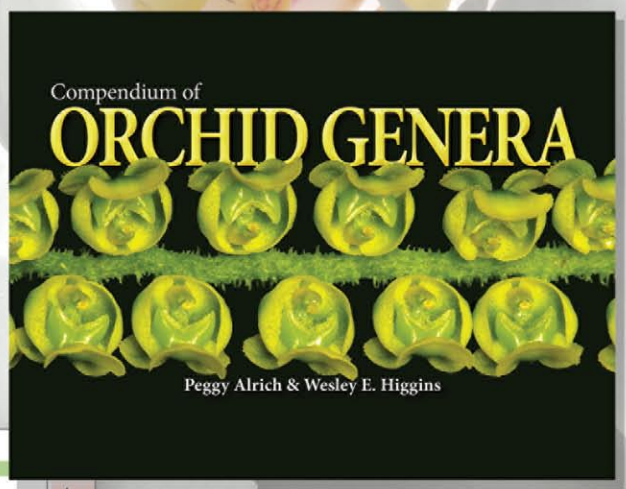
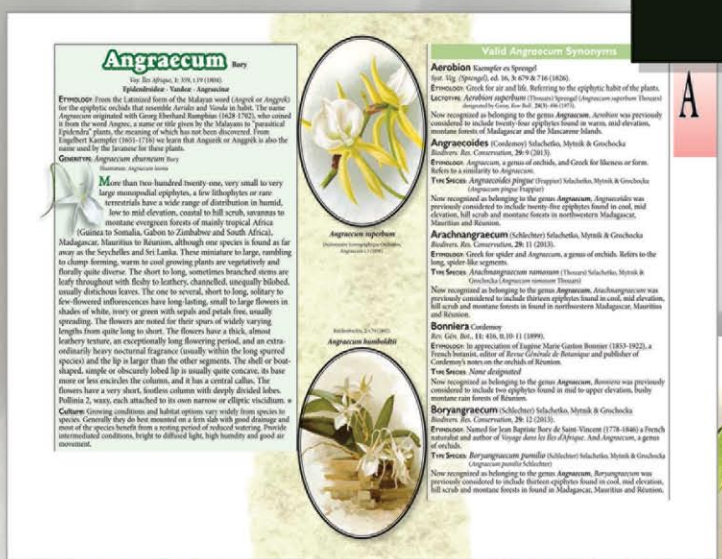
Presenting

The Compendium of Orchid Genera by Peggy Aldrich and Wes Higgins





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The Rest of the Story!

Text by Thomas Mirenda/Photographs by Jim Fowler

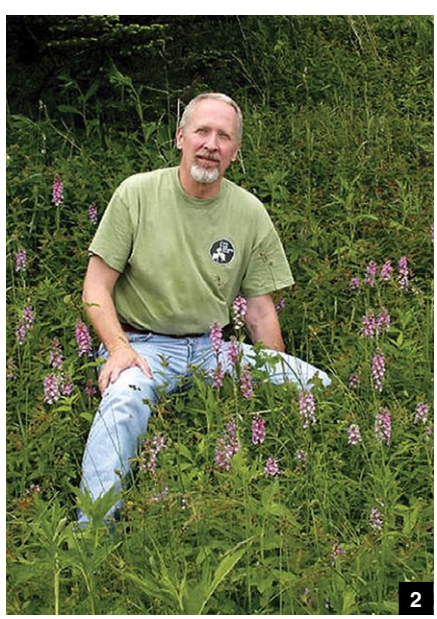
BY NOW MOST *Orchids* magazine readers have seen the spectacular new native American orchid stamps available through the United States Postal Service. Hopefully all of you have bought a few and are using them for your snail-mail correspondence. We absolutely want to encourage this sort of thing, so let us make these the greatest selling postage stamps of all time! But like all success stories, there are layers of events that transpired, both before and afterward to create this glorious result.

Thomas Mirenda

Orchid stamps are popular and collectible. Many countries have published fantastic images of their native orchids and they are often featured framed at orchid exhibitions around the world including recently at the United States Botanic Garden. It was the intention of the US Postal Service to have a modern series of orchid stamps and they produced a beautifully photographed set of cultivated, windowsill type orchids (including some "blue-dyed" ones) and thankfully, took the trouble to ask the opinion of some orchid experts about the series. Dr. Kenneth Cameron, professor at the University of Wisconsin, Madison saw the images, and respectfully suggested that although lovely, a selection of native American orchid species would resonate strongly with their customers and would even educate them about the astounding beauty of our native orchid heritage.

Dr. Cameron suggested that they look to nature photographer extraordinaire, Jim Fowler of Greenville, South Carolina for some samples. The Postal Service checked out his extraordinary nature blog at jfowlerphotography.com and fell in love. They knew they had struck gold. Jim has been taking photos of wildflowers for decades and has graciously shared them with the world through his blog, his flicker and pbase sites as well as many of the images on the Native American Orchid Conservation Center's fantastic GoOrchids webpage and database (https://northamericanorchidcenter.org). Jim has also written and photo-illustrated two terrific books, available on Amazon: *Wild Orchids of South Carolina: A Popular Natural History* in 2005, and *Orchids, Carnivorous Plants and Other Wildflowers of the Green Swamp of North Carolina* in 2015.

1



2

3

I actually first met Jim Fowler myself, knee deep in the Green Swamp searching for wild orchids and carnivores almost 20 years ago; a great memory! Since that time, I have grown to really admire him and his photographic prowess with wildflowers. It is always a pleasure to catch up with him every few years when I am able to attend the Native Orchid Conference (www.nativeorchidconference.info). So, I was especially pleased to see him get national recognition for his fine photography. If you want an incredible visual treat, go to see his wild orchids of North America page on Flickr: https://www.flickr.com/photos/22032600@N04/sets/72157623846282487/. Do it when you have some time, as you may find you will spend many hours there.

I called Jim to get the scoop on how the stamps came about, but decided I also wanted to get a little more background

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about him and his start in orchid photography. Turns out that more than a few years ago, a friend invited him up to her cabin in the woods because of some really cool flowers that were all over the understory of the mountain forest. It turns out they were *Cypripedium acaule*. Having never seen anything so beguiling and strangely beautiful before, it was truly "love at first sight." This experience set him on the trajectory that led to his beloved avocation. I also wanted to know what his favorite experience was in photographing North American species, and he related his trip to Nova Scotia and the astounding array of dragon's mouth orchids, *Arethusa bulbosa*, that were there by the thousands. Once a very common plant in American wetlands, they are now, sadly, virtually impossible to find in most of their old habitat. This is why his work is so important. Jim, and many of his friends, are graphically documenting what is left of our precious orchid biodiversity, hopeful to inspire others and ensure their survival for the next generation of orchid conservationists, but also to keep their glorious memory alive should they somehow perish. To be Continued…

— Thomas Mirenda has been working professionally with orchids for over three decades. He is an AOS accredited judge and is the chairman of the American Orchid Society's Conservation Committee (email: biophiliak@ gmail.com).

[1] Fowler virtually always attends the annual Native Orchid Conference, held in a different orchid hotspot each year at peak blooming season. Here, a group of attendees in 2008 gather around an amazing specimen of *Cypripedium californicum* in a serpentine bog in northern California.

[2] The photographer sits amid an extraordinary patch of exquisite fringed orchids: *Platanthera psycode*s halfway up Mount Mitchell in North Carolina.

[3] One of the highlights of Fowler's photographic adventures involved a trip to Nova Scotia where innumerable forms of the dragon's mouth orchid, *Arethusa bulbosa* were in full bloom, each unique in its coloration and patterning.

[4] Fowler often captures pollination in action as well as other flora and fauna interactions such as this katydid having a munch on this exceedingly rare *Calopogon oklahomensis*.

[5] Superior photographic equipment and an artist's eye combine to create outstanding, inspiring images such as this *Cypripedium montanum*.

[6] Photographing plants in the wild rather than in a studio makes for some magical captures, such as the dew droplets on this *Platanthera conspicua* in the early morning.

[7] This detailed study of the lip of *Cypripedium acaule*, the orchid that first beguiled and seduced Jim into the orchid world, illustrates the hypnotic effect they have on on pollinators, and humans alike.

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Sylvia Strigari

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Lycaste xytriophora

Text by Gustavo Rojas-Alvarado and Franco Pupulin/Watercolor by Sylvia Strigari

Tribe Epidendreae
Sutribe Maxillariinae
Genus Lycaste *Lindley*

Lycaste xytriophora Linden ex Rchb.f., *Refug. Bot.* 2:t.131. 1882 [1872]. SYNTYPES: Ecuador, *G. Wallis s.n.* (probably W, designated as the lectotype by Kolanowska 2014); Ecuador. "Ex Loxa, Oct. 1876, 7,000 ft," [legit G. Wallis], obtained through *J. Linden s.n.* (W); Ecuador[?], living plants from J. Linden nurseries cultivated at the Hamburg Botanic Garden (not located).

Epiphytic, caespitose, large *herb* up to 30 cm tall. *Rhizome* short, stout, freely branching, concealed by appressed, imbricating, brown sheaths. *Roots* produced from the rhizome, coarse, flexuous, to 2.5 mm in diameter. *Pseudobulbs* ovoid, matte, somewhat compressed-subancipitous, 6–7 ribbed, with small apical spines after shedding the leaves, 6–10 × 3.0–5.5 cm, apically bi- to trifoliate, enclosed by imbricating, papyraceous sheaths; the leafy blades progressively longer and wider toward the apex. *Leaves* plicate, petiolate, elliptic-lanceolate, acute to subacuminate, matte, sometimes shedding at flowering, 15–40 × 4–7 cm. *Inflorescences* lateral, produced from the base of the previous year pseudobulb, simultaneously with the development of the new vegetative shoot, up to three simultaneous, single–flowered racemes much shorter than the leaves; peduncle terete, stout, erect, 6–9 cm long, with four oblong to obovoid, acute, lax, turgid bracts, 2.0–4.0 × 1.3 – 2.0 cm, the basal ones papyraceous and imbricating, then generally glumaceous, greenish and little shorter than the internodes. *Floral bract* large, inflated, broadly ovate, acute, glumacoeus, light green, much longer than the ovary, 2.2–4.5 × 2.0–2.5 cm. Pedicellate *ovary* sessile, terete-subclavate, arcuate, six-ribbed, ca. 3 cm long including the pedicel. The whole *flower* up to 7 cm in diameter, the sepals greenish abaxially and brownish to the lateral margins, adaxially brownish with the apex greenish; the petals white, basally variously flushed and finely spotted with purple; the lip creamy white to yellowish, suffused and finely spotted with brownish red to purple below the isthmus, then whitish. *Sepals* free, spreading, subsimilar, oblong-elliptic, obtuse, sparsely lanate at the base, the lateral margins slightly reflexed, 3.5–4.5 × 1.6–2.2 cm, the *lateral sepals* slightly longer, forming a conical, blunt chin at the base. *Petals* obovate to elliptic, rounded to obtuse, porrect, reflexed apically, 2.0–3.5 × 1.5–2.0 cm. *Lip* trilobed, rigid, 3.0–3.5 × 1.5–1.8 cm, the base narrow, then becoming wider with the lateral lobes erect to the apex, forming an obovate shape at the basal two-thirds, the free portions subrectangular, rounded; then contracted forming a 5–7 mm wide isthmus; midlobe subcircular to broadly ovate, reflexed, ca. 10.1–11.5 × 10.0–10.2 mm, with the margins minutely serrulate, wavy; disc with an ovate, spoonlike callus emerging just below the isthmus and projected over the isthmus, spotted with brownish to purple internally, 4.5 × 3.0 mm, narrower than the isthmus. *Column* semiterete, straight, 1.5 cm long, the ventral surface densely covered with yellow hairs below the stigma, then sparsely hairy basally; the anther incumbent, the slitlike stigma ventral-retrorse; column foot 5 mm long. *Anther cap* operculate, white, ovate-subquadrate, basally truncate. *Pollinia* four, in two superposed pairs subsimilar in size, yellow, dorsiventrally complanate, on a thin, hyaline, linear oblong stipe and a trullate-lanceolate viscidium.

It is interesting that *Lycaste xytriophora* reappears in a painting of the *New Refugium Botanicum*, as this poorly known and quite poorly illustrated species was in fact described in the original *Refugium Botanicum* by W. Wilson Saunder, where it was depicted by Walter Hood Fitch for that series in December 1872. Professor Reichenbach, the author of the botanical description, wanted to add to Fitch's illustration a sketch of the labellum drawn by himself stating that he "never observed such broad anterior lobes to the lip as are represented by our artist." However, as already pointed out by Oakeley (2008), the lip drawn by Reichenbach clearly differs from his own description as well as from Fitch´s painting of the type, specifically in the shape of the callus and the midlobe, and it probably belongs to a different species. In the plant that we illustrated for the *New Refugium Botanicum* the midlobe of the lip and the basal lobes are exactly as Fitch portrayed them 150 years ago.

As Reichenbach (1872) noted, *Lycaste xytriophora* belongs to the group of species morphologically close to *Lycaste macrophylla*, once considered a highly variable and widespread species ranging from Costa Rica to Peru and Venezuela. Today, a general consensus has arisen considering the true *Lyc. macrophylla* (including *Lycaste plana*) an endemic of Peru and perhaps Bolivia, while the geographic variations of that species have mostly received proper names at the specific rank (i.e., *Lycaste measuresiana*, *Lycaste panamensis*, *Lycaste puntarenasensis*, *Lycaste viridescens* and *Lycaste xanthocheila*) (Oakeley 2008). From most species of the *Lyc. macrophylla* group, which have peduncles 20 to 30 cm long, *Lyc. xytriophora* may be easily recognized by the shortest inflorescences, as well as by the shape of the callus, which is expanded-concave (like a spoon) toward the apex, instead of ligulate and flat up to the apex. The specific epithet *xytriophora* makes reference to the shape of the callus, which is compared to the ancient instrument used by Greeks for "scraping, planning or polishing," *xyster*, plus a suffix derived from the Greek verb *phorein*, "to carry."

As the misinterpretation of Saunders well illustrated, *Lyc. xytriophora* is also quite similar to *Lycaste dowiana* (known from Costa Rica and Panama), but differs from the latter in having a raised, diamond-shaped, spoonlike apex of the callus, the column densely hairy below the stigma and the anther cap not pubescent-tomentose.

Kränzlin (1900) came back to discuss the species in *Xenia Orchidacea*, without adding any significant information to that already provided by Reichenbach, but once again he questions the quality of the dissections illustrated by Fitch ("*analyses non omnino laudandae*"). Interestingly, both his emended description and his own drawings (based on a plant flowered in the collection of Mr. Lackner in Steiglitz, near Berlin), are indistinguishable from those

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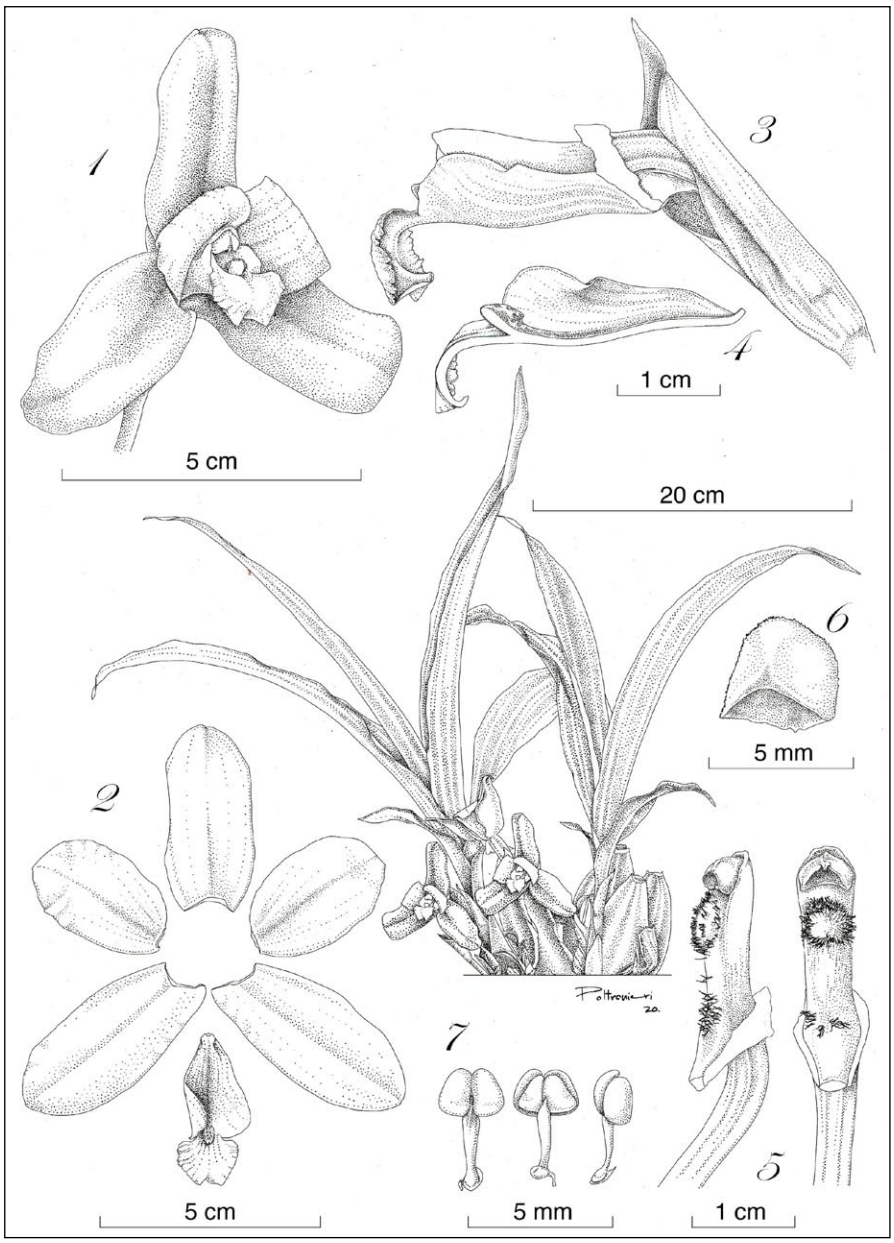

Lycaste xytriophora. The plant.
1. Flower.
2. Dissected perianth.
3. Column and lip, lateral view .
4. Lip, longitudinal section.
5. Column, lateral and ventral views.
6. Pollinarium in dorsal, ventral, and lateral views.
7. Anther cap

All drawn from *JBL-08949* by Sara Poltronieri.

prepared by the illustrator of the *Refugium Botanicum*.

The species was originally introduced to Jean Linden´s nursery in Belgium in 1867 by the indefatigable Gustav Wallis (1830–1878), who at that time worked as a plant collector for Linden in the Amazon and into the Andes.

Where are natural populations of *Lyc*. *xytriophora* actually found? To answer this simple question we had to "clean up" a lot of misinformation spread through the orchid literature. Any assessment of plant distribution should be based on a critical analysis of the available data, able to discriminate between *facts* (real vouchers with locality data), suppositions, and simple errors. In the protologue of *Lyc*. *xytriophora* alone, Reichenbach quotes that the species has been imported from "Ecuador or Peru," guessing "from the rich neighborhood of Loxa." To this, Saunders add that he received plants from Carmiol "collected in Costa Rica," plus a plant received through J. Linden from an unknown locality. Let us examine the facts. Loxa (or Loja, in modern spelling) is part of the Republic of Ecuador since the dissolution of the Spanish Vicekingdom of Peru, and since 1830 the city (and its neighborhoods) has never belonged to Peru. On the other side, what the Swiss gardener Jules Carmiol found in Costa Rica was surely a population of the superficially similar *Lyc*. *dowiana*, which is still quite common in the country. Of the "localities" quoted in the protologue, this leave us only with Ecuador, where the species has been effectively recorded from the Provinces of Bolívar, Cañar, Carchi, Chimborazo, Cotopaxi, El Oro, and Loja (Jørgensen and León-Yánez 1999, Dodson and Dodson 1980). The occurrence of the species in Peru is based on an erroneous supposition by Reichenbach, which Kolanowska (2104) repeats in her treatment of the orchids from Panamanian Darién, but Schweinfurth (1959–1961) did not quote it in his treatment of the orchids of Peru, nor is the species included in the recent checklist of Peruvian orchids by Zelenko and Bermúdez (2009). Kolanowska (2014) also added Panama to the geographical distribution of the species on the basis of an "environmental report" (Ancon 2010, but see also D'Arcy 1987), but the author herself states that "this information was not confirmed during the studies," and in fact the specimen she studied for the orchid flora of the Darién gap is from Loja.. Why, then, include it in a synopsis of the Darién orchids? The claims about the distribution of *Lyc*. *xytriophora* in Panama could not obviously withstand critical analysis, and in their recent catalogue of the orchid flora of that country, Bogarín and colleagues explicitly excluded it from the flora of Panama as they were unable to substantiate its presence on the basis of any actual voucher (Bogarín et al. 2014:351).

Given the remnant facts, *Lyc*. *xytriophora* must be considered endemic to Ecuador, where it has been recorded at elevations between 400 and 2,200 meters. According to Oakeley (2008) plants of *Lyc*. *xytriophora* may be found growing among boulders as well as epiphytically in seasonally dry mountain forest along the western Andes of Ecuador, where they flower between August and November. Based on a plant raised from seed in his collection, Oakeley (2008) formally

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described a var. *rosea*, differing from the typical form in the petals heavily spotted with pink in their distal portion.

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Too hot in the summer greenhouse?

Stick one side of Velcro disks a foot apart onto the outside of the west side of the greenhouse to fit the shape of the foil-covered, bubble-wrap-type batts like the material used as jackets for hot water heaters. It can be purchased in rolls. The foil will reflect the hot west sun and the bubble wrap will help insulate against the heat. It may also be used to insulate the north side of the greenhouse on the inside to keep heat in and reflect the light back into the greenhouse. — *Jean Allen-Ikeson (email: jean.ikeson@gmail.com).*

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Selected Botanical Terms

abaxial - lower surface of a leaf
acuminate - tapered to a point
acute – pointed
adaxial – upper surface of a leaf
adnate – fused
ancipitous – flattened, having two edges
apiculate – having a short, sharply pointed tip
arcuate – curved like an arch
caespitose – clumped
clavate – club-shaped
complanate – lying in one plane
concave- curved inward like the interior of a bowl
conduplicate – folded lengthwise
coriaceous – leathery
cucullate – hooded
decurved – bent down or back
dorsiventral – flattened, having a upper and lower surface
ellipsoid – shaped like an ellipse
elliptic – oval
epiphyte - growing on another plant for support and not as a parasite
falcate - sickle-shaped
filiform – threadlike
flexuous – sinuous; full of curves
fusiform – spindle-shaped
glumaceous – chaffy
hyaline – clear, transparent
imbricate – overlapping
incumbent – resting on something else
internode – joint
isthmus – narrow piece connecting two other parts
lanceolate – narrow oval tapering to a point at each end
ligulate – tongue-shaped
mentum – chinlike spur
oblanceolate - narrow at attachment, rounded apically
oblong – longer than wide, ends rounded
obovate – egg-shaped with the wide end up
obtuse – blunt or rounded
operculate – like a cap or lid
ovate – egg-shaped with the narrow end up
ovoid – egg-shaped, narrow end up
panduriform – fiddle-shaped
papillose – covered with small protuberences, like a cat's tongue
papyraceous – papery
pedicel – a stem carrying a single flower
peduncle – the lower part of the inflorescence below the first bud
petiole – stalk connecting leaf to stem
plicate - pleated
pollinarium – structure that is attached to the insect during pollination
quadrate – four-angled
reflexed - bent backward
resupinate – rotated to bring the lip lowermost
semi – half
serrulate – finely serrate, having small forward-pointing teeth
sessile – unstalked
stipe - a small stalk
sub - prefix meaning nearly or almost as in subpyriform - almost pear-shaped
trapezoid – one-sided figure with only two parallel sides
terete - cylindrical or pencil-shaped
trullate – shaped like a bricklayer's trowel
truncate - abruptly terminated as if cut off
unifoliate – single leaved
viscidium – the sticky pad on the caudicle or stipe of the pollinarium that attaches the pollinarium to a pollinator

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Cuban Orchids Illustrated

by Peggy Alrich and Wesley Higgins

ANNE KINGSBURY WOLLSTONECRAFT (1791–1828) was an American botanist, naturalist and botanical illustrator. She was born to Benjamin Kingsbury and Abigail Sawin in Rindge, New Hampshire. Very little is known about Anne Kingsbury's life before she married Charles Wollstonecraft, the brother of the feminist author and philosopher Mary Wollstonecraft, and uncle to Mary Shelley, author of *Frankenstein*. One of her nephews was Edward Wollstonecraft, a successful businessman in colonial Australia. Anne Wollstonecraft was instrumental in founding Poydras Female Asylum of New Orleans serving female children of widows left destitute in a city plagued by yellow fever and other contagions.

Shortly after the death of her husband from yellow fever, Anne Wollstonecraft moved to an American expatriate community in Matanzas, Cuba for convalescence. She studied the flora of the island and created an extensive illustrated manuscript with drawings and descriptions of plants; the manuscript also included accounts of their indigenous uses. Using the pseudonym D'Anville, she published two letters detailing her exploration of Cuba's ecology. Anne also wrote about women's issues, including "The Natural Rights of Woman" (D'Anville 1825), in which she appeared to echo many of Mary Wollstonecraft's (sister-in-law) views on women's education.

Like Georg Eberhard Rumphius, Anne Kingsbury Wollstonecraft never saw her illustrations in print. Circa 1827, Anne sent her manuscript, *Specimens of the Plants and Fruits of the Island of Cuba* to New York for publication, but the expense was too great for her to publish. With her death, the manuscript vanished into obscurity becoming a family heirloom.

Wollstonecraft's three-volume manuscript, comprised 220 text pages and 121 illustrated plates with descriptions relating historical acts, indigenous applications, poetry and personal observations. Following scientific conventions, the illustrations show vegetation, life cycles and dissections of reproductive parts.

Specimens of the Plants and Fruits of the Island of Cuba was thought by scholars to be a lost work. Father Félix Varela and José Antonio Saco mentioned drawings of Cuban plants by an American woman in their periodical, *El Mansajero Semanal*. A century later, Cuban scholar Carlos M. Trelles cited the work in Cuba. In 1901, the manuscript was reported to be in the possession of Benjamin Barnes Kingsbury of Defiance, Ohio (Kingsbury and Kingsbury 1901), who is the father of Benjamin Freeman Kingsbury. Professor B.F. Kingsbury, a Cornell professor and grandnephew of A.K. Wollstonecraft, known for his early description of mitochondria, donated the manuscript to the Cornell Rare and Manuscript Collections in 1923. However, the manuscript remained obscure due to miscataloging for another century.

Anne K. Wollstonecraft was self-taught. She writes in her manuscript: "It may be that I have mistaken the genus, and species to which botanists have assigned it. But without either books to inform or scientific friends to correct, it would be astonishing if I did not make any mistakes in the nomenclature and in the artificial arrangement of plants which have been presented to me and their characters unfolded by nature only without the slightest aid from scientific persons. I have yet not had so much as a single conversation with a botanist, much less a lesson, I describe the plants, as I have found, or thought I found them. No aid from others has aided me. It must be therefore that my descriptions shall prove faulty, yet I can affirm it is unavoidable, not willful faults that I shall deface these pages."

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— Wesley Higgins is an accredited AOS judge (wesley.higgins@comcast.net).

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Plate 85th.

Epidendrum Imbricatum.

4th Spe.

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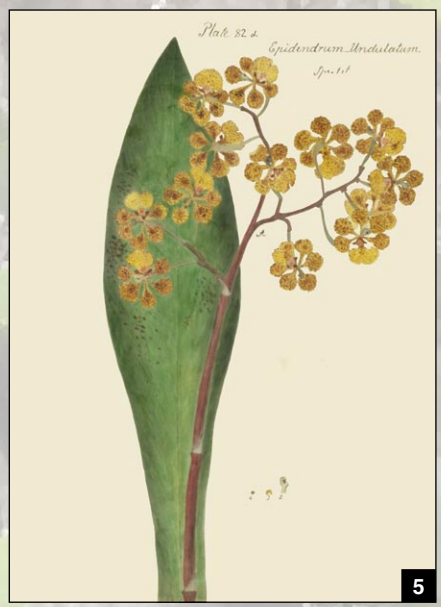

Antique Plates — Wollstonecraft

[1] *Prosthechea cochleata* (L.) W.E.Higgins as *Epidendrum*.
[2] *Prosthechea boothiana* (Lindl.) W.E.Higgins as *Epidendrum imbricatum*.
[3] *Cyrtopodium punctatum* (L.) Lindl. as *Granichis*.
[4] *Vanilla phaeantha* Rchb.f. as *Epidendrum vanilla*.
[5] *Trichocentrum undulatum* (Sw.) Ackerman and M.W.Chase as *Epidendrum undulatum*.
[6] *Microchilus plantagineus* (L.) D.Dietr. as *Satyrium plantagineum*.
[7] *Encyclia phoenicea* (Lindl.) Neumann as *Epidendrum fragrans*.

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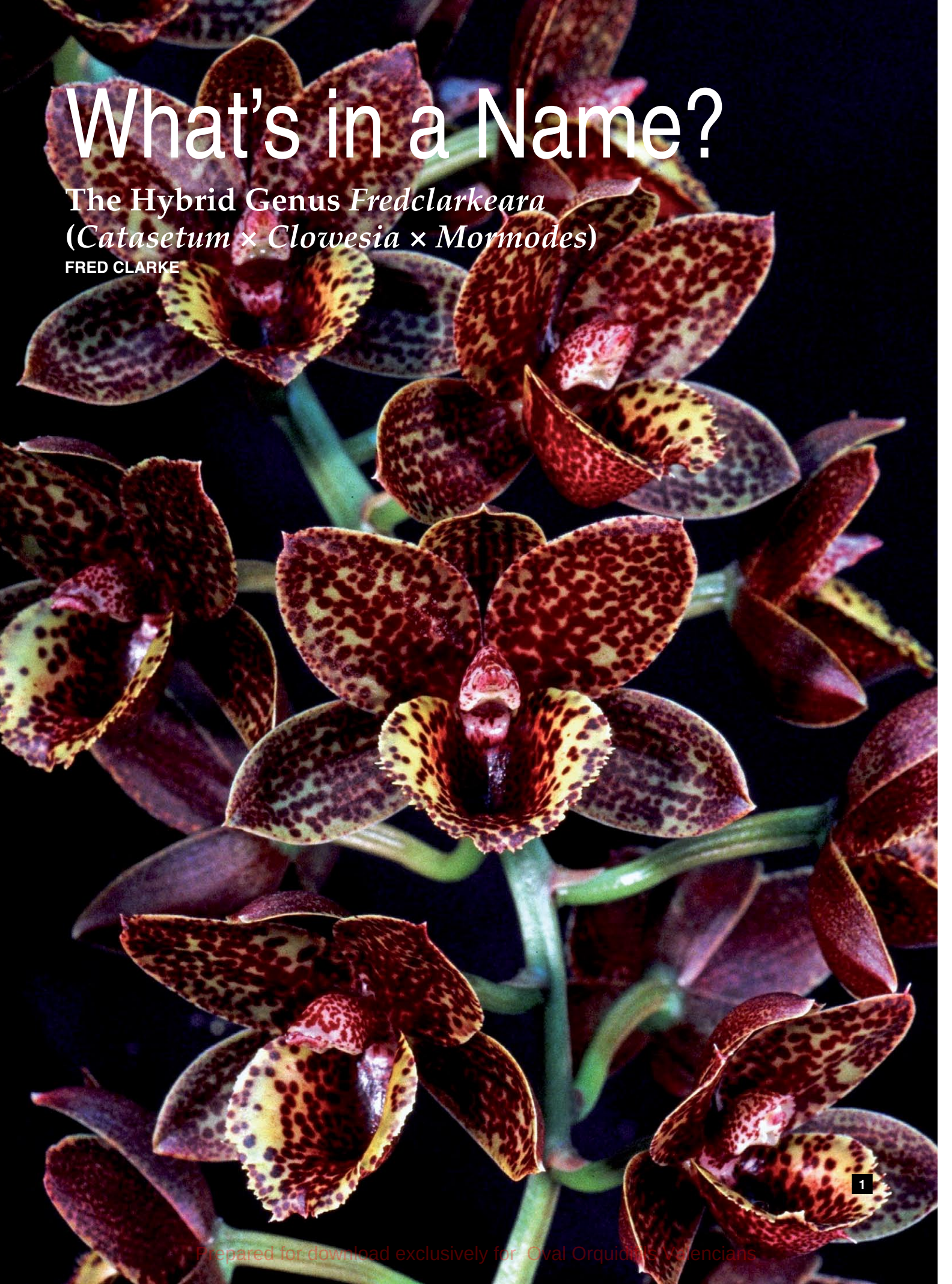
What's in a Name?

The Hybrid Genus *Fredclarkeara* (*Catasetum* × *Clowesia* × *Mormodes*)

FRED CLARKE



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MANY ORCHID HOBBYISTS are aware of the plant *Fredclarkeara* After Dark 'SVO Black Pearl' FCC/AOS. How did the hybrid genus (nothogenus) *Fredclarkeara* get its name? It all started on December 16, 1999 when *Mormodia* Painted Desert (*Clowesia* Rebecca Northen x *Mormodes sinuata*) and *Catasetum* Donna Wise (*tenebrosum* × Orchidglade) were crossed together. At that time, *Mo*. Painted Desert was called a *Catamodes*, the hybrid genus between *Catasetum* and *Mormodes*. Shortly thereafter, the accomplished Catasetinae taxonomist George Carr noted that some *Catasetum* species are sexually dimorphic, with separate and distinctive male and female flowers, while others have perfect flowers with both male and female reproductive parts in each individual bloom. George's work led to the shifting of this latter group of species from *Catasetum* into *Clowesia*, a genus first described by John Lindley in 1843. These species include *Clowesia amazonica*, *Clowesia dodsoniana*, *Clowesia glaucoglossa*, *Clowesia rosea*, *Clowesia russelliana*, *Clowesia thylaciochila* and *Clowesia warczewitzii*.

At that time, I had the cross (*Ctmds*. Painted Desert × *Ctsm*. Donna Wise) listed on the Sunset Valley Orchids website. George, who was also an avid collector and grower of Catasetinae, informed me of this change in a number of species from *Catasetum* to *Clowesia*. One result of this transition was renaming of hybrids with ancestors whose genus had changed. This meant that *Ctsm*. Rebecca Northen was now *Cl*. Rebecca Northen, and *Ctmds*. Painted Desert became *Mo*. Painted Desert. He also suggested that the progeny of this cross involving *Catasetum*, *Clowesia* and *Mormodes* would be eligible for a new hybrid genus name, once the first plant flowered.

Prior to that moment I had not considered the possibility of creating a new hybrid genus. I selected five plants equal in size to the best ones I was keeping and sent them to George for a gentleman's competition, stating: "The first person to bloom this new cross will have the naming rights to this genus and grex." The race was on! A year later, the first plant bloomed at Sunset Valley Orchids. It had spotted flowers and was later given the cultivar name 'Sunset Valley Orchids'. I have always liked dark and mysterious names for Catasetinae, so After Dark seemed appropriate for this new grex. I had no idea at the time that some would bloom with black flowers. I submitted the registration with the genus name as *Fredclarkeara* and grex name as After Dark, and a few weeks later the Royal Horticultural Society confirmed the registration. I was elated! I called George to let him know. Several years later, he was honored with a new hybrid genus, *Georgecarrara*, which is comprised of four natural genera: *Catasetum*, *Clowesia*, *Cycnoches* and *Mormodes*.

The original cross of *Fdk*. After Dark was made by placing the pollen from *Ctsm*. Donna Wise 'Kathleen' AM/AOS onto the


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FRED CLARKE

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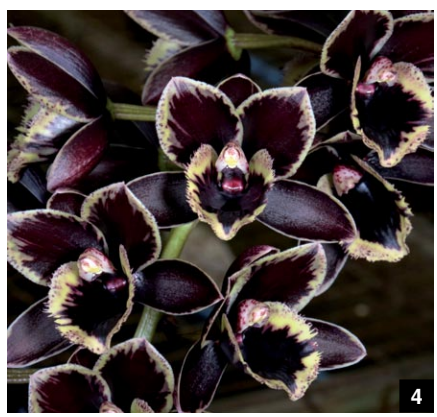
FRED CLARKE

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BAYARD SARADUKE

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[1] *Fdk*. After Dark 'Sunset Valley Orchids' FCC/AOS (*Mo*. Painted Desert × *Ctsm*. Donna Wise). Photograph by Charles Rowden.

[2] *Ctsm*. Donna Wise `Kathleen' AM/AOS (*tenebrosum* × Orchidglade); inset photograph *Mo*. Painted Desert 'Sunset Valley Orchids' HCC/AOS (*Cl*. Rebecca Northen × *Morm. sinuata*).

[3] *Fdk*. After Dark 'Black Diamond' FCC/AOS (*Mo*. Painted Desert × *Ctsm*. Donna Wise)

[4] *Fdk*. After Dark 'Crazy Good' AM/AOS (*Mo*. Painted Desert × *Ctsm*. Donna Wise)

[5] Andy Braun sent this photo of his beautifully grown *Fdk*. After Dark 'SVO Black Pearl', that received a 97 point CCE. The awards descriptions states "a magnificent display of a highly awarded grex with 147 cupped flowers and nine buds on nine inflorescences to 30 cm on a 64 cm wide by 50 cm tall plant in sphagnum moss in a 24 cm round plastic pot; all flower segments saturated black-red; column black on superior surface, cream on inferior surface; anther cap magenta; substance firm; texture waxy."

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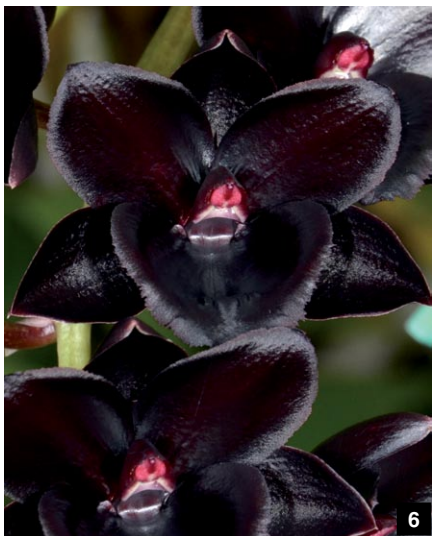
stigmatic surface of *Mo*. Painted Desert 'Sunset Valley Orchids' HCC/AOS. The seed capsule developed normally, as did the seedlings and the first plant bloomed in 2002, only three years after pollination. The first flowers were darkly spotted, had good form and exhibited lasting qualities. A year later, to my surprise and delight, the next two plants bloomed with solid black flowers. Wow! Until then, black orchid flowers were just a myth. Each plant had two inflorescences with 18-plus flowers apiece. I was anxious to exhibit these, but it was not to be. Rats, those no-good vermin, got the award for being the hungriest. They ate the pollen and nibbled the buds on both plants, seriously damaging the flowers. The following year, with plenty of rat bait in place, the two plants flowered again, and were awarded as 'Black is Black' AM/AOS and 'SVO Black Pearl' FCC/AOS.

The first *Fredclarkeara* grex, After Dark, was a significant breakthrough, setting a new standard for quality in Catasetinae breeding. The best qualities from the three genera were incorporated in its makeup. *Mormodes* is dominant for color and a strong inflorescence; *Clowesia* is dominant for shape, multiple inflorescences and flower longevity; *Catasetum* is dominant for flower size and lip shape and is known to complement or intensify bloom color. Plants of *Fdk*. After Dark have flowers with beautiful color, some as black as any orchid flower ever seen, with full shape and amazing fragrance. Plants are easy to grow and produce a high flower count with nearly unbelievable flower longevity of up to six weeks, far longer than any other Catasetinae species or hybrid. The origins of this remarkable characteristic are still unclear. *Catasetum* flowers last a week, *Mormodes* flowers last two to three weeks, and *Clowesia* flowers three to four weeks. At best, we would expect flower longevity to be around three weeks. Why are the flowers so long-lived? We do not know, but this trait is surely appreciated.

The flower color of the first *Fdk*. After Dark captured the most attention. Some of the first cultivars awarded were: 'Black is Black', 'SVO Black Pearl', 'SVO Black Knight', 'Ursa Negra', 'SVO Black Diamond' and 'Black Ice'. Some excerpts from the flower descriptions read: "sepals and petals black-burgundy; lip jet-black" and "entire flower very dark burgundy, appearing black." The exceptional cultivar, 'SVO Black Pearl' FCC/AOS, was cloned and distributed to hobbyists around the world. Not all the cultivars were


6 FRED CLARKE


7 ARNOLD GUM


9 FRED CLARKE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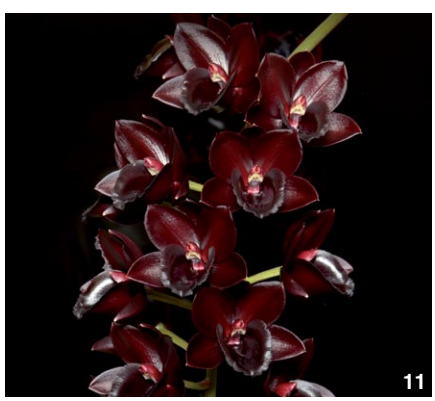
11 ARTHUR PINKERS


10 ARTHUR PINKERS

[6] *Fdk*. Midnight Sky 'Dark Perfection' (*Mo*. Painted Desert × *Ctsm*. Mark Dimmitt)
[7] *Fdk*. Desert Tenor 'Sunset Valley Orchids' FCC/AOS (*Mo*. Painted Desert × *Ctsm*. *tenebrosum*)
[8] *Fdk*. No Doubt 'Summer Wine' (*Mo*. Painted Desert × *Ctsm*. Susan Fuchs)
[9] *Fdk*. Frank Smith 'Sunset Valley Orchids' FCC/AOS (*Mo*. Painted Desert × *Ctsm*. John C. Burchett)
[10] *Fdk*. Gemstones 'SVO Amazing' AM/AOS (*Mo*. Painted Desert × *Ctsm*. Orchidglade)
[11] *Fdk*. Alexa's Raspberries 'SVO' (*Mo*. Painted Desert × *Ctsm*. *expansum*).
[12] Here is a good comparison of the improvements in overall size, lip shape and color. On the left is *Fdk*. After Dark and on the right (Midnight Sky × *Ctsm*. John C. Burchett).
[13] *Fdk*. Dark There After 'SVO Winter's Night' FCC/AOS (After Dark × *Ctsm*. Donna Wise)

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black. Some were boldly spotted deep burgundy, others a deep cherry red, and a couple were even green. The first clone of *Fdk*. After Dark was awarded in 2004, and awards are still being given 14 years later, most recently in January 2020, when Andy Braun received a Certificate of Cultural Excellence (CCE) at the Mid-Atlantic judging center for his spectacular 'SVO Black Pearl' FCC/AOS. On an interesting side note, these flowers and the fragrance inspired the development of a perfume called Tom Ford Black Orchid!

Fredclarkeara After Dark was a very successful hybrid, but *Fredclarkeara* breeding did not stop there. The superior qualities of this hybrid genus were so significant that more hybrids had to be made. There are now 54 registered *Fredclarkeara* hybrids, and the success of this breeding direction can be measured by the number of America Orchid Society awards received. To date, fredclarkearas have received 103 awards, including 17 First Class Certificates (FCC/AOS) and 62 Awards of Merit (AM/AOS). Outside the boundaries of the AOS judging system, fredclarkearas have earned an additional 52 awards worldwide. This is remarkable productivity for a recent hybrid genus.

The first generation *Fredclarkeara* hybrids were crosses made with *Mo*. Painted Desert 'Sunset Valley Orchids' HCC/AOS (*Cl*. Rebecca Northen × *Morm*. *sinuata*) as the capsule parent and a *Catasetum* as the pollen parent. Using *Mo*. Painted Desert as a parent resulted in many excellent offspring and awards.

Second-generation breeding strives to improve flower size, enlarge and flatten the lips and develop new flower colors, with a particular focus on flattening the cupped lip shape imparted by *Mo*. Painted Desert. The new hybrids were all made using catasetums with large flat lips as the pollen parent and a *Fredclarkeara* as the capsule parent. The improvements have been substantial, and second-generation fredclarkearas are even more impressive than their capsule parents.

The development of fredclarkearas in new colors required some new *Mormodia* (*Clowesia* × *Mormodes*) hybrids to be made. Thus far, two *Mormodia* hybrids have been fertile and shown promise as parents: *Mormodia* Lime Tiger (*Clowesia* Grace Dunn × *Mormodes elegans*) and *Mormodia* Jumbo World (*Cl*. Grace Dunn × *Mormodes buccinator*).

What does the future hold for *Fredclarkeara* breeding? How about flowers in orange and pink tones? This may be easier said than done, but we are

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14 ARNOLD GUM

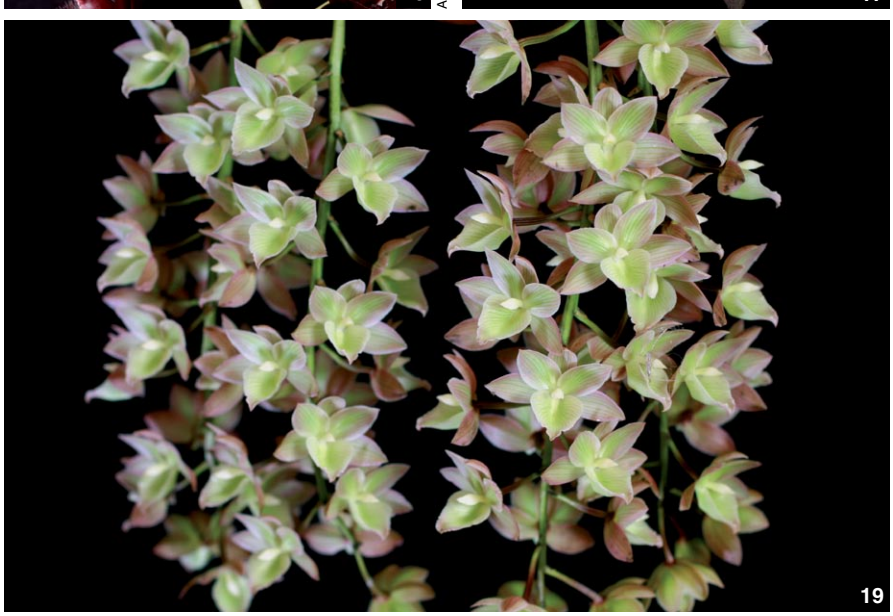

15 FRED CLARKE

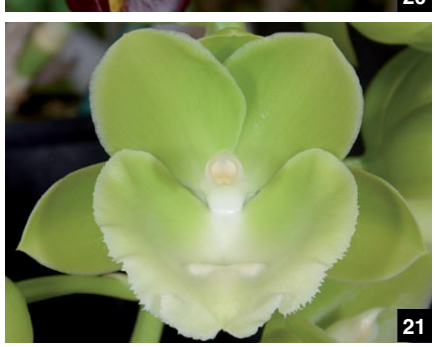

18 HISAKAZU SUGIYAMA


16 ARNOLD GUM


17 FRED CLARKE


20 FRED CLARKE


19 TERRY BOTTOM


21 FRED CLARKE

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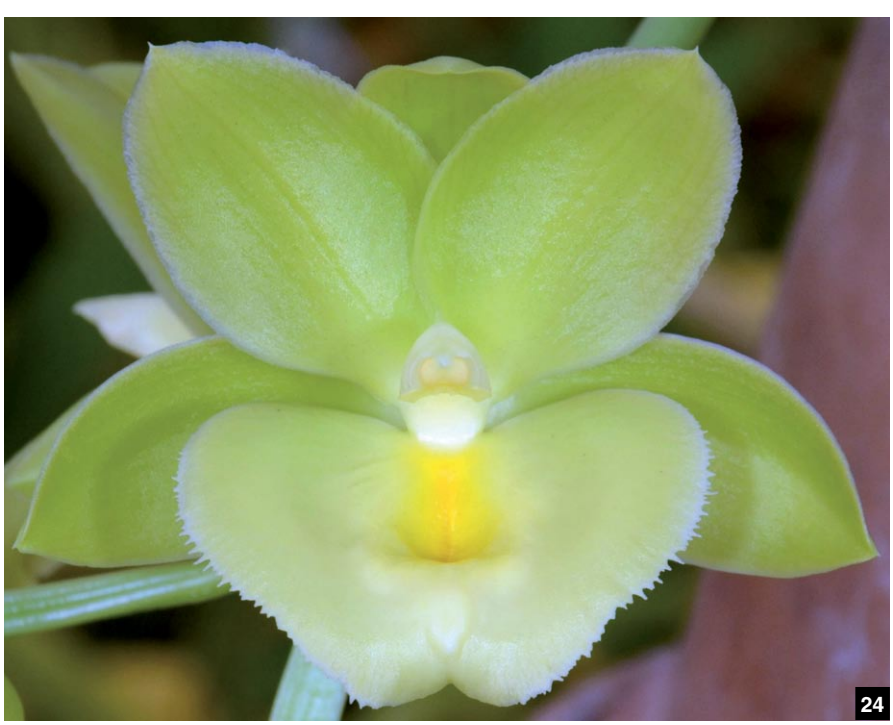
[14] *Fdk.* After Midnight 'Sunset Valley Orchids' AM/AOS (After Dark × *Ctsm.* Mark Dimmitt)
[15] *Fdk.* Enter Light 'SVO Grasshopper' AM/AOS (After Dark × *Ctsm. pileatum*)
[16] *Fdk.* Enter Light 'SVO Dark Beauty' FCC/AOS (After Dark × *Ctsm. pileatum*)
[17] *Fdk.* Doubtless 'Sunset Valley Orchids' (No Doubt × *Ctsm.* Orchidglade)
[18] *Fdk.* Beverly Danielson 'Midnight' GM/JOGA (After Midnight × *Ctsm.* Orchidglade)
[19] *Mormodia* Lime Tiger 'St. Augustine' AM/AOS (*Cl.* Grace Dunn × *Morm. elegans*)
[20] *Fdk.* Majestic Orchids Shopper (After Midnight × *Ctsm.* John C. Burchett)
[21] Fdk. Providence (Mo. Jumbo World × Ctsm. pileatum)
[22] *Mormodia* Jumbo World 'Olympic Gold' (*Cl.* Grace Dunn × *Morm. buccinator*)
[23] Fdk. Turning Point (*Mo.* Lime Tiger × *Ctsm. expansum*)
[24] Fdk. Upgrade (*Mo.* Jumbo World × *Ctsm. spitzii*)

making new *Mormodia* hybrids with the appropriately colored *Mormodes* for use in future breeding. It may take a while to achieve this goal, but I am sure it will be a fascinating journey!

ACKNOWLEDGMENTS

I am greatly honored and indebted to have Ron Kaufmann and Sue Bottom as my editors; their combined insights and wisdom are truly beneficial.

— Fred Clarke owns and operates Sunset Valley Orchids, located near San Diego, California, USA. His interest in Catasetinae spans over 30 years, and he is recognized as the foremost breeder of plants in this group. His hybridization efforts and commitment to the worldwide education of hobbyists in the culture of Catasetinae has created renewed interest in this amazing group and helped to establish Catasetinae as ideal plants for growers of all types (email: fred.clarke@att.net; website: www.sunsetvalleyorchids.com).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Small-Flowered Phalaenopsis

Part 2: Novelty Hybrids

BY ANDREW COGHILL-BEHRENDS

1

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PETER LIN (2015) suggested these seven species are the building blocks of the novelty phalaenopsis hybrids, all from within the subgenus *Polychilos*: *Phalaenopsis amboinensis, Phalaenopsis bellina*, *Phalaenopsis gigantea*, *Phalaenopsis lueddemanniana*, *Phalaenopsis micholitzii*, *Phalaenopsis venosa* and *Phalaenopsis violacea*. What these species impart to their progeny is remarkable color, substance and fragrance. Lin further distinguishes the novelty phalaenopsis as follows (Lin 2015):

STANDARD PHALAENOPSIS

- Winter-to-spring blooming
- Flowering induced by cooler temperature for 2–4 weeks
- From spike to first flower is 4 months on long, branching inflorescences
- No fragrance

NOVELTY PHALAENOPSIS

- Spring-to-summer blooming
- Flowering induced by longer days, shorter nights and warmer temperature
- From spike to first flower is two months on a shorter inflorescence
- Usually fragrant
- Substance hard
- Waxy texture

In addition, another thing that separates the species and hybrids of this group from standard phalaenopsis is that the flowers are stellate, with sepals that approach or equal the petals in size (Lin 2015).

The goals of hybridizing within the novelty phalaenopsis are brilliant color (without the yellow base color fading), sweet fragrance, waxy texture, exotic markings in a variety of colors, improved flower size, and improved plant vigor. One trend in current hybridizing is going back and remaking old hybrids with newer, improved color forms, such as the *Phal. violacea* var. *coerulea* or *Phal. amboinensis* f. *flava* (Lin 2015). The coerulea colors tend not to be passed on to offspring, but they can make red colors more intense.

BRIAN MONK

JUDITH HIGHAM

[1] *Phalaenopsis* Guadalupe Pineda 'Mom' HCC/AOS; exhibitor: Jordan Hawley; photographer: Richard Noel.
[2] *Phalaenopsis amboinensis* 'Krull's Monster Man' AM/AOS; exhibitor: Krull-Smith; inset photograph of 'Krull's Yellow King' AM/AOS by James Harris.
[3] *Phalaenopsis bellina* 'Chen' AM/AOS; exhibitor: Pat Van Adrichem.

THE SPECIES

***Phalaenopsis amboinensis* J.J. Smith (1911)**

This species was "first described in 1911 by J.J. Smith when found in a collection by Lach de Bere at the Botanical Gardens at Bogor on the island of Java [and] is native to the island of Amboina (Ambon) and the islands of the Moluccas between Borneo and New Guinea" (Hager 1979).

The base color is off white to chartreuse yellow with "cinnamon-red transverse bars with the tepals quite often tipped with chartreuse." Hager (1979) further refers to the species as rediscovered due to the fact the "it was not used extensively in hybridizing until the 1960s," likely because the yellow forms were not widely available until the 1950s when their "dominant carotenoid pigment gave us hybrids of stronger, more variable color" (Martin 1996). Another distinct advantage in using *Phal. amboinensis* as a parent is that it is "often with branched spikes on older, more mature plants." (Hager 1979) "Although most hybridizing work with *Phalaenopsis amboinensis* has been since 1975, hybridists have apparently found the species to be a most useful parent, for it imparts heavy substance with colors ranging from yellow and brown to chartreuse to its offspring. Hybrids with *Phalaenopsis amboinensis* ancestry usually reveal their heritage through either cinnamon-red transverse bars or stippled patterns on the floral segments . . . [The] spots and barring are very good at contributing some of the red colors in phalaenopsis hybridizing today." (Harper 1997)

Phalaenopsis amboinensis 'Krull's Monster Man' AM/AOS and 'Callum' AM/AOS are examples of the yellow form common in hybridizing. 'Callum' was especially floriferous with 29 flowers and three buds on six inflorescences. The clone 'Pam' 2012 shows the flava form of the species. One thing of note in all three of these clones is that the symmetry of the flowers is somewhat lacking and this is not uncommon.

The clone 'Krull's Yellow King' AM/AOS is a wonderful example of a clone that has better symmetry. Despite only having two flowers at the time of presentation, the full, rounded form of the flower and intense color warranted the AM/AOS.

***Phalaenopsis bellina* (Rchb.f) Christenson (1995)**

This species was formerly known as *Phal. violacea* var. *borneo* but was

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elevated to species status in 1995. When compared to *Phal. violacea*, *Phal. bellina* is "usually a little larger but on many the lateral sepals are inclined to be somewhat bow-legged. The much darker color is mostly confined to the inside half of the lateral sepals" (Freed 1978).

Phalaenopsis bellina 'Chen' AM/AOS is a wonderful example of the species. This clone had previously been awarded with an AM/AOS a year earlier with three 2-inch (5.1-cm) flowers and one bud on a single inflorescence. In 2014, the plant presented with "five impressive full, flat flowers and three buds on three inflorescences; sepals and petals cream-colored, distal third overlaid light green, magenta halo on base of dorsal sepal and petals, lower half of lateral sepals purple; lip side lobes deep yellow, distal end deep velvety violet." The flowers were also larger with a natural spread of 2.3 inches (5.8 cm).

There is a caerulean form of *Phal. bellina* as exemplified in *Phal. bellina* (coerulea) 'Blue Ribbon' AM/AOS with "three flat flowers and six buds on five inflorescences, one branched; sepals and petals elliptical, white, margins light green, overlaid light violet basally; lateral sepals inferior half overlaid grape violet; lip midlobe grape violet, side lobes yellow." The clone 'Jamie' FCC/AOS was also awarded as coerulea. I do not feel that the color warrants the coerulea designation.

Phalaenopsis bellina 'Meir's Gift' CCE/AOS is a good example of the growth habit of the species when well grown. At the time of judging, the plant was described as having "twelve flowers and three buds on eight inflorescences . . . sepals and petals light apple green, lighter centrally; lateral sepals inferior proximal one-half fuchsia . . ."

***Phalaenopsis gigantea* J.J. Smith (1909)**

Phalaenopsis gigantea (so named for the size of the plant, not the flowers) has a base color that starts as a creamy white but matures to yellow (Lin 2015). It has magenta spotting (typically heavy spotting), which is useful in hybridizing. Other positive traits in offspring are heavy substance and roundness. Both the overall flower shape and the shape of the individual segments are much more rounded than in other species in the subgenus *Polychilos*. The flower count is also higher in this species than in others, with some clones approaching 45 flowers per inflorescence. The flowers can tend to be crowded on the inflorescence. Unfortunately, it imparts its large plant size to its offspring and not necessarily its floriferous nature.


GREG ALLIKAS

The clone 'Krull's Ruby' AM/AOS had an impressive "fifty-eight flowers and three buds on three pendulous inflorescences; sepals and petals cream heavily overlaid with concentric burgundy bars and spots, cream halo centrally . . . substance hard; texture waxy."

Phalaenopsis gigantea 'Crystal Star' HCC/AOS is the most recently awarded clone of the species and shows another of the negative traits of the species: flowers typically do not face the same direction. This clone had "thirty-six striking, slightly cupped, round flowers arranged in spirals along two pendent inflorescences."

Phalaenopsis gigantea 'Leslie Keller' CCE/AOS shows the growth and flowering habit typical of the species: large hanging leaves and strongly pendent inflorescences. At the time of judging, the plant had "one hundred forty-two flowers and six buds on five inflorescences . . ."

***Phalaenopsis lueddemanniana* Rchb.f (1865)**

This highly awarded species can be found in the background of many of the red hybrids (Harper 1997). The red spots and bars on a white background can approach near coalescence giving the appearance of a red flower. One of the unique traits of this species is that the color of the petals seems to be midway between that of the lip and the sepals.

The clones 'Jim & Melana' AM/AOS and 'Gabriela Teresa' FCC/AOS are good examples of the typical color form. 'Gabriela Teresa' in particular was described as having "five magnificent, flat, full, stellate flowers and five buds on three pendent inflorescences; sepals and petals ivory, heavily suffused fuchsia and barred magenta, darker on distal two-thirds of sepals and distal one-third of petals . . ." Interestingly, it is likely that the


JAMES HARRIS

[4] *Phalaenopsis bellina* 'Meir's Gift' CCE/AOS well-illustrates the growth habit of this species. 'Blue Ribbon' AM/AOS (inset photograph by Manuel Aybar) illustrates the blue form of the species. Both plants were exhibited by Meir Moses, Orchid Konnection.

[5] *Phalaenopsis gigantea* 'Leslie Keller' CCE/AOS grown by Graham Ramsey illustrates the growth habit; inset photograph by Jay Norris of 'Crystal Star' HCC/AOS exhibited by Ellen and Eric Lee, Crystal Star Orchids.

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color of the barring did not change, but rather the base color did.

The most recently awarded clone of the species is *Phal. lueddemanniana* 'Cherokee' CHM/AOS as f. *ochracea.* It was described as having "ten charming albescent flowers and several immature buds on seven inflorescences; base color of all parts white; very faint yellow markings on distal one-third of sepals; lip midlobe white, side lobes canary yellow; column white with hirsute midrib; substance firm; texture waxy, awarded for almost completely white sepals and petals, a horticulturally desirable trait."

***Phalaenopsis micholitzii* Rolfe (1920)**

Phalaenopsis micholitzii is only modestly involved in the hybridizing of novelty phalaenopsis. Its 54 registered first-generation offspring have only garnered a total of 10 awards. While the clean white color of the flowers is pleasing, the segments are not as full as other members of subgenus *Polychilos* and are moderately reflexed proximal to the column.

Phalaenopsis micholitzii 'Glen Ridge' AM/AOS is the most highly awarded of the species and is the only clone to largely overcome the reflexing prominent in other clones. It was described as having "twenty-four flowers on 16 inflorescences . . . sepals and petals translucent, satiny, ivory-white with faint tinge of light green at outer edges."

***Phalaenopsis venosa* Shim and Fowlie (1983)**

Phalaenopsis venosa is an Indonesian species that produces sequentially blooming flowers appearing only a few at a time. The flowers of awarded clones range from 1½–2⅓ inches (3.7–6.0 cm) in natural spread, although the larger flowers are somewhat rare with the median natural spread being only 1⅔ inches (4.2 cm). The stellate flowers have a base color of yellow and are heavily barred with some clones achieving full coalescence.

Phalaenopsis venosa 'Melencia' FCC/AOS is exceptional for its size (2.4-in [6-cm] natural spread) and for the fullness of the segments. It was described as "two very large, full, flat flowers and two buds on two mature inflorescences plus one additional immature inflorescence; sepals and petals chartreuse overlaid clear burnt orange, white centrally, picotee chartreuse."

Phalaenopsis venosa 'Paraiso Tropical' HCC/AOS is more typical of the awarded


IRMA SALDAÑA


GREG ALLIKAS


IRMA SALDAÑA

[6] *Phalaenopsis lueddemanniana* 'Gabriela Teresa' FCC/AOS exhibited by Carlos Fighetti; inset (photograph by Greg Allikas): 'Jim & Melana' AM/AOS; exhibitor: Jim and Melana Davison.

[7] *Phalaenopsis micholitzii* 'Glen Ridge' AM/AOS; exhibitor: McLane Orchids, Inc.

[8] *Phalaenopsis venosa* 'Paraiso Tropical' HCC/AOS; exhibitor: Carlos Fighetti

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clones with a natural spread of 1⅔ inches (4.2 cm) and shows a form with nearly coalesced barring. At the time it was judged, it held "three boldly marked flowers on one upright inflorescence; sepals and petals ovate; bright yellow, almost completely overlaid maroon, bright white basally; dorsal sepal upright; lateral sepals blotched white on inner halves; petals yellow picotee . . ."

***Phalaenopsis violacea* Witte (1861)**

Phalaenopsis violacea is the most prodigious of the novelty species, both in terms of awards and in terms of registered progeny. It imparts to its progeny the ability to achieve near complete suffusion in the floral segments and the tendency to have segments that are sharply pointed with chartreuse tips. Generally, the form of *Phal. violacea* is much better than that of *Phal. bellina* and the color achieves better suffusion. There are multiple color forms of *Phal. violacea* making for a large degree of variability in its offspring.

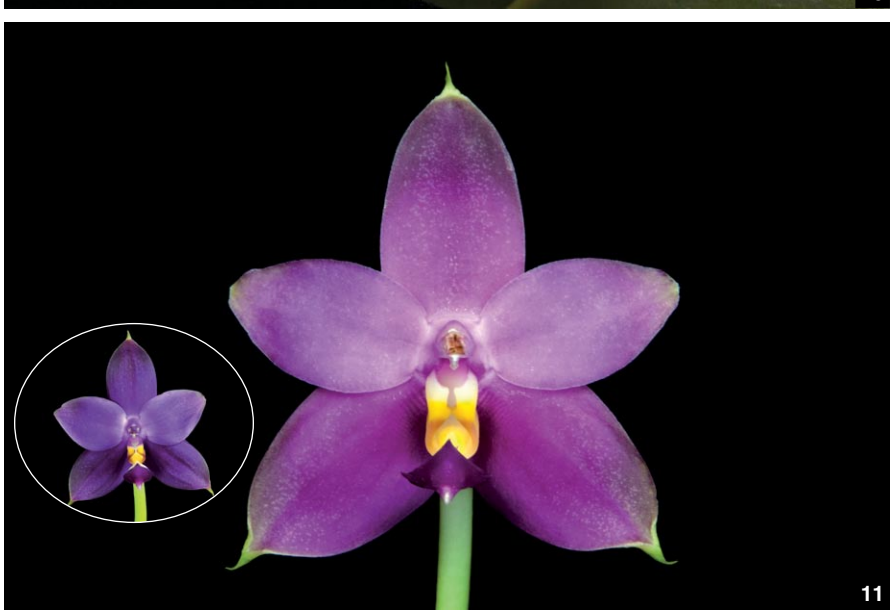
The more typical form of *Phal. violacea* is well represented by the clones 'Bold Eagle' AM/AOS and 'Arnie' AM/AOS. In 'Arnie', especially, it is possible to still see the distinction between the superior and inferior halves of the lateral sepals.

An alba form of *Phal. violacea* exists and has been awarded several times recently. Among the awarded clones are 'Jayne Garrison' HCC/AOS and 'Krull's Ghost' HCC/AOS. 'Krull's Ghost' was described as having "flower base color cream; sepals and petals tipped bright green; lip cream, side lobes canary yellow; substance hard; texture matte," which demonstrates the tendency for green-tipped segments.

There is also a caerulean form of *Phal. violacea.* Two clones that were awarded as caerulean forms are 'Galumph' AM/AOS and 'Jamie Fang' HCC/AOS. These clones seem to be marginally caerulean, at best, especially considering there are much better clones — even if they were not presented as caerulean forms. For example, the clones 'Lady Stella' AM/AOS, 'Blue Ridge Darkness' HCC/AOS and 'Blue Ridge Blueberry' AM/AOS are clearly caerulean, despite the lack of such designation. The latter clone was described as having "one stellate flower on one inflorescence with two immature inflorescences; sepals and petals heavily saturated dark grape purple, lightening slightly toward apices; sepal apices bright green; lip white, side lobes bright yellow tipped grape purple, midlobe dark grape purple . . ."


9 ARNOLD GUM


10 DAVID GOULD


11 ARNOLD GUM

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THE NOVELTY HYBRIDS

Peter Lin (2015) indicates that there are several goals of breeding in the novelty hybrids: brilliant color without the yellow base color fading, waxy texture, sweet fragrance, exotic markings in a variety of colors, increased flower size, and increased plant vigor. It will be noted that I am not including in this section *Phalaenopsis* Samera, the primary cross between *Phal. bellina* and *Phal. violacea*. While this grex is highly awarded, with 21 flower quality awards, none of the grex's offspring have garnered an award through the American Orchid Society. This is bound to change, however, as nearly all of the offspring have been registered since 2016.

GREG ALLIKAS

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***Phalaenopsis* David Lim (*amboinensis* × *gigantea*)**

This hybrid provides a lesson in the usefulness for *Phal. gigantea* in hybridizing efforts. It was registered by its namesake, David Lim, in 1974. Unfortunately, Mr. Lim — who was a prodigious hybridizer of *Phalaenopsis*, especially novelty phalaenopsis — passed away near the end of 2018. The first clone was awarded in 1983, but then it was not recognized again until 2012. It is worth noting that a single clone ('Big Leaf Orchids') has garnered three of the five extant awards.

The impact of *Phal. gigantea* on floriferousness, even in first-generation hybrids such as this one, is inconsistent at best. Of the four descriptions available, the flower count per inflorescence ranged from three (similar to the *Phal. amboinensis* parent) to nearly 10, which is still a far cry from what one would want from a *Phal. gigantea* hybrid. The grex has 22 first-generation hybrids and 23 total progeny, none of which has been awarded.

Phalaenopsis David Lim 'Big Leaf Orchids' AM/AOS-CCM/AOS was awarded with 21 flowers on seven inflorescences and a natural spread of 2.4 inches (6 cm). It was noted that it was "upgraded to an AM for floriferousness and increased flower size."

Phalaenopsis David Lim 'Loretta' AM/AOS shows the opposite end of the spectrum with 19 flowers on two inflorescences measuring 2.5 inches (6.4 cm) natural spread. It was noted that the "arching, pendent inflorescences and flower distribution [were] influenced by [the] *gigantea* parent."

***Phalaenopsis* Guadalupe Pineda (*bellina* × *amboinensis*)**

Phalaenopsis Guadalupe Pineda was bred by Cesario Gene Tobia. Due to the recent acceptance of *Phal. bellina* as a species, there has not been sufficient time to explore this breeding line, but Guadalupe Pineda does have 13 registered first-generation offspring and shows significant promise for further exploration. There are some flava forms of this hybrid; none of them, however, have been awarded.

There is a flava variant of this grex. *Phalaenopsis* Guadalupe Pineda 'Catherine Baritell' HCC/AOS appears to be a nearly solid yellow, although it is described as cream with chartreuse overlays with only hints of the barring of *Phal. amboinensis* and with a bright-white lip midlobe and column.

Phalaenopsis Guadalupe Pineda 'Krull-Smith' AM/AOS possesses the highest award for quality. It presented with "base color yellow overlaid red in pleasing concentric circles radiating from center on proximal half of dorsal sepal and petals; dorsal sepal slightly cupped, tipped green at apex; lateral sepals display *Phal. bellina* pattern; petals flat, apices pointed; lip jutting, midlobe thick triangular shape . . ."

Phalaenopsis Guadalupe Pineda 'Mom' HCC/AOS is the most recently awarded clone. The description was written as: "twelve flowers and nine buds on six branched inflorescences; sepals and petals light chartreuse, overlaid, barred and spotted brick red, concentrated proximally, lateral sepals overlaid magenta on inferior half . . .substance firm; texture waxy." In looking at this clone, it is less evident that the colors, as they bleed into each other, are distinct.

DAVID OLDHAM

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[9] *Phalaenopsis violacea* 'Arnie' AM/AOS exhibited by Arnold Gum shows the distinctly different color of the dorsal and ventral halves of the lateral sepals.

[10] *Phalaenopsis violacea* f. *alba* 'Jayne Garrison' HCC/AOS exhibited by Olie Garrison.

[11] Caerulean forms (f. *coerulea*) of the species: 'Jamie Fang' HCC/AOS exhibited by Norman's Orchids; inset: 'Blue Ridge Darkness' HCC/AOS exhibited by Mike Mims; photographer: James Harris.

[12] *Phalaenopsis* Guadalupe Pineda 'Catherine Baritell' HCC/AOS, a rare completely yellow form, exhibited by Tom Coffey; inset photographed by Jim Tear: 'Krull-Smith' AM/AOS exhibited by Krull-Smith.

[13] *Phalaenopsis* David Lim 'Loretta' AM/AOS exhibited by Chris Rehmann.

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[14] *Phalaenopsis* Princess Kaiulani 'Chin Yo' AM/AOS; exhibitor: Orchid Konnection; photographer: David Gould.

[15] *Phalaenopsis* Princess Kaiulani 'Johanna Hennessey' AM/AOS; exhibitor and photographer: Larry Hennessey.

[16] *Phalaenopsis* Penang Girl 'I Love The Nightlife' AM/AOS; exhibitor: Jeff Tyler; photographer: Ramon de los Santos.

[17] *Phalaenopsis* Luedde-Violacea 'Krull-Smith' AM/AOS; exhibitor: Krull-Smith; photographer: Leslie Williams.

[18] *Phalaenopsis* George Vasquez 'Crystelle' FCC/AOS; exhibitor: Krull-Smith; photographer: Greg Allikas.

[19] *Phalaenopsis* Phoenix Gem 'Desert Rose' HCC/AOS; exhibitor: Eric Goo, Phoenix Orchids; photographer: Chaunie Langland.

[20] *Phalaenopsis* Malibu Imp 'Lisa' HCC/AOS; exhibitor: Roger Brown; photograph from the award archives.

[21] *Phalaenopsis* Venimp 'Bredren' AM/AOS; exhibitor: Phillip Hamilton, Bredren Orchids; photographer: Wes Newton.

[22] *Phalaenopsis* Phoenix Imp 'Trinity' AM/AOS; exhibitor and photographer: Eric Goo, Phoenix Orchids.

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***Phalaenopsis* Princess Kaiulani (*violacea* × *amboinensis*)**

This hybrid was first produced by Oscar Kirsch in the late 1950s. The cross has been repeated by many hybridizers since and has been highly successful. "This is a small novelty cross that cannot miss when proven parents are used" (Freed 1978). It is one of the most highly awarded novelty phalaenopsis and has been used extensively as a foundation for complex breeding with 231 first-generation offspring. It is without question, however, that many clones of Princess Kaiulani (and subsequent progeny) were made with *Phal. bellina* (making them *Phal.* Guadalupe Pineda) prior to that species' formal acceptance.

Phalaenopsis Princess Kaiulani 'Johanna Hennessey' AM/AOS and 'Crystal Star' HCC/AOS are two good examples of the flava form of this grex. The clone 'Johanna Hennessey' presented with "sepals and petals concolor yellow; lip ivory; column and anther cap white; substance heavy; texture matte."

The more standard color form of the grex is well represented by the clones *Phal.* Princess Kaiulani 'Caribbean Sunset' AM/AOS and 'Chin Yo' AM/AOS-CCM/AOS. At the time of the 2016 awards to 'Chin Yo', it was described by the judges as having "fourteen full, flat, vibrantly colored, very fragrant flowers and six buds on four inflorescences; sepals and petals distally vivid yellow, faintly striped orange, transitioning through a color gradient from yellow to orange to hot pink to vivid magenta centrally; lip dark magenta, side lobes orange; substance very hard, texture iridescent."

***Phalaenopsis* Gelblieber (*amboinensis* × *micholitzii*)**

Phalaenopsis Gelblieber, despite being underwhelming as a grex and having only received one award to the clone 'Arienne' HCC/AOS, has been instrumental in the development of yellow complex hybrids, with 39 first-generation offspring and even more progeny in further generations.

Phalaenopsis Gelblieber 'Arienne' presented with exceptionally large flowers (2.4-in [6.1-cm] natural spread) and had "eleven flowers and four buds on four inflorescences; sepals and petals soft white, blending to pale yellowish green toward edges, with light tan barring most pronounced on lateral sepals; lip white with yellow side lobes."

***Phalaenopsis* Penang Girl (*venosa* × *violacea*)**

Penang Girl has been a modestly awarded grex, but it is a relatively prolific parent and has 70 first-generation offspring. As there are multiple color forms of *Phal. violacea* to work with, there is the expected corresponding variety in Penang Girl.

Phalaenopsis Penang Girl 'Chin Yo' HCC/AOS appears to be made with a standard color form of *Phal. violacea*. The solid-yellow background is suffused with magenta centrally giving a reddish-orange appearance. It was described as having "five colorful, fragrant flowers and two buds on four branched inflorescences; sepals and petals ochre-yellow, proximal halves suffused tomato red . . ."

Phalaenopsis Penang Girl 'I Love The Nightlife' AM/AOS is the most recently awarded clone of the grex. It appears to look as if this clone was made with a coerulea form of *Phal. violacea*. As such, the overlay on the yellow background — though more complete — does not give the rich red color of 'Chin Yo' and appears more brown. It was floriferous, however, with "thirty-one flowers and 11 buds on nine arched inflorescences; sepals and petals chartreuse, overlaid rose-mahogany, centrally fuchsia-pink . . ."

***Phalaenopsis* Luedde-violacea (*lueddemanniana* × *violacea*)**

*Phal*aenopsis Luedde-violacea was originated by James Veitch with no listed date, presumably within the early years of orchid hybridizing (Freed 1978). Freed also noted that there was one clone that was awarded with an FCC/RHS in 1895, but that there were no further awards until the cross was remade by Lewis Vaughn with several clones being awarded in 1965. It has been remade several times and is used extensively as a parent with 83 first-generation offspring and a whopping 2,507 total progeny.

Despite the high number of awards, only one clone has been awarded during this century. *Phalaenopsis* Luedde-violacea 'Krull-Smith' AM/AOS shows the potential for color suffusion with a well-chosen *Phal. violacea* parent. Although the color and form were exceptional, this clone carried few flowers per inflorescence, with "sepals broad and pointed, rich concolor medium fuchsia, apices faint green, lateral sepals slightly splayed; petals ovate, medium fuchsia…."

***Phalaenopsis* George Vasquez (Luedde-violacea × *violacea*)**

Phalaenopsis George Vasquez was bred by Hugo Freed in 1974 and has been an important building block in phalaenopsis breeding programs. The only recently awarded clone of this hybrid is *Phal.* George Vasquez 'Crystelle' FCC/AOS (90), which was awarded in 2013. It had "[six impressive full, flat, flowers and eight buds on three inflorescences; flowers intensely saturated rich, deep fuchsia; substance firm; texture crystalline." The form of this clone was much improved over previously awarded clones. This particular hybrid has been used extensively in novelty breeding and the names of many of its progeny can be seen in the background of many successful hybrids, such as Tabasco Tex (George Vasquez × Princes Kaiulani), Dotty Woodson (Tabasco Tex × George Vasquez) and Zuma Garnet (George Vasquez × Venimp).

***Phalaenopsis* Phoenix Gem (Dotty Woodson × Penang Girl)**

Phalaenopsis Phoenix Gem was bred by Eric Goo in 2012. It has a single award, but the awarded clone is indicative of some of the results that can be obtained with this line of breeding. Phoenix Gem 'Desert Red' HCC/AOS (75) was awarded in 2016 and displays impressive suffusion of color. It was also quite floriferous for the breeding line, with "four flowers and four buds on two inflorescences; sepals green, completely overlaid orange-red, green midline keel on dorsal surface of sepals; petals red-orange . . ."

***Phalaenopsis* Malibu Imp (Luedde-Violacea × *amboinensis*)**

Phalaenopsis Malibu Imp was bred by Hugo Freed in 1977. It has received numerous awards and has been a launching platform for many successful hybrids. The first award to the grex was in 1991 to the clone 'Lisa' HCC/AOS. It was noted to have "six flowers on two inflorescences, with four of the six flowers pleasingly arranged on the larger inflorescence; flowers matte magenta, with contrasting yellow side lobes; sepals and petals with dark magenta bars, their apices tipped green; lip midlobe red-lavender."

***Phalaenopsis* Venimp (Malibu Imp × *venosa*)**

This is a fairly consistent hybrid with variation in the degree of coalescent barring. There have been two clones awarded since the turn of the century: one for flower quality and one for culture.

Phalaenopsis Venimp 'Clovercroft' AM/AOS shows a form with near entire coalescence. The flowers were described

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as " . . . sepals and petals golden yellow heavily overlaid oxblood red, suffused golden yellow apically . . ."

Phalaenopsis Venimp 'Sedona #11' CCE/AOS was awarded with "sixty-four flowers and 21 buds well arranged on 11 branched inflorescences; one plant with eight keikis uniformly arranged around circumference of a 20-cm bulb pan . . ." This clone seems to have strong influence from the *Phal. amboinensis* grandparent and thus shows a less heavily coalesced color pattern making the yellow base color evident.

Phalaenopsis Phoenix Imp 'Trinity' AM/AOS (Venimp × Penang Girl)

Eric Goo registered the grex, which (as described by the judges of the awarded clone) had an even more impressive "seven flowers and six buds on two branched upright inflorescences and ten buds on two immature branched inflorescences; sepals dark gold, overlaid vibrant pink basally, becoming dark red centrally and gold apically; petals gold, veined red, overlaid vibrant dark pink basally, red blotches centrally…"

Phalaenopsis Phoenix Firebird (Venimp × Dotty Woodson)

Phalaenopsis Phoenix Firebird also came from Eric Goo. *Phalaenopsis* Dotty Woodson is a hybrid of George Vasquez and Tabasco Tex, which is itself a *Phal.* George Vasquez hybrid. Eric Goo has been working with these novelty breeding lines fairly extensively and has achieved considerable success. This grex has been awarded once to the clone *Phal.* Phoenix Firebird 'Trinity' AM/AOS. At the time it held a remarkable six flowers and three buds on two inflorescences. The flowers were described as ". . . sepals and petals intensely colored deep red; lip white, side lobes overlaid yellow, midlobe deep pink-red; column magenta, anther cap white; substance firm; texture glossy."

Phalaenopsis Yungho Gelb Canary (Gelblieber × Princess Kaiulani)

Phalaenopsis Yungho Gelb Canary has only been moderately awarded but has been instrumental in breeding yellow novelty hybrids. The most recently awarded clone was *Phal.* Yungho Gelb Canary 'Wen Ming' HCC/AOS. The plant had six flowers and two buds on two inflorescences with flowers being described as ". . . sepals and petals white, margins flushed canary yellow, lateral sepals basally spotted maroon; lip white, side lobes dark canary yellow . . ."

Phalaenopsis Phoenix Canary (Yungho Gelb Canary × Penang Girl)

Phalaenopsis Phoenix Canary has been moderately successful and shows a range of colors. All the AOS awards to the grex were granted to plants grown by Eric Goo.

The first awarded clone of the grex, *Phal.* Phoenix Canary 'Trinity' AM/AOS, had constrained color inherited from the *Phal. bellina* and *Phal. violacea* ancestors, with the five flowers being described as ". . . white, overlaid butter yellow, white halo basally; lateral sepals overlaid fuchsia on central, inferior half . . ."

One year later, a clone with clear, strong-yellow color was awarded. *Phalaenopsis* Phoenix Canary 'Yellow Beauty' HCC/AOS held seven flowers on two inflorescences.

In 2017, the grex received an Award of Quality, with commendation by the judges for 12 cultivars "…. . . of exceptional quality, consistency and floriferousness of the flowers on well grown plants; flowers full and flat, base color yellow with white halo; dorsal sepal and petals overlaid rose to some percent providing nice contrast; lateral sepals reflect Phal. *bellina* ancestry on inferior half…" Two of the clones displayed received awards and both showed a more prominent suffusion of coloration in all flower segments. *Phalaenopsis* Phoenix Canary 'Supernova' and *Phal.* Phoenix Canary 'Shadow' both received an AM/AOS. The clone 'Shadow' was especially well flowered, with five flowers and five buds on two inflorescences.

Phalaenopsis Penang Moonbright (Yungho Gelb Canary × _bellina_)

The Yungho Gelb Canary parent has muted the color of the *Phal. bellina* parent resulting in softer, pastel shades.

An unusual clone and one of the first awarded for the grex is *Phal.* Penang Moonbright 'Orchidphile' AM/AOS has none of the coloration of the *Phal. bellina* parent present. It was not, however, terribly floriferous, with "five flat, stellate flowers on three arched inflorescences; flowers white; sepals and petals heavily suffused apple green, darker distally, white halo around column . . ."

More typical is *Phal.* Penang Moonbright 'Krull-Smith' AM/AOS, which has the highest flower quality award for the grex. The flowers were extremely large for this line of breeding at 2.5 inches (6.4 cm) natural spread.

Phalaenopsis Penang Moonbright 'Jim Krull' AM/AOS-CCM/AOS possessed "twenty-one flowers and six buds on eight inflorescences . . . flowers white; dorsal sepal and petals suffused chartreuse distally; lateral sepals suffused chartreuse distally, blotched magenta centrally on inferior half and basally . . ."

The flowers on *Phal.* Penang Moonbright 'Dajao' AM/AOS were not particularly large (1.9-in [4.9-cm] natural spread). It held three fully opened, flat flowers on a single inflorescence. While the sepals were sharply pointed, they avoided the cupping that usually accompanies this breeding, especially given that *Phal. bellina* is a parent. It is worth noting that as we move into more and more complex hybrids, this cupping should be largely eliminated even if the pointed tips are not.

Phalaenopsis Joy Spring Canary (Buena Jewel × Yungho Gelb Canary)

The parent, Buena Jewel, is (Gelblieber × *violacea*), so Joy Spring Canary has Gelblieber as a grandparent on both sides. The grex received an Award of Quality in 2005, which was granted to a "group of twelve plants with well above average flower quality of good form, and light green base color . . ." No specific commendations were made but it was noted that the group received three awards (one AM/AOS and two HCC/AOS awards).

Two of the clones awarded that day were *Phal.* Joy Spring Canary 'Nancy' HCC/AOS and 'Green Diamond' HCC/AOS, which provide an interesting comparison. In my evaluation, the petals of the clone 'Nancy' are not in proportion to the rest of the flower (though the description describes the flowers as slightly cupped), especially when compared to 'Green Diamond'. The flowers of 'Nancy' (2.2-in [5.5-cm] spread) are also a full half centimeter smaller than 'Green Diamond'. Working in its favor, however, is that 'Nancy' has much clearer coloration and its substance and texture were described as firm and waxy respectively, while 'Green Diamond' was described as heavy and matte.

Phalaenopsis Joy Spring Canary 'Yahpon' JC/AOS had "sepals and petals yellow heavily overlaid chartreuse distally, white corona centrally, lateral sepal inferior [sic] halves blushed orange . . . commended for unusual, attractive color combination and sweet lemon fragrance." In addition to the size and form issues noted in the description, the flowers were also small. While at that time the plant was not worthy of a flower quality award, it was upgraded to an HCC/AOS in 2014

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[23] *Phalaenopsis* Phoenix Firebird 'Trinity' AM/AOS; exhibitor and photographer: Eric Goo, Phoenix Orchids.

[24] *Phalaenopsis* Yungho Gelb Canary 'Wen Ming' AM/AOS; exhibitor: Wen Ming Orchids; photographer: Jea Shang Photography.

[25] *Phalaenopsis* Phoenix Canary 'Trinity' AM/AOS; exhibitor and photographer: Eric Goo, Phoenix Orchids.

[26] *Phalaenopsis* Phoenix Canary 'Yellow Beauty' HCC/AOS; exhibitor: Eric Goo, Phoenix Orchids; photographer: Chaunie Langland.

[27] *Phalaenopsis* Penang Moonbright 'Orchidphile' AM/AOS; exhibitor: Carri Raven-Riemann; photographer: Richard Noel.

[28] *Phalaenopsis* Penang Moonbright 'Krull-Smith' AM/AOS; exhibitor: Krull-Smith; photographer: Greg Allikas.

[29] *Phalaenopsis* Joy Spring Canary 'Green Diamond' HCC/AOS; exhibitor: Joseph Wu Orchids; photographer: Greg Allikas.

[30] *Phalaenopsis* Dragon Tree Eagle 'Paraiso Tropical' AM/AOS; exhibitor: Carlos Fighetti; photographer: Mei-Ling Melendez.

[31] *Phalaenopsis* Joy Spring Canary 'Nancy' HCC/AOS; exhibitor: Joseph Wu Orchids; photographer: Greg Allikas.

[32] *Phalaenopsis* Dragon Tree Eagle 'Dragon Tree #1' AM/AOS; exhibitor: Big Leaf Orchids; photographer: David Gould.

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[33] *Phalaenopsis* Pylo's Dragon Fire 'Neon' AM/AOS; exhibitor: Big Leaf Orchids; photographer: David Gould.

[34] *Phalaenopsis* LD's Bear King 'Mituo #12' AM/AOS; exhibitor: Mituo Orchids; photographer: Jea Shang Photography.

[35] *Phalaenopsis* LD's Bear King 'RK-1' AM/AOS; exhibitor: Mike Mims; photographer: James Harris

[36] *Phalaenopsis* LD's Bear King 'Marley' AM/AOS; exhibitor: Mike Mims; photographer: Julie McMillan.

[37] Phalaenopsis LD's Bear Queen 'Orchid Konnection' AM/AOS; exhibitor: Orchid Konnection; from the AOS award archives.

[38] *Phalaenopsis* LD's Bear Queen '422-1' AM/AOS; exhibitor: Carlos Fighetti; photographer: Irma Saldaña.

[39] *Phalaenopsis* LD's Bear Queen 'Fancy Nancy' HCC/AOS; exhibitor: Pat van Adrichem; photographer: Judith Higham.

[40] *Phalaenopsis* Kingfisher's Dragon Wing 'Caleta' AM/AOS; exhibitor: Pat van Adrichem; photographer: Judith Higham.

[41] *Phalaenopsis* Kingfisher's Dragon Wing 'Sunset Ember' AM/AOS; exhibitor: Pat van Adrichem; photographer: Judith Higham.

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with more flowers and a natural spread of 2 inches (5.1 cm).

***Phalaenopsis* Dragon Tree Eagle (Penang Girl × Black Eagle)**

Phalaenopsis Dragon Tree Eagle has become a cornerstone of some of the more modern novelty hybrids. *Phalaenopsis* Black Eagle is a fourth-generation novelty hybrid with notables such as *Phal*. George Vasquez and *Phal*. Princess Kaiulani in its background.

Phalaenopsis Dragon Tree Eagle 'Paraiso Tropical' AM/AOS had "three flowers on two short inflorescences; sepals and petals dark chartreuse, overlaid canary yellow, concentrically marked and spotted rose around column, lateral sepals rose proximally; lip dark rose . . ."

Phalaenopsis Dragon Tree Eagle 'Dragon Tree #1' AM/AOS held "eight strikingly colored, flat flowers on three inflorescences; sepals yellow-green barred fuchsia proximally, lateral sepals overlaid solid maroon ventrally; petals yellow, barred fuchsia proximally . . ."

***Phalaenopsis* Pylo's Dragon Fire (George Vasquez x Dragon Tree Eagle)**

This is a new grex created with *Phal.* Dragon Tree Eagle. It has been awarded once, and the awarded clone presents with an interesting color.

Phalaenopsis Pylo's Dragon Fire 'Neon' AM/AOS had a "dorsal sepal light chocolate brown; lateral sepals superior half light chocolate brown, inferior half purple, transitions to light chocolate brown distally; petals proximally vivid purple, centrally barred pale purple, transitions to light chocolate brown distally."

Presumably, the color variation on the segments has to do with the base color transitioning from white proximally/centrally to yellow distally/marginally.

***Phalaenopsis* LD's Bear King (Hannover Passion × Dragon Tree Eagle)**

The parent, *Phal.* Hannover Passion, is a hybrid of Gelblieber and *Phalaenopsis mariae* (another of the novelty species in the subgenus *Polychilos*).

Phalaenopsis LD's Bear King 'Mituo #12' AM/AOS showed one of the outstanding color forms possible with the grex: a deeply saturated burgundy. At the time it was judged, it held "three rich, blood red stellate flowers held well above foliage on one 20-cm inflorescence, unusual for bellina hybrid; broad sepals and petals extremely flat, pink halo basally; lip white, midlobe magenta, side lobes golden yellow; substance heavy; texture waxy."

Phalaenopsis LD's Bear King 'RK-1' AM/AOS held "five uniformly arranged cordovan flowers and one bud on a single branched inflorescence; lip side lobes tipped yellow; midlobe white, magenta keel, front lobe magenta; staminode solid light magenta; substance heavy; texture matte."

The most recently awarded clone of *Phal.* LD's Bear King 'Marley' AM/AOS showed an interesting color variant with the deep overlay being chiefly restricted to the margins of the segments. It was described as having "dorsal sepal old gold, heavily overlaid cordovan marginally; lateral sepals old gold overlaid cordovan, heavier on inferior half; petals old gold, cordovan picotee; lip white, midlobe fuchsia centrally, side lobes marked orange-yellow . . ."

***Phalaenopsis* LD's Bear Queen (*bellina* × Dragon Tree Eagle)**

This grex received one award in 2012 and then a flurry starting in the spring of 2015 starting with *Phal.* LD's Bear Queen '422-1' AM/AOS. This clone is unusual for the grex in the strikingly deep saturation of color on the lateral sepals and lip. It was described by the judges as "…sepals and petals bright lemon yellow. overlaid yellow-green medially and distally, lateral sepal inferior halves blotched purple, light burgundy at blotched margins; proximal light lavender halo, overlaid with concentric darker lavender and light maroon circles on petals…"

The grex received an Award of Quality later that year, which was given for "fifteen cultivars of Phalaenopsis LD's Bear Queen of exceptional quality; flowers full and flat; ranging in color from yellow-green to green-yellow with contrasting magenta bars and blush…" Three clones from the grouping were awarded: 'Fancy Nancy' HCC/AOS, 'Latifah' AM/AOS, and 'Paige' AM/AOS. As would be expected from this line of breeding, the flowers all resemble *Phal. bellina* to some degree.

Perhaps the best clone of the grex is *Phal.* LD's Bear Queen 'Orchid Konnection' AM/AOS. It is notable for its exceptional form: though there was no specific mention of this in the official description, the flowers are flat and possess broad petals.

***Phalaenopsis* Kingfisher's Dragon Wing (John Ewing × Dragon Tree Eagle)**

Since the parent, *Phal.* John Ewing, is George Vasquez × *venosa*, you would expect that this grex might possess a slightly more vertical presentation and deeper and more extensive color suffusion than other Dragon Tree Eagle hybrids.

The first awarded clone of the grex bears out this point. *Phalaenopsis* Kingfisher's Dragon Wing 'Giant Star' HCC/AOS was awarded with a single flower of good size and fine color. It was described as having "dorsal sepal and petals ovate, base color off white, basally with fine magenta maculation, suffused brown-orange centrally, transitioning to green-yellow distally, magenta picotee margin; lateral sepals subfalcate, inferior half overlaid magenta…substance firm; texture lustrous."

In 2018, the grex received an Award of Quality for 15 clones of "exceptional quality; brightly colored flowers with varying amount of magenta radiating outwards from the column; flowers flat, full and fragrant; commended for improvement in color patterning over similar breeding…" Two clones from the grouping were awarded. They could not provide a more stark contrast in inheritance. 'Sunset Ember' AM/AOS has taken much influence from *Phal. venosa* in the stance, size, and coloration of the flowers, while the former two would be considered detriments, the color is a definite improvement. 'Caleta' AM/AOS exhibits almost no influence from *Phal. venosa*.

Up next? Part three of this series will cover the crossover phalaenopsis; merging the best qualities of the previous two breeding lines.

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—Andrew began growing orchids about 13 years ago in Iowa City, Iowa when he inherited a lightstand from extended family. He and his son, Quincy, are now active members of the Eastern Iowa Orchid Society and Andrew was promoted in March of 2019, to an associate judge in the Chicago judging center (email:mistercoghill@ hotmail.com).

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The Timeless Art of Orchid Jewelry: Part 1

BY SERGEY SKOROPAD

Orchid brooches, designed by George Paulding Farnham for Tiffany & Co., New York (clockwise from top left), Orchid 24 (*Trichocentrum* [as *Oncidium*] *jonesianum*, Paraguay, A1998.05): gold, diamond and enamel 1889–1896, 4.1 in × 2 in (10.5 cm × 5.1 cm); Orchid 17 (*Oncidium* [as *Odontoglossum*] *constrictum*, Venezuela, A1999.70): gold, diamond and enamel 1889–1896, 2.8 in × 2.5 in (7.0 cm × 6.4 cm); Orchid 4 (*Calanthe Veitchii* (*vestita* × *rosea*), A1993.29): gold, sterling silver, platinum, enamel and diamond 1889–1896, 2.7 in × 1.5 in (4.4 cm × 3.8 cm); Orchid 18 (*Phalaenopsis hygrochila* (as *Vandopsis parishii*), Burma, A1996.02): gold, silver, diamond, ruby and enamel 1889–1896, 3.2 in × 2 in × 1.3 in (6.7 cm × 5.2 cm × 3.2 cm); Orchid 19 (*Phalaenopsis schilleriana*, Philippines, A2005.10): gold, diamond, ruby and enamel 1889–1893, 3.1 in × 2.4 in (8.0 cm × 6.0 cm); Orchid 21 (*Oncidium* (as *Odontoglossum*) *wyattianum*, Ecuador and Peru, A2005.19): gold, diamond and enamel 1889–1893, 2.8 in × 2.4 in × 1.3 in (7.0 cm × 6.0 cm × 3.4 cm). Copyright Tiffany & Co. Archives 2020. Not to be published or reproduced without prior permission. No permission for commercial use will be granted except by written license agreement.

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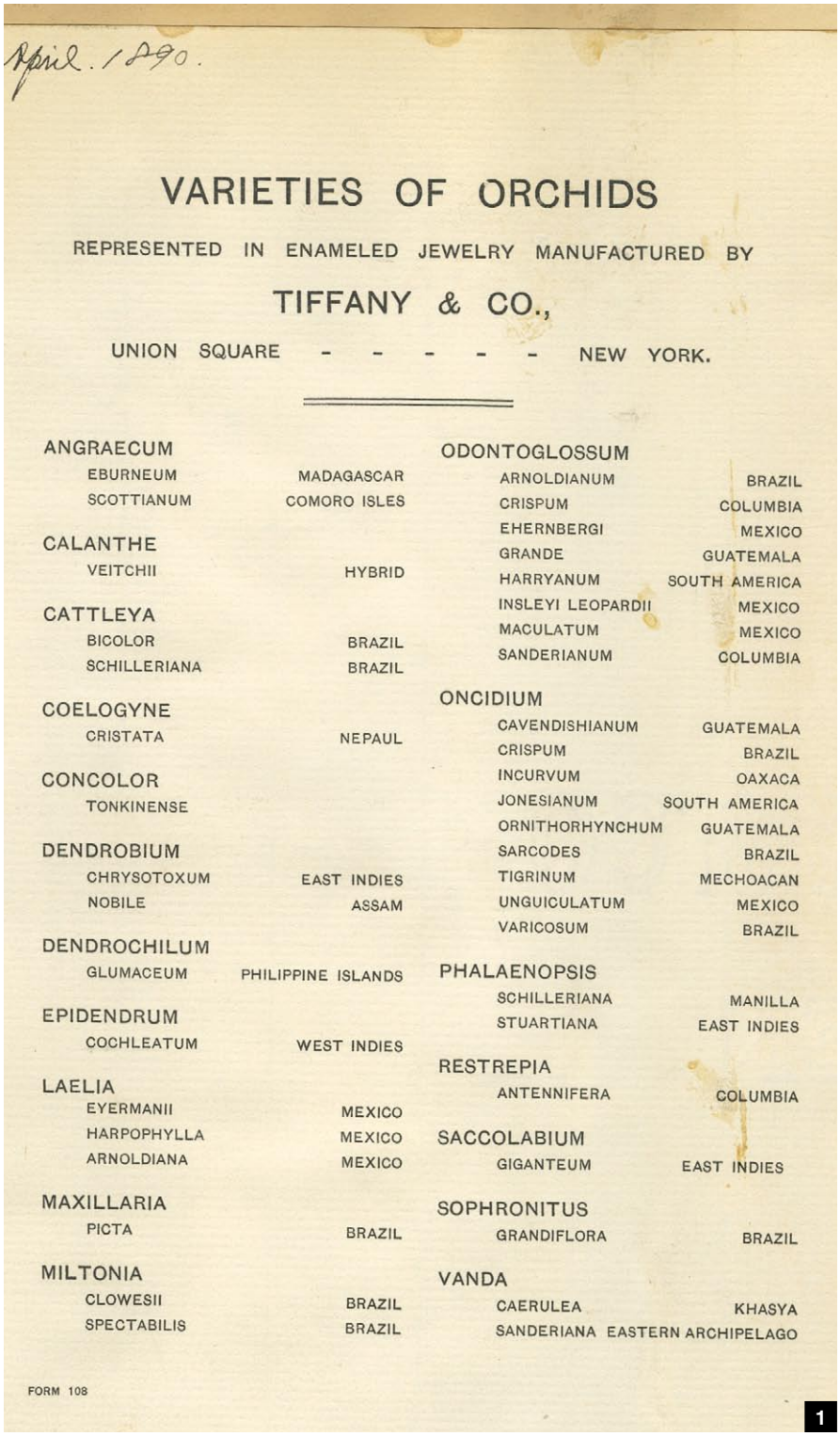
MY PASSION FOR orchids started 15 years ago when I received a small division of a paphiopedilum from our friend who lives in Boston. It was love at first sight and after that I fell in love with orchids. I collect them, study them and display them at AOS judging events. I would love to grow the perfect orchid but unfortunately, even perfect orchids can die and disappear forever.

Before I had my first orchid, I had already been involved for many years in the gem and jewelry business. I am always searching for the finest gems from all over the world and have created many magnificent pieces of jewelry using the best diamonds and precious gems. Somehow I realized that gems and orchids have something in common — an almost endless variety of colors, shapes and, most importantly, their beauty. If you see a real gem once, such as the Burmese ruby "Pigeon's Blood" color or a Ceylon sapphire "Royal Blue" color, you will never forget them! But comparing orchid jewelry to real orchids has one important distinction — orchid jewelry does not die, lasting forever and blooming for centuries.

A few years ago I started my research about high-end orchid jewelry and soon realized that fine orchid jewelry is almost impossible to find. Historical pieces have disappeared into private collections and only a few famous houses such as Tiffany & Co. and Cartier produced these creations in the past. I discovered that the first type of orchid jewelry, orchid brooches, were produced by Tiffany & Co. at the end of the 19th century. With great help from the archive team at Tiffany & Co., I was able to track the history of creation of these beautiful orchid brooches.

The 19th century was the golden age of orchids — orchid mania! Hundreds of new orchid species were discovered and thousands of plants shipped from Central America, South America and Asia. Many orchid auctions were held in America and Europe, which were very successful. A measure of the scale of the business can be gathered by the advertisements for the auction of 1895: 30,000 *Odontoglossum crispum* (now *Oncidium alexandrae*), 1,000 *Odontoglossum grande* (now *Rossioglossum grande*), 800 *Cattleya skinneri* (now *Guarianthe skinneri*) and 650 *Cattleya labiata*.

Flower lovers were obsessed with orchids. Wealthy people from Western Europe and North America collected orchids for their exquisite blossoms. Powerful men and women from the United States were buying expensive imported plants from England from Veitch & Sons in London and Sander & Co. of St. Albans. For example, when Mary Morgan's (the widow of shipping and railroads magnate Charles Morgan) collection went to auction in New York in 1885, it was sold for a total of $20,700, a considerable sum at the time (in today's dollars, about $575,000). The highest price, $900 (about



April. 1890.

VARIETIES OF ORCHIDS

REPRESENTED IN ENAMELED JEWELRY MANUFACTURED BY

TIFFANY & CO.,

UNION SQUARE - - - - - NEW YORK.

ANGRAECUM	
EBURNEUM	MADAGASCAR
SCOTTIANUM	COMORO ISLES
CALANTHE	
VEITCHII	HYBRID
CATTLEYA	
BICOLOR	BRAZIL
SCHILLERIANA	BRAZIL
COELOGYNE	
CRISTATA	NEPAUL
CONCOLOR	
TONKINENSE	
DENDROBIUM	
CHRYSOTOXUM	EAST INDIES
NOBILE	ASSAM
DENDROCHILUM	
GLUMACEUM	PHILIPPINE ISLANDS
EPIDENDRUM	
COCHLEATUM	WEST INDIES
LAELIA	
EYERMANII	MEXICO
HARPOPHYLLA	MEXICO
ARNOLDIANA	MEXICO
MAXILLARIA	
PICTA	BRAZIL
MILTONIA	
CLOWESII	BRAZIL
SPECTABILIS	BRAZIL
ODONTOGLOSSUM	
ARNOLDIANUM	BRAZIL
CRISPUM	COLUMBIA
EHERNBERGI	MEXICO
GRANDE	GUATEMALA
HARRYANUM	SOUTH AMERICA
INSLEYI LEOPARDII	MEXICO
MACULATUM	MEXICO
SANDERIANUM	COLUMBIA
ONCIDIUM	
CAVENDISHIANUM	GUATEMALA
CRISPUM	BRAZIL
INCURVUM	OAXACA
JONESIANUM	SOUTH AMERICA
ORNITHORHYNCHUM	GUATEMALA
SARCODES	BRAZIL
TIGRINUM	MECHOACAN
UNGUICULATUM	MEXICO
VARICOSUM	BRAZIL
PHALAENOPSIS	
SCHILLERIANA	MANILLA
STUARTIANA	EAST INDIES
RESTREPIA	
ANTENNIFERA	COLUMBIA
SACCOLABIUM	
GIGANTEUM	EAST INDIES
SOPHRONITUS	
GRANDIFLORA	BRAZIL
VANDA	
CAERULEA	KHASYA
SANDERIANA	EASTERN ARCHIPELAGO

FORM 108

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[1] Tiffany & Co. flyer, "Varieties of Orchids Represented in Enameled Jewelry Manufactured by Tiffany & Co., Union Square, New York," 1890. Copyright Tiffany & Co. Archives 2020. Not to be published or reproduced without prior permission. No permission for commercial use will be granted except by written license agreement.

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$25,000 today), was paid for the *Vanda sanderiana*, named after Mr. F. Sander, of St. Albans, England, two years earlier.

Orchid collectors at that time were also clients of Tiffany & Co. One of them was financier Jay Gould, who at that time had one of the finest orchid collections in the world. Thus, selecting the orchid flower as a subject for a brooch was not surprising. No floral jewelry has ever attracted as much attention from the press, the jewelry industry or the public as the two dozen enameled orchid brooches, each depicting a different variety of orchid that Paulding Farnham designed for the Paris Exposition Universelle. Tiffany & Co.'s display of enameled and jeweled orchids made of gold and American gemstones won the grand prize for jewelry at the Paris Exposition Universelle in 1889. The brilliant work of Tiffany & Co.'s 29-year-old genius head jewelry designer G. Paulding Farnham really stole the show. Created and shown in the heyday of imperialism and colonialism, these wonderfully crafted orchid jewels reflected the popular mania for all things exotic and tropical.

Orchid brooches did not just appear out of nowhere. Since the 1840s, art in America had a single dominant theme — nature. Tiffany & Co.'s designers studied, designed and produced jewelry with this theme. Tiffany & Co.'s design library and design department were filled with illustrated botanical books and collections of dried and pressed botanical specimens. Their ideology was "Mother Nature is the best designer." In the 19th century, Tiffany & Co. produced many floral brooches — lilac bloom, hydrangea, rose and iris. There was also a great demand for enameled floral jewelry and fine gemstones, such as sapphires from the banks of the Missouri River near Helena, Montana.

Who was Paulding Farnham (1859–1927)? Farnham started working at Tiffany & Co. around 1879, when he was 20 years old. Charles T. Cook, Farnham's uncle and vice-president (and eventually president) of Tiffany & Co. secured Farnham a position as an apprentice employee and eventually the young designer was put in charge of jewelry for Exposition Universelle of 1889, with the opportunity to create an entire collection. Needless to say, the orchid collection was a huge hit at the fair, for Farnham, Tiffany & Co. and for the United States. Farnham received a gold medal for the collection and Tiffany and Co. won six gold medals, an unprecedented accomplishment at the time. The collection was called exceptional and one of the most striking features of the entire Exposition.

The orchid collection was also praised in *Jeweler's Weekly* (June 1889): "so perfectly copied after nature as to inspire unqualified admiration . . . such fidelity is manifested as temporary to deceive the observer into a belief that real flowers have been placed in the showcases with the jewelry." In order not to miss a marketing opportunity, more orchid brooches were created for Tiffany and Co.'s New York City location after the fair; by April, 1890 Tiffany & Co. increased the number of brooches from 24 to 41.

Orchid brooches closely resembled live orchids. Tiffany and Co.'s designers used live orchid specimens to replicate them at the studio. Farnham and his assistants carefully studied orchid flowers in the studio and recreated their color, size, shape and pattern to the extent allowed by the materials available at the time. These gold brooches with brightly colored enamel decorated with gemstones looked like bejeweled substitutes of the live orchid.

Tiffany & Co. produced a wide variety

[2] Sketch and photo, George Paulding Farnham for Tiffany & Co., New York, Orchid 18, "*Odontoglossum cordatum* [crossed out], *Chysis Limminghi* [sic], Guatemala," ca. 1890. Watercolor on paper. Copyright Tiffany & Co. Archives 2020. Not to be published or reproduced without prior permission. No permission for commercial use will be granted except by written license agreement.

[3] Gold, Enamel and Diamond Orchid Brooch, Tiffany & Co., Designed by Paulding Farnham. Sold at Sotheby's Magnificent Jewels, New York. Photograph Courtesy of Sotheby's, Inc. © 2013.

[4] Gold, Enamel and Diamond Orchid Brooch, Tiffany & Co. Sold at Christie's Superb 20th Century Jewels from an American Collection, New York. ©2008 Christie's Images Limited.

[5] Gold, Enamel and Diamond Orchid Brooch, Tiffany & Co. Sold at Christie's Jewels, New York. ©2010 Christie's Images Limited.

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of orchids and they were featured in their 1890 catalog. Tiffany & Co. actively promoted scientific classification of orchids in their advertising of orchid brooches (e.g., "*Cattleya schilleriana* native to Brazil"). The scientific names associated with each orchid brooch immediately brought it into the realm of botanical study. The species names and locations related the brooches directly to their natural counterparts as well as to the scientific classification system applied to botanical specimens. Farnham wanted consumers to know that this brooch was a representation of a particular type of orchid.

The process of creating orchid brooches consisted of five sequential steps: (1) sketching the individual plants, (2) electrotyping the blossom which is when a mold is taken of the orchid flower itself, (3) making the mold and then the gold piece, (4) covering the gold using enamel for the color (one of the most important parts of creating a real looking orchid flower), and finally (5) setting the diamonds and other gems. Nobody knows how many people worked to make these brooches or how much time Farnham spent on each piece. They were created through manual labor and handcrafting processes although, surprisingly, modern technology was also used at that time. Farnham's use of this process demonstrates that achieving an accurate representation of the shape of the petals was essential to the brooches illusionistic realism.

Over a dozen watercolor sketches of orchids remain in the Tiffany & Co. archives. Some of the orchids probably were not labeled correctly. For example, Orchid 18 labeled as *Odontoglossum cordatum* (crossed out), then as *Chysis Limminghi* [sic], Guatemala. John Loring (design director of Tiffany & Co., 1979–2009) suggested that *Vandopsis parishii* from Burma and Siam (now *Phalaenopsis hydrochila*, J.M.H.Shaw, 2015) as a source for the brooch.

Tiffany & Co.'s orchid brooches were part of a transatlantic dialogue about taste. They were purchased and worn by men and women in both Europe and the United States as status objects. Conversation pieces connected the wealthy societies of North America, United Kingdom and France. Farnham's choice of orchids cemented his jewelry in the realm of high culture, a critical part of Tiffany & Co.'s sales strategy.

Farnham left Tiffany & Co. in 1908 and his sketchbooks, press clipping and photographs were placed in a New Jersey storeroom. After that, little was heard of his work again. Tiffany & Co. never reproduced or created this type of brooch again! Today Farnham's Tiffany & Co. pieces are hard to find on the market, making them extremely rare. Ten of them are in the Tiffany & Co. archives. One orchid brooch, No. 45, depicting an *Oncidium jonesianum* (now *Trichocentrum*

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[6] *Miltoniopsis* Joan Rosenfeld 'April Waterfall' AM/AOS exhibited by Joan and David Rosenfeld in April 2017.

[7] Stages of producing *Miltoniopsis* orchid brooch and necklace.

[8] 2.8 in × 2.3 in (7.0 cm × 5.8 cm) gold, platinum, enamel, diamond and ruby *Miltoniopsis* orchid brooch and necklace.

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jonesianum) from Paraguay, is in the Metropolitan Museum of Art's collection in New York City. Tiffany & Co.'s orchid brooches rarely appear at auctions such as Sotheby's and Christie's and are thus highly priced. For example, orchid brooch No 19, *Phalaenopsis schilleriana* (1890 version) was sold at Sotheby's Magnificent Jewels in New York (1993) for $415,000. Orchid brooch *Oncidium varicosum* var. *rogersii* (now *Gomesa varicosa*), was sold at Sotheby's Magnificent Jewels in New York (December 2013) for $173,000, which was well above an estimate of $80,000–$120,000.

Another example, a rare enamel and diamond orchid brooch, of a *Brassia*, was sold at Christie's Superb 20th Century Jewels from an American Collection in New York (October 2008) at $92,500 (estimate $30,000–$50,000). A beautiful enamel and diamond orchid brooch of *Paphiopedilum primulinum* was sold at Christie's Jewels sale in New York, (2010).

Tiffany & Co.'s name was associated with orchid brooches for many years after Farnham left. Tiffany & Co. used to support the orchid show at the New York Botanical Garden for many years and people saw some of these masterpieces on advertisements for the show.

Why were there were no enameled orchids produced after Farnham? "If only I could find someone who could enamel that well, I would make the orchids, too," Mr. Loring said in interview to The New York Times (Moonan 2000).

A few years ago I started thinking about how to link orchids and high-end jewelry. Orchid jewelry is an art! However, there are numerous potential roadblocks in creating a beautiful piece: (1) the jewelry designer should have knowledge about orchids, (2) orchids are multidimensional and very colorful, (3) reproducing the petals and lip of an orchid requires use of different materials, not just gold or platinum but enamel and carved gems, (4) producing rings, earrings and necklaces is more complex then brooches, (5) it is a labor intensive manual process and finally, (6) some jewelers try to decorate orchids with gemstones instead of enamel and the result does not look like a real orchid flower.

My passion for orchids and jewelry design puts me in a unique position to transform any orchid into a magnificent and one-of-a-kind creation. I found that orchids now and those growing in the wild in the 19th century have very different shapes, colors and variety. Most of the species and hybrids now produce flowers that are more flat and round and have greater color intensity than before. My participation in AOS judging helped me understand what the hypothetically perfect orchid should look like.

Making jewelry is very different than growing the perfect orchid. I have my vision of how orchid jewelry should look — from a natural presentation to exceptional work quality using the finest gems and diamonds and advanced technology such as a microscope. In 2019, I created several pieces of orchid jewelry. One of them was a necklace and brooch of an awarded miltoniopsis — *Miltoniopsis* Joan Rosenfeld 'April Waterfall' AM/AOS. Dr. David Rosenfeld is not just an amazing orchid grower having received over 100 AOS awards but a phenomenal miltoniopsis grower. He knows exactly how a miltoniopsis flower should look! The first challenge I had was I needed to recreate the shape of this miltoniopsis but an even greater challenge came when I tried to copy its real color! We started doing everything by hand — I made a sketch of the real


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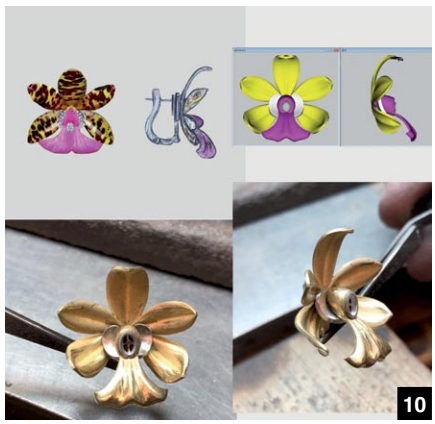
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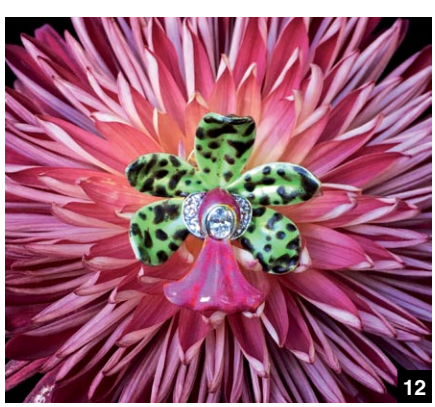
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[9] *Cattleya aclandiae* 'Mirtha Isabel' AM/AOS exhibited by Ben Oliveros and Orchid Eros in April 2017.

[10] Stages of producing *Cattleya aclandiae* orchid earrings.

[11] 1.1 in × 1 in (2.7 cm × 2.5 cm) gold, platinum, enamel and diamond *Cattleya aclandiae* orchid earrings.

[12] 1.3 in × 1.1 in (3.2 cm × 2.9 cm) gold, platinum, enamel and diamond *Cattleya aclandiae* lapel pin.

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size of this orchid then the jeweler made the wax mold. We used a live miltoniopsis flower to create the wax but we did not use this flower to create an exact copy like Tiffany & Co. used to do it. Advanced jewelers can use 3D scanners and printers to make a mold, but in our situation, it did not work — the flower of this particular plant did not exist anymore (the awarded plant went to orchid heaven)! I had to use the image of the awarded plant and some samples of different miltoniopsis flowers. I had to make several adjustments during the process: from wax to silver mold, from gold to finished enameled piece. Creating enamel with the correct color was one of the most challenging parts of this job. Finally, after setting the finest rubies and diamonds, this miltoniopsis looked fantastic. Using enamel to create a realistic color and the best available materials allowed me to create a beautiful high-end piece of jewelry that looks realistic and like a live miltoniopsis. After spending months to create the necklace and brooch, I realized that is why we do not see this type of jewelry available on the market anymore — only a few people in the world can create this type of enamel and the process is extremely labor intensive!

The outcome exceeded our expectations. The necklace and brooch were given by Dr. Rosenfeld to his wife Joan on their 55th wedding anniversary. Joan immediately fell in love with her new "orchid."

When I was looking for new ideas for my next project, a great idea came from another passionate orchid growing couple — Bill and Deb Bodei. Bill suggested a *Cattleya aclandiae* for the earrings and a men's lapel pin. Although most *Cattleya aclandiae* in the wild have very narrow sepals and petals (which is not good for orchid jewelry), I decided to use awarded clones as a prototype because they have much fuller flowers. In this project I used a completely different technique. Because we needed to create the same shape for the earrings and the pin but slightly different sizes, we decided to use a computer program to create a file that can be printed on a 3D printer to produce the molds (with sketches still made by hand). The earrings and pin came out as a beautiful piece of art and high-end jewelry at the same time. We produced these pieces using 18k gold and platinum and selected only the finest diamonds. Also, using enamel allowed us to reproduce a similar color and pattern as the real *Cattleya aclandiae*.


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SERGEY SKOROPAD 14

[13] Sketch of *Bulbophyllum amesianum* gold, enamel, diamond and ruby earrings.

[14] Sketch of *Vanda coerulea* gold, enamel and diamond orchid brooch.

Real orchids from my collection give me endless possibilities and inspiration for new designs. For example, *Bulbophyllum amesianum* inspired me to create a design for dangling earrings, using diamonds, rubies and gold covered by enamel.

A combination of different techniques allows the designer to create different types of high-end orchid jewelry. Another example, a *Vanda coerulea* brooch required a different technique and type of enamel: a translucent or semitranslucent plique-a-jour enamel.

The American Orchid Society will celebrate its 100th Anniversary in 2021. Founded in 1921, the society mission is popularizing orchids and their culture. At that time, women and men wore flower jewelry as a status symbol to important social events — theater, opera, cocktail parties, local society gatherings and many other occasions. It would be my honor to keep this tradition alive. I believe that high-end orchid jewelry represents real, live orchids that are not just memorable for the owner but also become a piece of art for history to treasure.

Part 2 of this article will be about how orchids inspired Cartier's designers to create magnificent jewelry and the high-end jewelry orchid collection at the beginning of the 21st century. To be continued . . .

ACKNOWLEDGMENTS

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Tiffany & Co. Archives.


Sergey Skoropad

— Sergey Skoropad has been growing a wide variety of orchids without a greenhouse for over 15 years. His skills are exemplified by over 50 cultural and flower quality awards; he is a student in the Mid-Atlantic Judging Center. Sergey is a professional jeweler and designer, and the President of S & E Design Corp. He loves traveling around the world searching for the finest gems and orchids growing in their natural habitat (follow on Instagram @orchid.magic ; email: sergeskrpd@yahoo.com).

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Growing Challenges

Flexible, Affordable Growing Spaces

BY A'NA SA'TARA

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WHEN WE BUILT our second shade house, one design challenge was what to use for growing benches. We have visited a number of greenhouses, large and small, and have seen a few great configurations. But what would work for our situation — a relatively small shade house (6 ft × 8 ft [1.8 m × 2.4 m]) that would eventually be relocated (we rent our property) — was proving more elusive than I thought.

Metal commercial benches are expensive, and I did not want to invest so much in a temporary location. Wood, the standard choice for slatted benches, is rather heavy. My husband cast a wary eye toward building the benches and then unscrewing all of the wood pieces to transport. He also knows that I like to change things and constantly have ideas for improvement, which can be another challenge.

THE SOLUTION The preceding deliberation is the prelude to stumbling upon an unexpected solution that has become the indoor and outdoor mainstay of our orchid growing areas: epoxy-coated, metal restaurant shelving (www.webstaurantstore.com). This is the industrial version of what you would see in a home pantry or as premade shelving units at a big hardware store.

These particular shelving systems are designed for moist environments: walk-in freezers and refrigerators, and dishwashing areas. They are built to regularly get wet and cold, and to be used commercially for years.

Before I elaborate on our many uses, the caveat for anyone considering these for their situation is to consider their local humidity and temperatures. We live in central California with a dry season in the summer and a cool, wet winter. Temperature extremes are 25–100 F (−3.9–37.8 C), with the usual being summer nights in the 50s F (10–15 C) and winter nights in the mid-30s F (2 C). Standard daytime highs range from the 50s F (10–15 C) in the winter to 80s F (27–31 C) in the summer. Our outdoor benches are all covered in a cold frame shade house or under polycarbonate roofing. They do not get rained upon much, and, in the summer, they dry off relatively quickly (a couple hours at most) after watering or misting.

That being said, after three summers, the benches are almost all still in pristine condition, both indoors and outdoors. The exceptions to like-new condition are a few small hangers that extend out from under the roofing during the summer and have been exposed to direct sun.


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[1] A view of the structure that began the quest for benches. To create multiple tiers, it is possible to use legs of multiple heights and different width shelves. The two-tier shelves are 21inches (53.3 cm) wide (top) and 14 inches (35.6 cm) wide (lower), with 14-inch (35.6-cm) and 34-inch (86.4-cm) high legs. The back shelves are 18 inches (45.7 cm) wide.

[2] A summer-season grow area for a variety of mounts and baskets along a house walkway. The polycarbonate roof protects from leaves and debris from the adjacent shade tree. A few hardy *Dendrobium* baskets winter here, but it is too exposed to rain and wind for potted plants.

[3] One of the many locations where coated cucumber trellises have been used for mounted orchids. This is attached to the back of a shelving unit in our indoor warm room. The grids are 4 inches (10.2 cm) square, a generally ideal size for a variety of mounts.

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These have faded to a light color and look weathered.

WHAT MAKES GREAT GROWING BENCHES There are several versions of these wire shelves with different coatings. We exclusively use the green epoxy version made by Regency Shelving since it is designed for wet conditions. Other coating types are intended for dry storage or displays.

What makes these shelves work well as orchid benches? First, they are designed to support up to 300 lbs (136 kg) per shelf — zero sagging with two rows of large *Cymbidium* pots. Second, they come in a wide variety of sizes: ranging from 24–60 inches (61–152.4 cm) long and 14–24 inches (35.6–61 cm) wide. I have found that the 18 inch (45.7 cm) and 21 inch (53.3 cm) widths are most versatile; they also accommodate standard, plastic-pot trays.

Third, they can be assembled, disassembled and stacked easily. You can set the height of the shelf anywhere from 6 inches (15.2 cm) to 84 inches (2.1 m) above ground depending upon the legs that you select (legs come in sizes from 14–84 inches [36.6 cm–2.1 m] tall). Each leg is individually marked with height lines so you can even level the shelf without too much fuss.

Also, for stability, we have created tiered benches: both stacked vertically and tiered horizontally. It is much easier to view and reach pots when there are two 18-inch (45.7-cm) shelves, separated by 12–18 inches (30.5–45.7 cm) in height than to reach across one 36-inch-deep (91.4-cm) platform. We use these horizontal tiers both in the shade house and for our indoor cool area with LED grow lights.

GOING BEYOND BENCHES There are rather unexpected applications for accessories for these indoor shelving units — I cannot imagine what the restaurant originators would think seeing a line of mounted orchids on them! You do not see the accessory options offered at stores, and I only discovered them when perusing the online catalog.

The shelf systems offer a series of cross bars (14–48 inches [35.6–1.2 cm]) and 6-inch (15.2-cm) hooks that can be attached to the legs, either supported on each end by a pole or, for lighter applications, just anchored on one pole. With these, I have used the tall leg poles (72 or 84 inches [1.8 or 2.1 m]) to make a series of hanger bars for orchids mounted on sticks or in baskets. Similarly, we have utilized the hooks for hanging small baskets or mounts; you can see these in several of the photographs of our growing areas.

In several locations, indoors and outdoors, I have attached cucumber trellis panels from Gardener's Supply Company (www.gardeners.com) to make a vertical area for hanging mounted orchids. The 4-inch × 4-inch (10.2-cm × 10.2-cm) grid of the cucumber trellis is a good size for mounts and they are coated with a green vinyl material that makes the panel waterproof.


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[4] Empty frame for two growing areas. One is used for winter-only and the other is year-round. The 400 W high-intensity Amare LED light fixtures in the photos were replaced in 2019 with 240 W T5 HO LED fixtures from Active Grow Horticultural Lighting.

[5] Growing area with orchids. The frame stands in two 9-inch-deep (22.9-cm) hydroponic flood trays to capture watering run-off. A wet-dry vacuum is used weekly to remove water and clean the trays.

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Indoors, to avoid hanging heavy light fixtures from the ceiling, we attached the 48-inch (1.2-m) hanger bars to 84-inch (2.1 m) leg poles to suspend our LED light fixtures over the benches below. These units are exceptionally versatile for indoor use, from freestanding growing areas under lights to movable shelving in front of windows and doors.

Similarly, outdoors, we have used a wooden garden trellis attached to hanger bars on 64-inch (1.6-m) poles with plastic zip ties, to create a frame for a polycarbonate roof over two sets of benches. This simple roof keeps leaves and debris from a nearby deciduous tree off the orchids in the summer and autumn, and offers rain protection in the winter.

Finally, we created a 24-inch (60.1-cm) cart on wheels for smaller plants so we can offer the excellent eastern light that comes into the house through an extra set of glass doors to our phalaenopsis and paphiopedilums. I simply roll the bench cart out of the way when I want to open and close the screened door for airflow. In winter, the cart just stays put and we add a hanging bar for a basket or two to winter indoors.

I hope the photographs of our growing areas and brief description sparks your imagination. We are pleased to have maximized the horizontal and vertical indoor growing space that we have, both under grow lights and in front of six glass doors. Likewise, we have been able to create three outdoor areas with different light conditions to accommodate a diversity of orchids

— A'na Sa'tara, DPhil, grows 700 orchids with her husband Paul in the San Francisco Bay area of California, both outdoors and in three indoor growing areas with LED lights. She brings her love of wild nature, worldwide travels and decades of photography, combined with her earlier scientific research as a geographer at Oxford and Stanford universities, to orchid growing with heart, purpose and a passion for the deep essence of orchids (website: aeorchids.com, email: aeorchids1@gmail.com).


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[6] Empty frame or growing area. A polycarbonate panel roof will be attached and covered with shade cloth.

[7] Growing area with orchids. A 40 percent shade cloth extends out of view along the southern side. The western side is blocked by the house and the northeastern side receives summer shade from a deciduous tree.

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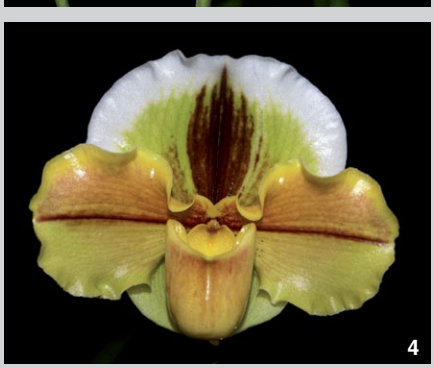
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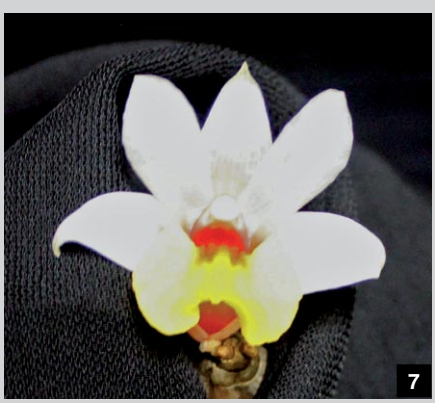
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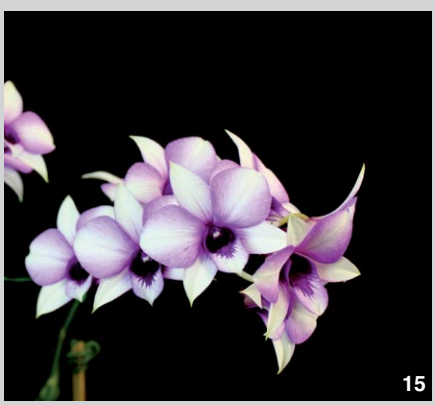
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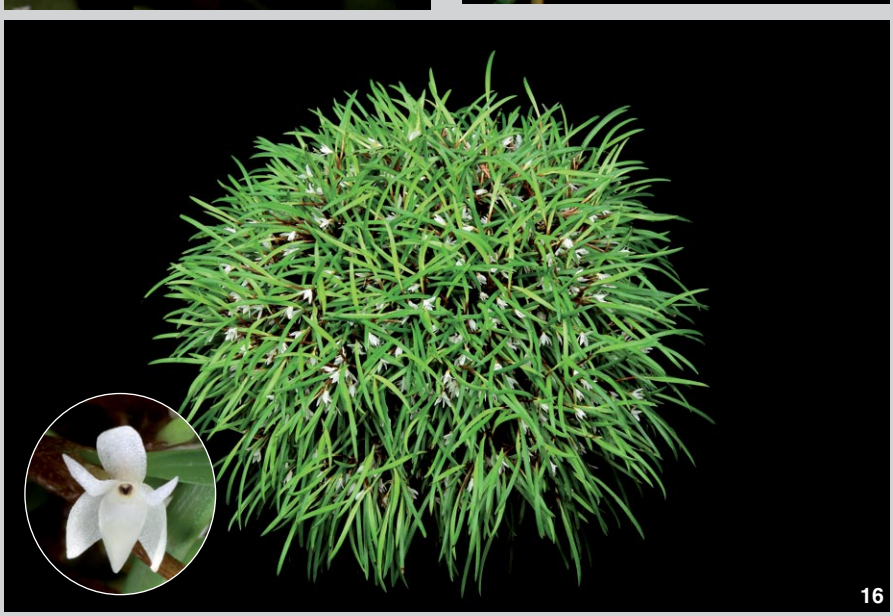
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[1] *Cattleya loddigesii* 'Paul' AM/AOS 83 pts. Exhibitor: William Rogerson; photographer: Nile Dusdieker. Chicago Judging

[2] *Cattleya walkeriana* f. *coerulea* 'Cedarwood Blue Streak' AM/AOS 80 pts. Exhibitor: Cecily Maciejeski; photographer: Charlotte Randolph. Alamo Judging

[3] *Paphiopedilum* Blake Parker McKinney 'Brier Hill' AM/AOS (Green Globe x Kay Rinaman) 81 pts. Exhibitor: Arnold J. Klehm; photographer: Nile Dusdieker. Chicago Judging

[4] *Paphiopedilum* Rita Chambers 'Maggie' AM/AOS (Nulight x Lippewunder) 85 pts. Exhibitor: Arnold Klehm; photographer: Nile Dusdieker. Chicago Judging

[5] *Paphiopedilum* Hampshire White Oak 'Hampshire' HCC/AOS (Kay Rinaman x Hampshire Oak) 79 pts. Exhibitor: Arnold J. Klehm; photographer: Nile Dusdieker. Chicago Judging

[6] *Dendrobium vexillarius* 'Forest Flames' CCM/AOS 83 pts. Exhibitor: Randy Bayer; photographer: George Lechner. Atlanta Judging

[7] *Dendrobium bellatulum* 'Envy of the Forest' HCC/AOS 77 pts. Exhibitor: Randy Bayer; photographer: George Lechner. Atlanta Judging

[8] *Angraecum* Crestwood 'Tomorrow Star' CCM/AOS (Veitchii x *sesquipedale*) 82 pts. Exhibitor: James Jeansonne; photographer: George Lechner. Atlanta Judging

[9] *Rhyncattleanthe* Nancy Priess 'Memoria Margaret Buchanan' CCM-AM/AOS (Bouton D'Or x *Cattlianthe* Chocolate Drop) 88-82 pts. Exhibitor: Jeanne Buchanan; photographer: Charlotte Randolph. Alamo Judging

[10] *Coelogyne* Memoria Fukuba 'Shinjuku #3' AM/AOS (Shinjuku x *cristata*) 81 pts. Exhibitor: Fred Missbach; photographer: Carson Barnes. Atlanta Judging

[11] *Paphiopedilum* Avalon Delight 'Betty R. Tietje' AM/AOS (Nike's Sunny Delight x Avalon Mist) 83 pts. Exhibitor: David James Medus; photographer: George Lechner. Atlanta Judging

[12] *Paphiopedilum* Hampshire Treasure 'Hampshire' CCM/AOS (Vintner's Treasure x Spotter) 82 pts. Exhibitor: Arnold Klehm; photographer: Nile Dusdieker. Chicago Judging

[13] *Mediocalcar decoratum* 'Mello Sweetbay's Eye Candy' CCM/AOS 84 pts. Exhibitor: David Mellard; photographer: Carson Barnes. Atlanta Judging

[14] *Cattleya loddigesii* 'Kathleen' AM/AOS 85 pts. Exhibitor: William Rogerson; photographer: Nile Dusdieker. Chicago Judging

[15] *Dendrobium* Jairak Rainbow 'Harry's Delight' AM/AOS (Aprichart Rainbow x *bigibbum*) 80 pts. Exhibitor: Beverly Stephens; photographer: George Lechner. Atlanta Judging

[16] *Ceratostylis philippinensis* 'Marissa K' CCM/AOS 86 pts. Exhibitor: Douglas Kubo; photographer: Ramon de los Santos. California Sierra Nevada Judging

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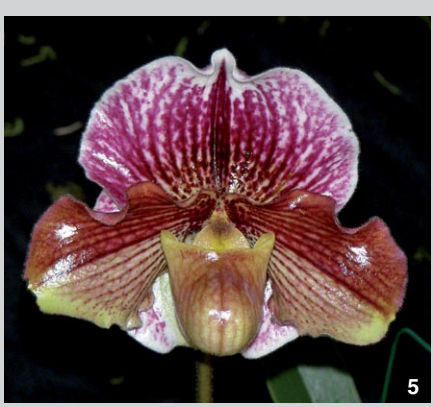
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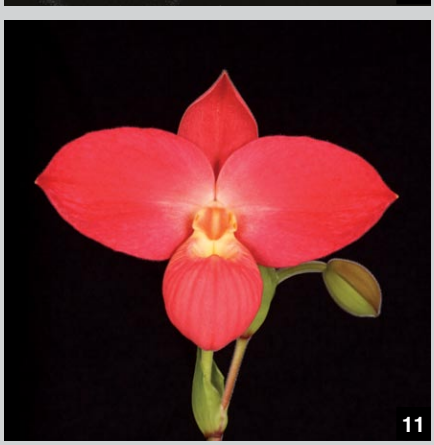
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[1] *Paphiopedilum* Hsinying Alien 'Hampshire Mist' AM/AOS (Raisin Pie x Supersuk) 80 pts. Exhibitor: Arnold J. Klehm; photographer: Nile Dusdieker. Chicago Judging

[2] *Paphiopedilum* Glenlight 'Brier Hill' HCC/AOS (Glenvale x Nulight) 79 pts. Exhibitor: Arnold J. Klehm; photographer: Nile Dusdieker. Chicago Judging

[3] *Paphiopedilum* Saiun 'Forest Park' AM/AOS (*sukhakulii* x *wardii*) 82 pts. Exhibitor: Deno Kandis; photographer: Nile Dusdieker. Chicago Judging

[4] *Paphiopedilum* Small Wonder 'Deerwood Koop Connection' AM/AOS (Little Candy x Whimsical) 80 pts. Exhibitor: Ross Hella; photographer: Bill Johnson. Chicago Judging

[5] *Paphiopedilum* Oto 'Good Deer Food' AM/AOS (Winston Churchill x *fairrieanum*) 81 pts. Exhibitor: Ross Hella; photographer: Bill Johnson. Chicago Judging

[6] *Fredclarkeara* After Dark 'SVO Black Diamond' CCM/AOS (*Mormodia* Painted Desert x *Catasetum* Donna Wise) 85 pts. Exhibitor: William Rogerson; photographer: Nile Dusdieker. Chicago Judging

[7] *Paphiopedilum* Hampshire Kin 'Brier Hill' HCC/AOS (Hampshire Beau x Kinzua) 79 pts. Exhibitor: Arnold J. Klehm Grower Inc.; photographer: Bill Johnson. Chicago Judging

[8] *Paphiopedilum* Big Island Valley 'Hampshire' AM/AOS (Turangi Valley x Sorcerer's Stone) 83 pts. Exhibitor: Arnold Klehm Growers, Inc.; photographer: Bill Johnson. Chicago Judging

[9] *Maxillaria variabilis* var. *unipunctata* 'TOF's Aibonito' CBR-CCM/AOS 80 pts. Exhibitor: Steve Gonzalez and Patricia Kone; photographer: Nile Dusdieker. Chicago Judging

[10] *Dendrobium elliottianum* 'Chas' CCM/AOS 83 pts. Exhibitor: Charles and Jane High; photographer: Nile Dusdieker. Chicago Judging

[11] *Phragmipedium* Fritz Schomburg 'Big Pucker' AM/AOS (*kovachii* x *besseae*) 81 pts. Exhibitor: Orchids Limited; photographer: Bill Johnson. Chicago Judging

[12] *Phalaenopsis gibbosa* 'Emma' AM/AOS 82 pts. Exhibitor: Orchids Limited; photographer: Bill Johnson. Chicago Judging

[13] *Dendrobium teretifolium* 'Althea' CCM/AOS 83 pts. Exhibitor: Matt Pfeiffer; photographer: Bill Johnson. Chicago Judging

[14] *Dendrochilum tenellum* 'CBS Parker' CCM/AOS 84 pts. Exhibitor: University of MN College of Biological Sciences Conservatory; photographer: Bill Johnson. Chicago Judging

[15] *Paphiopedilum* Little Linda 'Deerwood' HCC/AOS (Linda Sizer x Little By Little) 76 pts. Exhibitor: Ross Hella; photographer: Bill Johnson. Chicago Judging

[16] *Phragmipedium* Carnival 'Fireworks' AM/AOS (*besseae* x *brasiliense*) 85 pts. Exhibitor: Orchids Limited; photogra-

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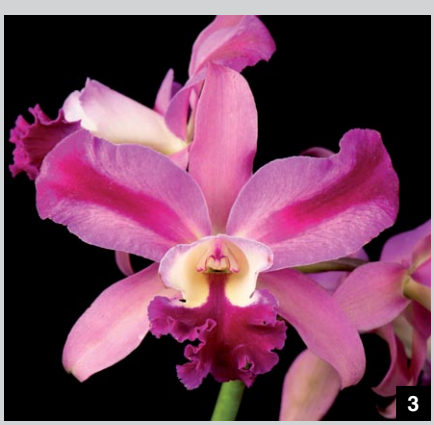
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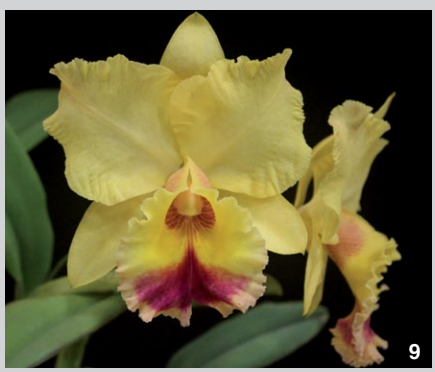
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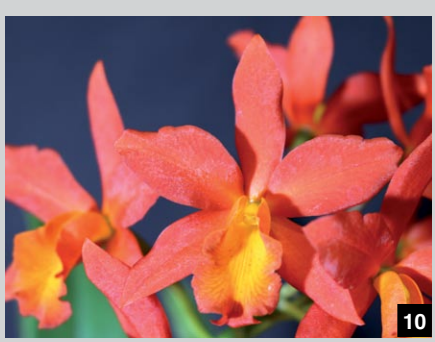
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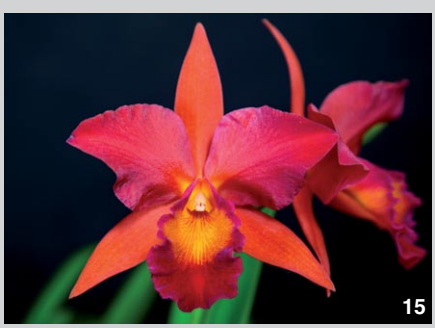
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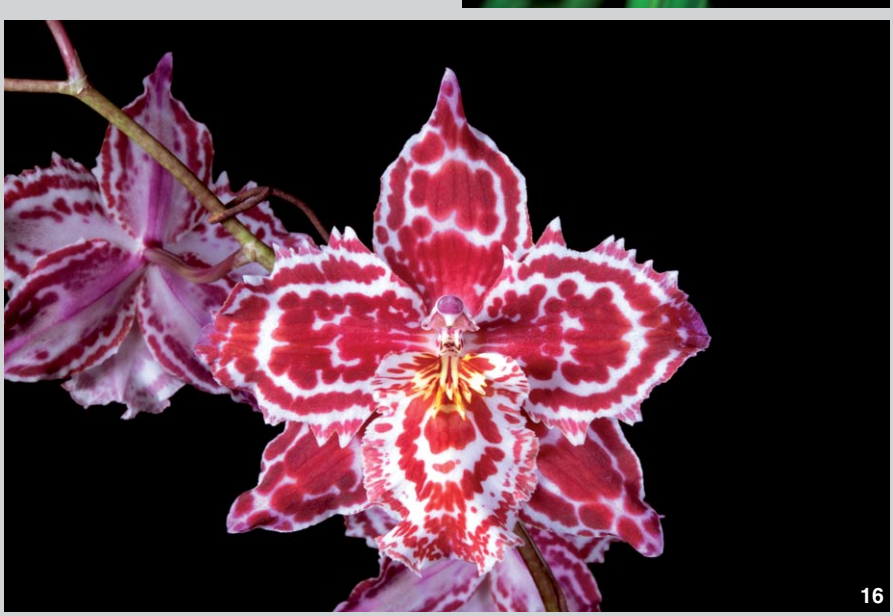
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[1] *Barkeria* Friederike Kuehl 'With Love' AM/AOS (Marsh Melton x Oaxacan Showers) 82 pts. Exhibitor: Robert Marsh; photographer: David Gould. Dallas Judging

[2] *Paphiopedilum* Emerald Ice 'Crystelle' AM/AOS (Hsinying Dragon x Hsinying Dress) 87 pts. Exhibitor: Krull-Smith; photographer: Monroe Kokin. Florida North-Central Judging

[3] *Stormara* Yen HKN Nguyen 'Florida SunCoast' AM/AOS (*Rhyncattleanthe* Momilani Rainbow x *Myrmecocattleya* Memoria Louise Fuchs) 82 pts. Exhibitor: Jim Roberts Florida SunCoast Orchids; photographer: Brian Monk. Florida-Caribbean Judging

[4] *Brassocattleya* Ancile Gloudon 'Bill's Weed' HCC/AOS (*Cattleya* Jalapa x *Brassavola subulifolia*) 77 pts. Exhibitor: Bill Nunez; photographer: Kay Clark. Florida North-Central Judging

[5] *Vanda* Peter Swenson 'Cyee's Peter' AM/AOS (*insignis* x *motesiana*) 80 pts. Exhibitor: Motes Orchids; photographer: Carmen Johnston. Florida-Caribbean Judging

[6] *Cattleya* Cruella 'Ponkan' HCC/AOS (*tenebrosa* x *tigrina*) 79 pts. Exhibitor: Krull-Smith; photographer: Monroe Kokin. Florida North-Central Judging

[7] *Cycnoches* Dark Swan 'Krull-Smith' HCC/AOS (Richard Brandon x Chloroge) 77 pts. Exhibitor: Krull-Smith; photographer: Monroe Kokin. Florida North-Central Judging

[8] *Phalaenopsis* LD's Bear Queen 'Apopka' AM/AOS (*bellina* x Dragon Tree Eagle) 82 pts. Exhibitor: Krull-Smith; photographer: Brian Monk. Florida-Caribbean Judging

[9] *Rhyncholaeliocattleya* Crackho 'Pasco Queen' AM/AOS (Cracker Byrd x *Cattleya* Horace) 81 pts. Exhibitor: Bill Nunez; photographer: Bill Nunez. Florida North-Central Judging

[10] *Rhyncattleanthe* Bredren's Fire Walker 'Xavier' HCC/AOS (*Cattlianthe* Rojo x Cherry Suisse) 78 pts. Exhibitor: Bredren Orchids and Phillip Hamilton; photographer: Monroe Kokin. Florida North-Central Judging

[11] *Paphiopedilum* Toni Semple 'Whisper Ollie's Beyblade' HCC/AOS (*haynaldianum* x *lowii*) 79 pts. Exhibitor: Laura and Wes Newton; photographer: Wes Newton. Florida North-Central Judging

[12] *Paphiopedilum* tranlienianum 'Fajen's Orchids Too' HCC/AOS 78 pts. Exhibitor: Fajen's Orchids; photographer: Kay Clark. Florida North-Central Judging

[13] *Clowesia* Grace Dunn 'Rosalyn' CCM/AOS (*warczewitzii* x *rosea*) 82 pts. Exhibitor: Larry Galdes; photographer: Mei Ling Clemens. Great Lakes Judging

[14] *Dendrobium* Memoria Carol Jean Clark 'Losgar' HCC/AOS (Peter Shen x Little Atro) 76 pts. Exhibitor: Nancy Losgar; photographer: Kay Clark. Florida North-Central Judging

[15] *Rhyncattleanthe* Scarlet Hooka 'Poppy Sunset' HCC/AOS (*Rhyncholaeliocattleya* Hisako Akatsuka x *Guarianthe aurantiaca*) 75 pts. Exhibitor: Bill Nunez; photographer: Kay Clark. Florida North-Central Judging

[16] *Oncidopsis* Mont des Louannes 'Kaleidoscopic Vision' AM/AOS (Saint Aubin x *Oncidium* Mont Cambrai) 84 pts. Exhibitor: New Vision Orchids; photographer: Mei Ling Clemens. Great Lakes Judging

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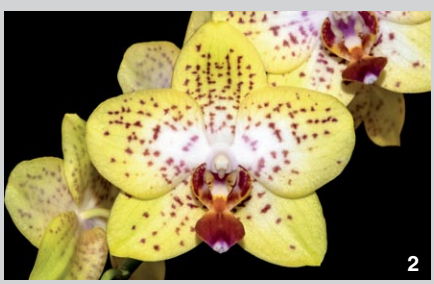
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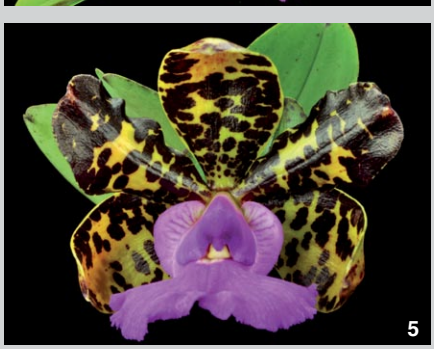
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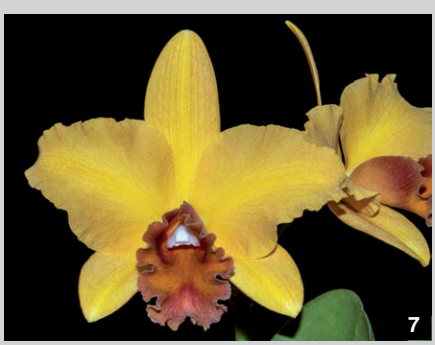
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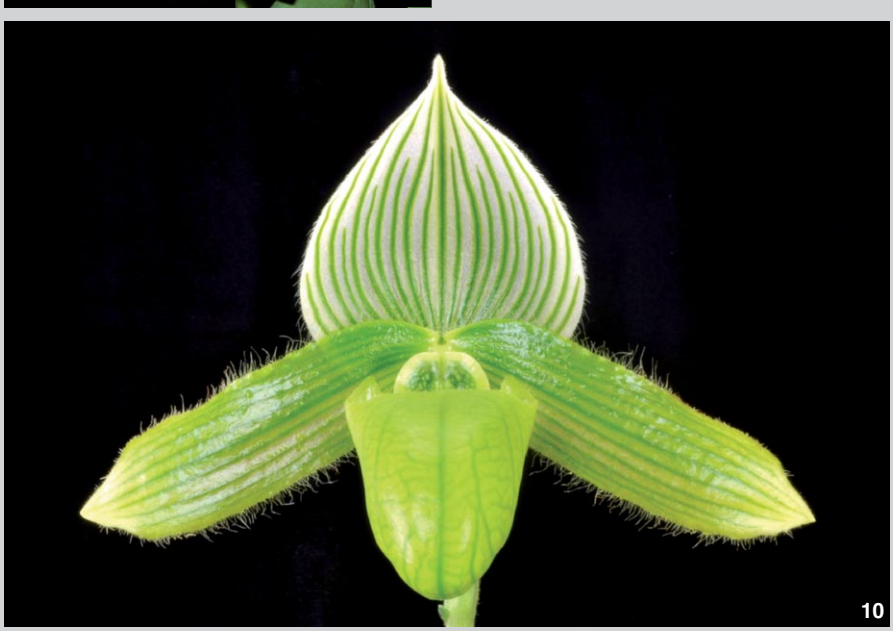
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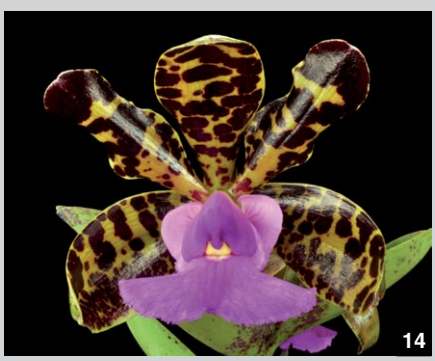

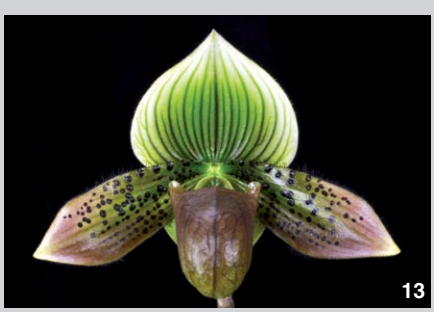

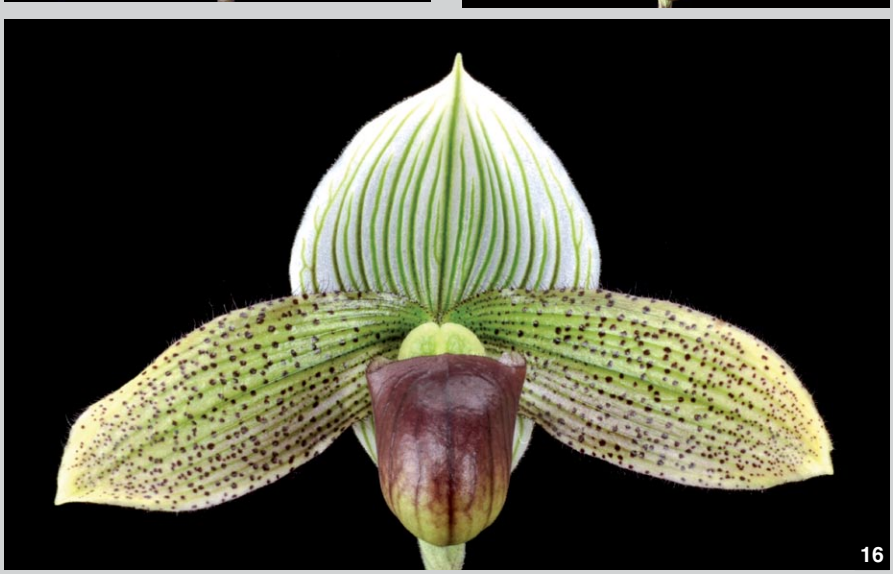

[1] *Paphiopedilum* Lefty Kei 'Golden Boy' AM/AOS (William Ambler x *sanderianum*) 81 pts. Exhibitor: Orchid Inn, Ltd.; photographer: Mei Ling Clemens. Great Lakes Judging

[2] *Phalaenopsis* Walnut Valley Yellow Sun 'Max and Bryon' AM/AOS (Blessed x Taisuco Date) 80 pts. Exhibitor: Max Thompson and Bryon Rinke; photographer: Bryon Rinke. Great Plains Judging

[3] *Paphiopedilum* Fred's Majesty 'Slipper Zone Dorsal Splendor' HCC/AOS (Fred in Pink x President Fred) 76 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging

[4] *Rhyncholaeliocattleya* Hisako Song 'Shogun's Pride' AM/AOS (Hisako Akatsuka x *Cattleya* Mini Song) 84 pts. Exhibitor: Shogun Hawaii- Matthias Seelis; photographer: Glen Barfield. Hawaii Judging

[5] *Cattleya aclandiae* 'Holy Mackerel' AM/AOS 83 pts. Exhibitor: Ben Oliveros and Orchid Eros; photographer: Glen Barfield. Hawaii Judging

[6] *Paphiopedilum* Walnut Valley Spots 'Max' AM/AOS (Walnut Valley Thunder x World Plus) 87 pts. Exhibitor: Max C. Thompson; photographer: Bryon Rinke. Great Plains Judging

[7] *Rhyncattleanthe* Sunset Valley Sunrise 'Max' HCC/AOS (*Rhyncholaeliocattleya* George King x Love Sound) 79 pts. Exhibitor: Max C. Thompson; photographer: Bryon Rinke. Great Plains Judging

[8] *Ancistrochilus rothschildianus* 'Bryon' CCM/AOS 86 pts. Exhibitor: Bryon K. Rinke; photographer: Bryon Rinke. Great Plains Judging

[9] *Paphiopedilum* Temptation 'Jeremy' HCC/AOS (*kolopakingii* x *philippinense*) 79 pts. Exhibitor: Jana Butcher; photographer: Bryon Rinke. Great Plains Judging

[10] *Paphiopedilum* Wolf's Folly 'Slipper Zone Got There' HCC/AOS (*wardii* x Dire Wolf) 77 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging

[11] *Paphiopedilum* Macabre Hawaiian 'Slipper Zone Galantly Green' HCC/AOS (Hawaiian Illusion x Macabre Pops) 77 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging

[12] *Paphiopedilum* Fred's Magnificence 'Slipper Zone Red Rising' HCC/AOS (Friedrich von Hayek x Superb Fred) 77 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging

[13] *Paphiopedilum* Hawaiian Peacock 'Slipper Zone Green Fire' HCC/AOS (Hawaiian Illusion x Petula's Peacock) 75 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging

[14] *Cattleya aclandiae* 'Grace' HCC/AOS 79 pts. Exhibitor: Ben Oliveros and Orchid Eros; photographer: Glen Barfield. Hawaii Judging

[15] *Paphiopedilum* Montera Vogue 'Slipper Zone Pink Delicately' HCC/AOS (Montera Moth x Vogue Wonder) 79 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging

[16] *Paphiopedilum* Mystically Macabre 'Slipper Zone Petal Prominence' HCC/AOS (Macabre Pops x Mystically Wood) 78 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging

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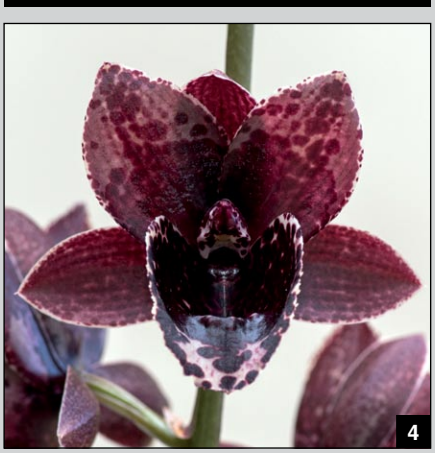
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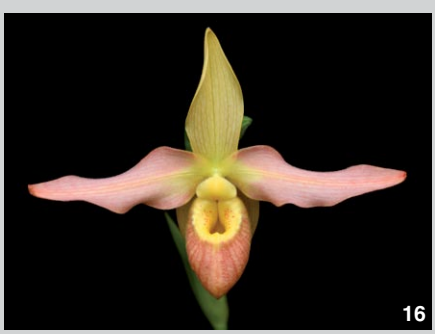

[1] *Laelia undulata* (Alba) 'Shogun Hawaii' AM/AOS 80 pts. Exhibitor: Shogun Hawaii- Matthias Seelis; photographer: Glen Barfield. Hawaii Judging

[2] *Rhyncattleanthe* Marie Caldwell 'Elle Hemphill' AM/AOS (Martha Clarke x *Rhyncholaeliocattleya* Little Toshie) 81 pts. Exhibitor: William Caldwell; photographer: Malcolm McCorquodale. Houston Judging

[3] *Paphiopedilum* Sakaki 'No Cigar' AM/AOS (*bellatulum* x *wenshanense*) 89 pts. Exhibitor: Sarah Hurdel; photographer: Bryan Ramsay. National Capital Judging

[4] *Fredclarkeara* Kelly Longley 'Renée Gerber' HCC/AOS (*Mormodia* Painted Desert x Catasetum José Abalo) 79 pts. Exhibitor: Steve Moffitt; photographer: Malcolm McCorquodale. Houston Judging

[5] *Fredclarkeara* Doubtless 'Pink Fairy' HCC/AOS (No Doubt x *Catasetum* Orchidglade) 79 pts. Exhibitor: Steve Moffitt; photographer: Malcolm McCorquodale. Houston Judging

[6] *Paphiopedilum* fairrieanum 'Morright' AM/AOS 82 pts. Exhibitor: Jeff Morris; photographer: Bryan Ramsay. National Capital Judging

[7] *Rhyncholaeliocattleya* Maui Freckles 'Maui' AM/AOS (Sun Spots x Pauwela Polka Dots) 82 pts. Exhibitor: Exotic Orchids of Maui; photographer: Michael Blietz. Hawaii Judging

[8] *Vandachostylis* Colmarie 'Valley Isle' AM/AOS (Sri-Siam x *Rhynchostylis gigantea*) 85 pts. Exhibitor: Chuck Briggs; photographer: Michael Blietz. Hawaii Judging

[9] *Fredclarkeara* Desert Tenor 'HJC' HCC/AOS (*Mormodia* Painted Desert x *Catasetum tenebrosum*) 76 pts. Exhibitor: Steve Moffitt; photographer: Malcolm McCorquodale. Houston Judging

[10] *Dendrobium* Swiss Mountain Palace 'Reavis Maggard' HCC/AOS (*cuthbertsonii* x Mtn's Butterfly Kisses) 76 pts. Exhibitor: William Caldwell; photographer: Malcolm McCorquodale. Houston Judging

[11] *Paphiopedilum* Delightfully Macabre 'JustPat' AM/AOS (Luna Magic x Macabre Delight) 85 pts. Exhibitor: Paul Sheetz; photographer: Bayard Saraduke. Mid-Atlantic Judging

[12] Phragmipedium Pastel Echo 'Cherry Run' HCC/AOS (Cardinale x Cleola) 76 pts. Exhibitor: Woodstream Orchids; photographer: Bryan Ramsay. National Capital Judging

[13] *Phragmipedium* Fast Forward 'Rewind' CCM-AM/AOS (Saint's Apprentice x Saint Ouen) 83-85 pts. Exhibitor: Robert J. Griesbach; photographer: Bryan Ramsay. National Capital Judging

[14] *Phragmipedium sargentianum* 'Summit' HCC/AOS 76 pts. Exhibitor: Woodstream Orchids; photographer: Bryan Ramsay. National Capital Judging

[15] *Paphiopedilum* White Dominion 'Monarch' AM/AOS (Pacific Shamrock x White Castle) 87 pts. Exhibitor: Marriott Orchids/Hadley Cash; photographer: Bryan Ramsay. National Capital Judging

[16] *Phragmipedium* Yakima River 'Penns Creek' HCC/AOS (La Rosiere x Robert Palm) 76 pts. Exhibitor: Woodstream Orchids; photographer: Bryan Ramsay. National Capital Judging

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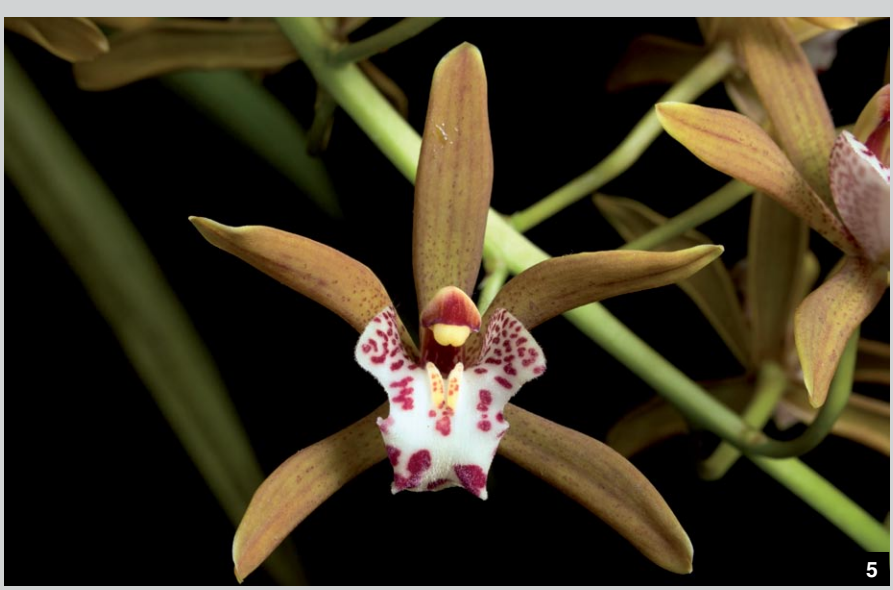
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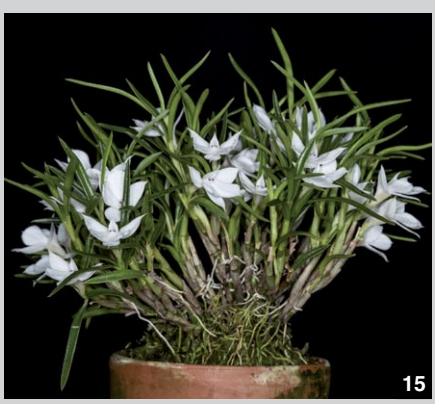

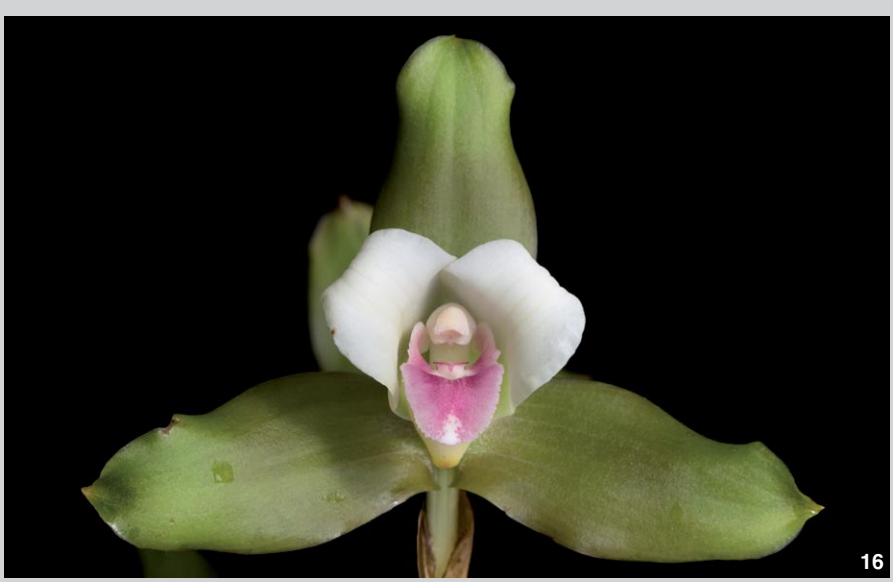

[1] *Paphiopedilum sukhakulii* 'Dark Delight' AM/AOS 82 pts. Exhibitor: Marriott Orchids/Hadley Cash; photographer: Bryan Ramsay. National Capital Judging

[2] *Phragmipedium* Anthony Omeis 'Shoshone River' AM/AOS (Spot On x Pink Panther) 83 pts. Exhibitor: Woodstream Orchids; photographer: Bryan Ramsay. National Capital Judging

[3] *Paphiopedilum* Toni Semple 'Diana Candy Crush' HCC/AOS (*haynaldianum* x *lowii*) 79 pts. Exhibitor: Christopher Zajac; photographer: Bryan Ramsay. National Capital Judging

[4] *Phalaenopsis* OX Firebird 'OX1506' HCC/AOS (OX Black Jack x Walnut Valley Halo) 77 pts. Exhibitor: Carri Raven-Riemann and the orchidPhile; photographer: Maurice Garvey. Northeast Judging

[5] *Cymbidium* Pumpkin Custard 'Anyara' HCC/AOS (*schroederi* x *floribundum*) 79 pts. Exhibitor: Mary Jo Gilsdorf; photographer: Julie Rotramel. National Capital Judging

[6] *Paphiopedilum* Victoria's Song 'Pastel Light' CCE/AOS (Via Victoria x White Legacy) 90 pts. Exhibitor: Marriott Orchids/Hadley Cash; photographer: Bryan Ramsay. National Capital Judging

[7] *Paphiopedilum* Izanaminomikoto 'First Love' HCC/AOS (Via Muchos Ninos x Skip Bartlett) 78 pts. Exhibitor: Marriott Orchids/Hadley Cash; photographer: Bryan Ramsay. National Capital Judging

[8] *Phragmipedium* Boulder River 'Zelda Graham' HCC/AOS (*hartwegii* x Spot On) 77 pts. Exhibitor: Joel Graham; photographer: Julie Rotramel. National Capital Judging

[9] *Clowesia* Grace Dunn 'Looking Glass' CCE/AOS (*warczewitzii* x *rosea*) 92 pts. Exhibitor: Wade Hollenbach; photographer: Julie Rotramel. National Capital Judging

[10] *Cattleya* Irene Teo Lai Kheng 'Valentine' AM/AOS (Aloha Case x *coccinea*) 83 pts. Exhibitor: Sarah Hurdel; photographer: Julie Rotramel. National Capital Judging

[11] *Paphiopedilum* Dark Destiny 'Dark Star' AM/AOS (Montagnard x Black Wizard) 82 pts. Exhibitor: Marriott Orchids - Hadley Cash; photographer: Bryan Ramsay. National Capital Judging

[12] *Epidendrum centropetalum* 'Fannie Jurcenko' CCM/AOS 87 pts. Exhibitor: Shawn Wood; photographer: Julie Rotramel. National Capital Judging

[13] *Vandachostylis* Sri-Siam 'Purple People Eater' HCC/AOS (*Vanda tessellata* x *Rhynchostylis gigantea*) 79 pts. Exhibitor: Little Brook Orchids; photographer: Julie Rotramel. National Capital Judging

[14] *Dendrobium* Specio-kingianum 'Memoria Nina Sue' HCC/AOS (*kingianum* x *speciosum*) 79 pts. Exhibitor: Andrew Bedenbaugh; photographer: Bryan Ramsay. National Capital Judging

[15] *Dendrobium subuliferum* 'J & L First Snow' CCM/AOS 84 pts. Exhibitor: J & L Orchids; photographer: Maurice Garvey. Northeast Judging

[16] *Lycaste puntarenasensis* 'Holly' HCC/AOS 78 pts. Exhibitor: Stephen Male and Fishing Creek Orchids; photographer: Julie Rotramel. National Capital Judging

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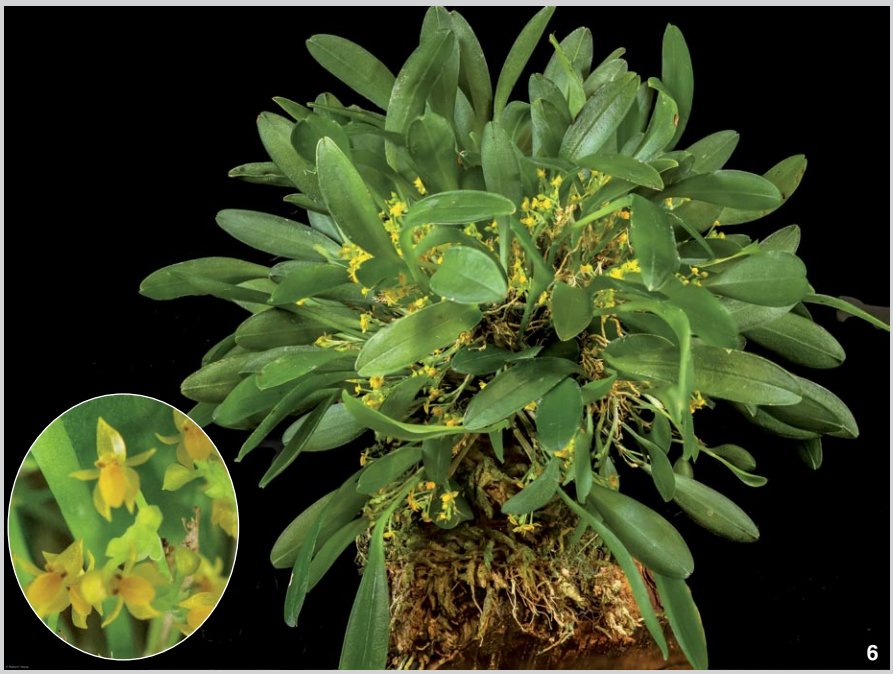
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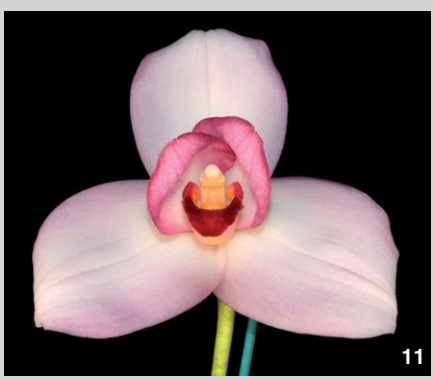
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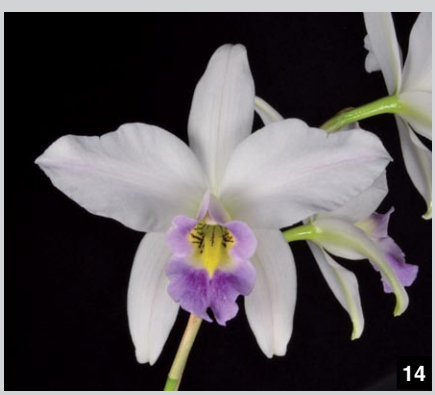
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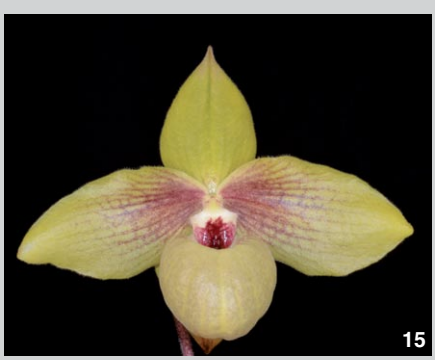
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[1] *Dendrobium subuliferum* 'J and L First Snow' CCM/AOS 84 pts. Exhibitor: J and L Orchids; photographer: Maurice Garvey. Northeast Judging

[2] *Cymbidium* Eastern Venus 'Winston' AM/AOS (*goeringii* x Sleeping Beauty) 85 pts. Exhibitor: Jung Ra; photographer: Chaunie Langland. Pacific Central Judging

[3] *Vanda* Motes Adorbs 'Kathleen's Memory' CCE/AOS (*ampullacea* x *christensoniana*) 91 pts. Exhibitor: Tom Gargano; photographer: Robert Hesse. Northeast Judging

[4] *Cattleya* Minipet 'Zoya Bean' HCC/AOS (Orpetii x *coccinea*) 75 pts. Exhibitor: Sasha Crotty; photographer: Robert Hesse. Northeast Judging

[5] *Paphiopedilum* Liberty Taiwan 'Wolf Moon' HCC/AOS (*micranthum* x *hangianum*) 77 pts. Exhibitor: John McCallen; photographer: Japheth Ko. Pacific Central Judging

[6] *Platystele stenostachya* 'Vasken Karekin' CCM/AOS 87 pts. Exhibitor: L. Ann Chepjian; photographer: Robert Hesse. Northeast Judging

[7] *Dendrochilum irigense* 'Barbara Hauri' CCM/AOS 84 pts. Exhibitor: L. Ann Chepjian; photographer: Robert Hesse. Northeast Judging

[8] *Zygopetalum* Mishima Goddess 'Midnight' AM/AOS (B. G. White x James Strauss) 81 pts. Exhibitor: Weegie Caughlan; photographer: Chaunie Langland. Pacific Central Judging

[9] *Dendrobium leucocyanum* 'Memoria Gerald McCraith' CCM/AOS 82 pts. Exhibitor: Mary Gerritsen; photographer: Chaunie Langland. Pacific Central Judging

[10] *Maxillaria lawrenceana* 'Susan' CCM/AOS 86 pts. Exhibitor: Chuck and Sue Andersen; photographer: Robert Hesse. Northeast Judging

[11] *Lycaste* Spring Present 'Redwood' AM/AOS (Spring Chorus x Shoalhaven) 81 pts. Exhibitor: Cal-Orchid, Inc.; photographer: Chaunie Langland. Pacific Central Judging

[12] *Lycaste* Nada 'Redwood' AM/AOS (Cherish x Shoalhaven) 81 pts. Exhibitor: Cal-Orchid, Inc.; photographer: Chaunie Langland. Pacific Central Judging

[13] *Cattleya* Lake Tahoe 'Echo Valley' AM/AOS (Floralia's Azul x *sincorana*) 80 pts. Exhibitor: Echo Valley Orchids; photographer: Chaunie Langland. Pacific Central Judging

[14] *Laelia anceps* (hort. f. *veitchiana*) 'Jennifer Joyce' HCC/AOS 76 pts. Exhibitor: Japheth Ko; photographer: Chaunie Langland. Pacific Central Judging

[15] *Paphiopedilum* Shun-Fa Golden 'Echo Valley' HCC/AOS (*hangianum* x *malipoense*) 79 pts. Exhibitor: Echo Valley Orchids; photographer: Chaunie Langland. Pacific Central Judging

[16] *Gomesa novaesae* 'Sunshine' HCC/AOS 76 pts. Exhibitor: Amy and Ken Jacobsen; photographer: Chaunie Langland. Pacific Central Judging

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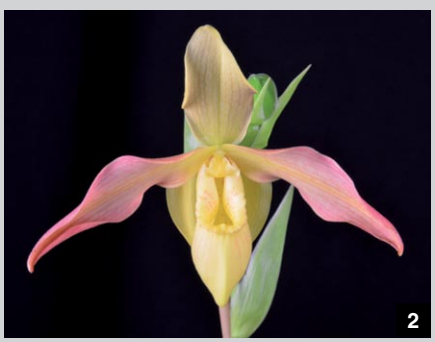
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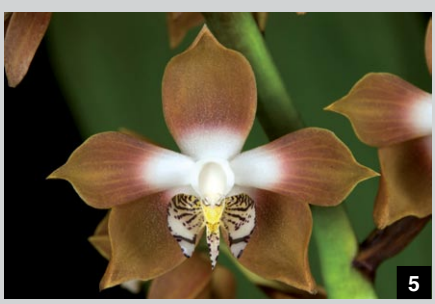
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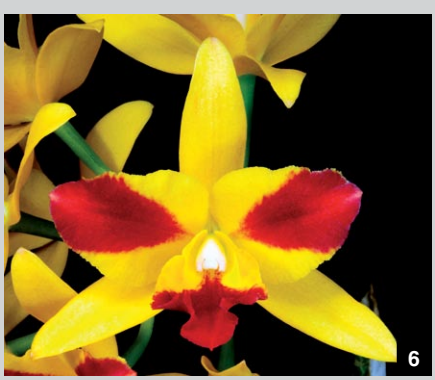
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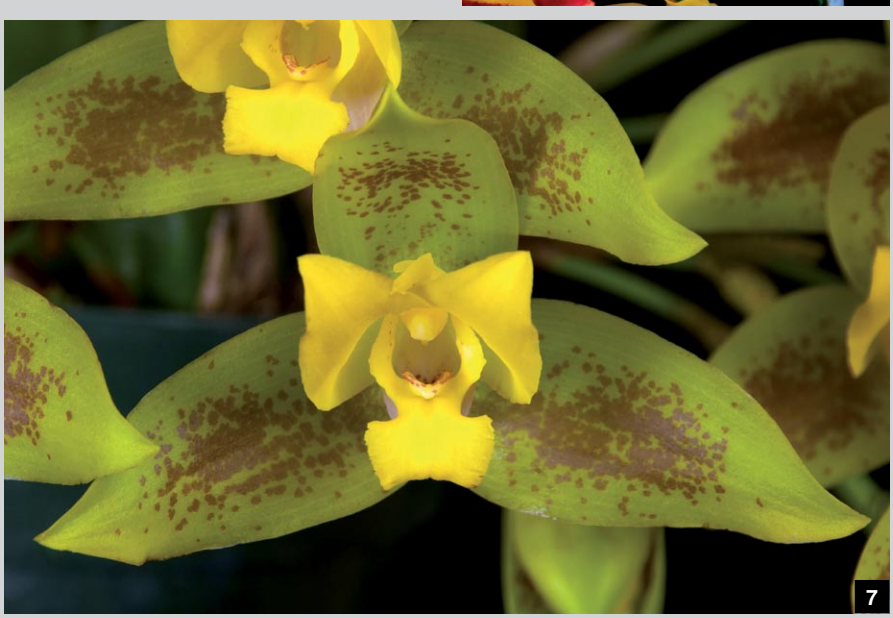
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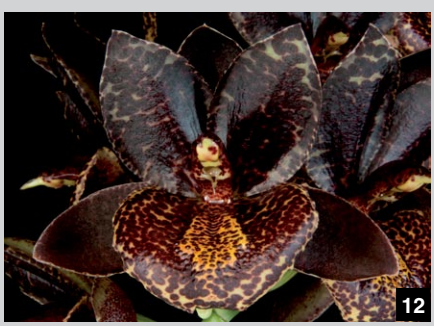
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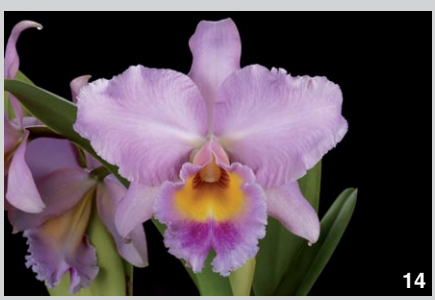
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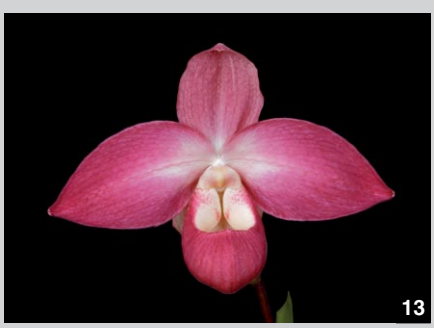
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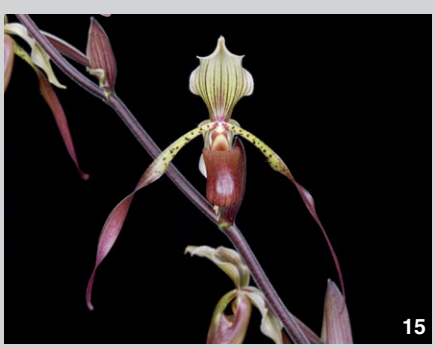
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[1] *Oncidium zappii* 'Bentley' HCC/AOS 77 pts. Exhibitor: Amy and Ken Jacobsen; photographer: Chaunie Langland. Pacific Central Judging

[2] *Phragmipedium* Lutz Rollke 'Phoenix' AM/AOS 80 pts. Exhibitor: Japheth Ko; photographer: Chaunie Langland. Pacific Central Judging

[3] *Paphiopedilum gratrixianum* 'Shakedown Street' HCC/AOS 79 pts. Exhibitor: Zack Bray; photographer: Tim Morton. Pacific Northwest Judging

[4] *Angraecum* Crestwood 'Emilia' HCC/AOS (Veitchii x *sesquipedale*) 75 pts. Exhibitor: William Jasen; photographer: Ross Leach. Pacific Northwest Judging

[5] *Neomoorea wallisii* 'Emilia' HCC/AOS 77 pts. Exhibitor: William Jasen; photographer: Ross Leach. Pacific Northwest Judging

[6] *Cattlianthe* Tropical Splash 'Sunset Valley Orchids' HCC/AOS (*Cattleya* Tropical Sunset x Denis Olivas) 77 pts. Exhibitor: Fred Clarke; photographer: Arnold Gum. Pacific South Judging

[7] *Lycaste* Edinensis 'Linda Ann' AM/AOS (*cruenta* x *macrophylla*) 80 pts. Exhibitor: Mike Ayers; photographer: Ross Leach. Pacific Northwest Judging

[8] *Cattleya coccinea* 'Morning Dew' AM/AOS 80 pts. Exhibitor: Zack Bray; photographer: Tim Morton. Pacific Northwest Judging

[9] *Bulbophyllum treschii* 'Cosmos' AM/AOS 80 pts. Exhibitor: Terry Thompson; photographer: Tim Morton. Pacific Northwest Judging

[10] *Oncidium* Tiger Royale 'Cassandra' HCC/AOS (Tiger Butter x Elise) 79 pts. Exhibitor: Robert Burkey; photographer: Tim Morton. Pacific Northwest Judging

[11] *Mormodes* Midnight Hooker 'Dark Night' HCC/AOS (Midnight x *hookeri*) 76 pts. Exhibitor: Fred Clarke; photographer: Arnold Gum. Pacific South Judging

[12] *Catamodes* Dragons Glade 'Zeus' AM/AOS (Dragons Tail x *Catasetum* Orchidglade) 82 pts. Exhibitor: Fred Clarke; photographer: Arnold Gum. Pacific South Judging

[13] *Phragmipedium* Suzanne Decker 'Geneva's Clue' AM/AOS (*kovachii* x Cape Sunset) 85 pts. Exhibitor: Thornton Conservatory; photographer: Arthur Pinkers. Pacific South Judging

[14] *Rhyncholaeliocattleya* Lyn Evans 'Suki's King Zelle' HCC/AOS (George King x Goldenzelle) 75 pts. Exhibitor: Thornton Conservatory; photographer: Arthur Pinkers. Pacific South Judging

[15] *Paphiopedilum* Alex's Spots 'Huntington's Stairway' AM/AOS (*lowii* x *kolopakingii*) 83 pts. Exhibitor: Huntington Botanical Gardens; photographer: Arthur Pinkers. Pacific South Judging

[16] *Laelia* Finckeniana 'Magic Rubies' AM/AOS (*albida* x *anceps*) 84 pts. Exhibitor: Ruben Colmenares; photographer: Arthur Pinkers. Pacific South

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Maxillaria sanguinea f. *exsanguis f. nov.*

A New and Rare Form of an Attractive Species of Maxillaria (Orchidaceae)

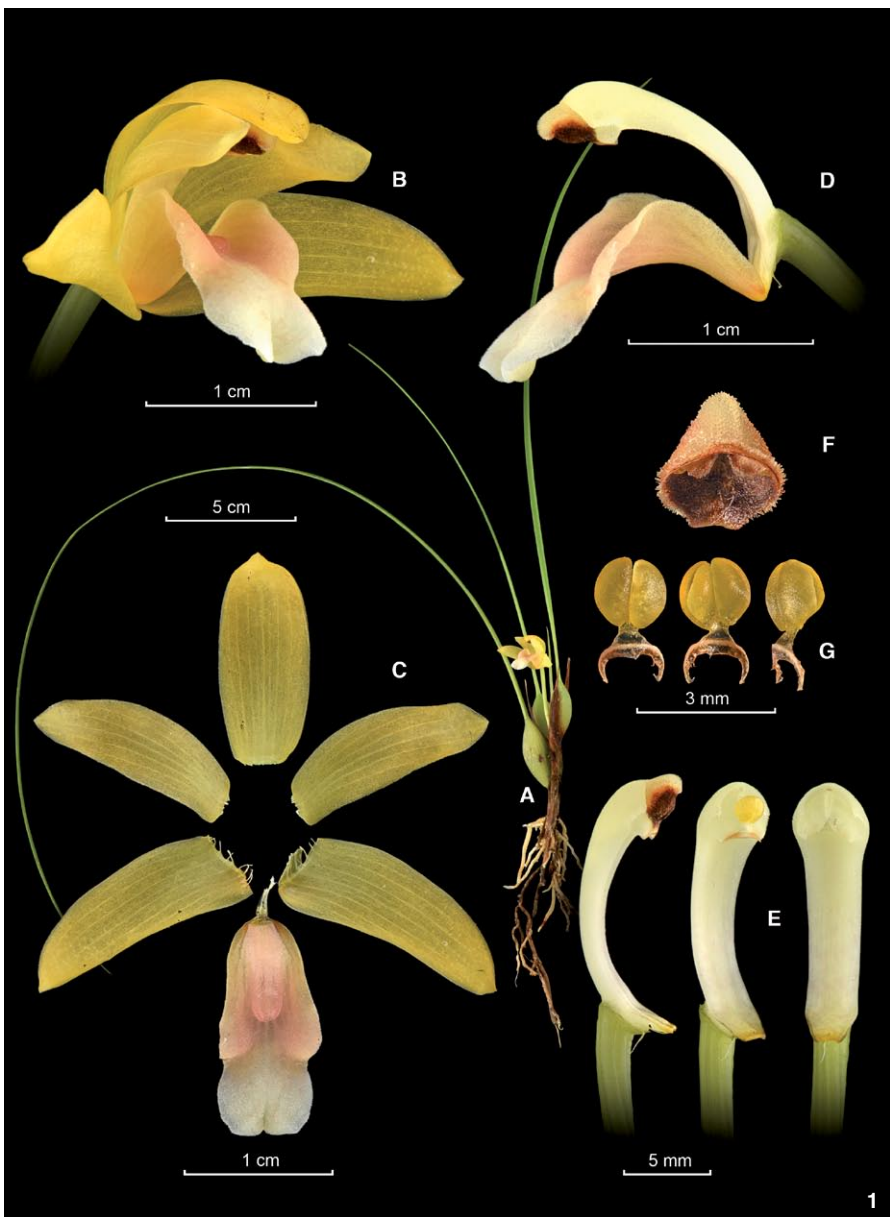
By Grettel Salguero and Franco Pupulin

ABSTRACT A new form of *Maxillaria sanguinea* with pale, yellowish and white flowers, is described from Costa Rica as f. *exanguis,* and a composite illustration of the new taxon is provided.

We at the Lankester Botanical Garden continue to be very busy describing the basic units of orchid diversity in Costa Rica, new species that are added month after month to the more than 1,600 we already know in this country. This leaves us, in general, little time to devote to subunits; those variations in the continuum of life forms that sometimes represent genetically isolated populations — mostly for geographical reasons — but which more commonly are nothing more than individual variations in some minor characteristics in the morphology or coloring of flowers. Botany codes specific categories to define these variations, although the use and definition of these categories have not always been consistent (see, in this regard, the comments of Pupulin 2015).

Undoubtedly, however, there have existed and there are exceptions within these variations that deserve to be recognized from the point of view of horticulture and, consequently, of botany. We say here "consequently" because it is certain that when horticulture is interested in adopting a given variation within the range of a species, it is convenient to rely on an adequate and precise botanical description. When the accuracy of the procedures required by the official botany is ignored, or taken lightly, the meaning of the names — even in the case of hybrids — becomes ambiguous, as Díaz-Morales and Pupulin (2018) have recently shown about a historical hybrid of *Phragmipedium*.

A large number of "positive variations" compared to the standard of a species, "better" shapes or colors from the point of view of their desirability, have been described botanically in the past and have considerably contributed to shaping the extraordinary variety of orchid hybrids we know today. *Cattleya intermedia* f. *aquinii*, the *alba* form of *Guarianthe skinneri*, the forma *albata* of *Vanda sanderiana*, are only a few striking examples of this interesting combination of botany and horticulture. Consistent with our work, it was certainly a good decision to formally describe the forma *carmoniana* of *Cattleya dowiana* (Pupulin 2018), because it is very likely that in the future some hybridizers will want to use "just this" variation in their programs and want to leave clear and indisputable documentation as to the relatives used in the crossings.



The designation of forms, or other subspecific botanical categories, is however a very human activity; we could perhaps say "too" human. Although the botanist is not inclined to distinguish between "beautiful" or "modest" species, and find time and energy so that each of the species — regardless of its characteristics — finds its place in the large tree of life

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classification, the formal recognition of subspecific categories mainly follows a logic of "beauty" or "rarity" to human eyes. Nobody dreams of describing the many variations — certainly interesting from the point of view of reproductive biology — in the coloring of the flowers of *Pleurothallis phyllocardioides* (with insignificantly small flowers) and we doubt that anyone, whether botanist or horticulturist, has ever focused attention on the possible existence of different shapes among the flowers of *Jacquiniella* (often comically globular). And although the subspecies are frequently treated with the same Olympic indifference to their beauty as it happens to the species, the same does not happen for the *varietates*, *formae* or *subformae*: these are mostly reserved for the recognition of aesthetically "superlative" features.

It is for this reason that we formally describe here, under the category of *forma*, an unusual variation in the coloration of the flower of a species that can be classified among the aesthetically "pleasing" and is therefore commonly cultivated, both in its countries of origin as well as among orchid enthusiasts from other regions of the world.

Maxillaria sanguinea* f. *exsanguis
Salguero and Pupulin, *forma nova*

TYPE Costa Rica. Alajuela: San Carlos, Ciudad Quesada, surroundings of Cedral. Flowered in cultivation at Lankester Botanical Garden on January 13th, *JBL-36995* (holotype, JBL).

A forma typica floribus pallentibus maculis rubris destitutis recedit.

DESCRIPTION An epiphytic, subcaespitose *herb* forming clumps, with short to somewhat elongated rhizomes covered with lanceolate-triangular, acute, imbricated sheaths shredding with age, the nodes 1.0–2.5 cm, the last ones longer than the pseudobulb length. *Roots* flexuous, white, to 1.5 mm in diameter. *Pseudobulbs* fleshy, fusiform-ellipsoid, apically unifoliate 1.0–2.8 cm long, 0.5–1.3 cm broad. *Leaves* linear, conduplicate, without petiole, 16–43 cm long, 2.0–3.5 mm wide. *Inflorescence*, one per rhizome bract of the most recent shoots, one-flowered racemes about 1 cm, mostly covered by the rhizome bracts; pedicellate *ovary* terete, erect, 2.5 cm long including the pedicel. *Flower* resupinate, not completely spreading, the sepals and petals yellowish, the lip white, suffused with pale rose at the base and on the lateral lobes, the callus pinkish; the column white, the anther cap white with a large maroon blotch ventrally. *Sepals* oblong-elliptic, obtuse, abruptly shortly apiculate, seven-veined, to 1.5 cm long, 0.5–0.6 cm wide; the *dorsal sepal* folded over the column, the *lateral sepals* forming a mentum around the column foot. *Petals* slightly falcate and arching at the apex, subacute, seven-veined, to 1.5 cm long, 0.5 cm wide. *Lip* trilobed, obovate-subpanduriform, apically obtuse to truncate, arcuate-decurved, laterally constricted in the apical third, to 1.5 cm long, 6 mm wide; lateral lobes elliptic, erect; midlobe surrounded, truncate-excise, deeply conduplicate at apex where it forms an abaxial keel; callus ligulate on the lower half, apically truncate, ca. 7 mm long. *Column* semiterete-clavate, arcuate, 1.5 cm long, provided with a foot 2 mm long, the ventral stigma a slit, the anther incumbent. *Anther cap* cucullate, triangular-ovate, papillose, bilocular. *Pollinia* four, in two subequal pairs, dorsiventrally superimposed, on a short trapezoid-subtriangular hyaline stipe, the viscidium large, horsehoe-shaped, light brown. *Fruits* unknown.

ETYMOLOGY From the La-

[1] *Maxillaria sanguinea* f. *exsanguis* Salguero and Pupulin. A, habit. B, flower. C, dissected perianth. D, column and lip. E, column, lateral, three quarters and ventral views. F, anther cap. G, pollinarium in dorsal, ventral and lateral views. Lankester Composite Digital Plate prepared by G. Salguero based on the holotype.

[2] Comparison between the flowers of *Maxillaria sanguinea* f. *exsanguis* (A) and f. *sanguinea* (B). A, JBL-36995 (photo by G. Salguero). B, JBL-05293 (photo by F. Pupulin).

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tin *exsanguis*, deprived of blood, bloodless, but also, figuratively, pale, in allusions to the pale color of an otherwise bloodstained (*sanguineus*) flower.

DISTRIBUTION Known only from Costa Rica.

HABITAT Lower montane rain forest on the Caribbean plains of northern Costa Rica.

PHENOLOGY Plants have been recorded in flower in December and January.

Color variation is not a common feature among either species of *Maxillaria sensu lato* or members of the *Maxillariella* group (for an excellent characterization of this phylogenetically related group of species, see Whitten et al 2007 and Blanco et al. 2007). In the case of *Maxillaria sanguinea*, the pale flower of the forma *exsanguis* is particularly contrasting with that of the typical form of the species, whose name expressly refers to the boldly colored, bloody appearance of the flower (Atwood 1989, 2003, Atwood & Mora Monge 1999)

ACKNOWLEDGMENT

We thank Gustavo Rojas Aguilar and Luis Daniel Blanco Jiménez, who made the plant available to us for documentation and scrutiny. We acknowledge the Ministry of Environment of Costa Rica (MINAE) for issuing Scientific permits No. ACAHN-008-2019 and ACAHN-0102019, under which the wild plants used in this study were managed.

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[3] *Maxillaria sanguinea* f. *sanguinea*. A, habit. B, flower. C, dissected perianth. D, column and lip and same view with the lip longitudinally sectioned. E, column, three quarters and ventral views (with and without anther). F, anther cap. G, pollinarium in dorsal, ventral and lateral views. Lankester Composite Digital Plate prepared by F. Pupulin based on *JBL-05293*, a plant awarded in 1990 with a CCM/AOS under the clonal name of "Cóncavas".

— Grettel Salguero, to whom correspondence should be sent, is a biologist graduated at the University of Costa Rica and holds a Bachelor's degree in Biology with an emphasis on Botany. Since 2017 she has worked as a research assistant with the Lankester Botanical Garden, where she is in charge of documentation of the living collection and the associated databases, as well as the ancillary collections of natural history at the Center. Lankester Botanical Garden, University of Costa Rica, P.O.Box 302-7050 Cartago, Costa Rica (email grettel.salguero@ucr.ac.cr).

Franco Pupulin is a research professor at the University of Costa Rica, where he directs the research department of the Lankester Botanical Garden. A Taxonomic authority recognized by the AOS, Franco is an associate in research with the Harvard University Herbaria and The Marie Selby Botanical Gardens (franco.pupulin@ucr.ac.cr).

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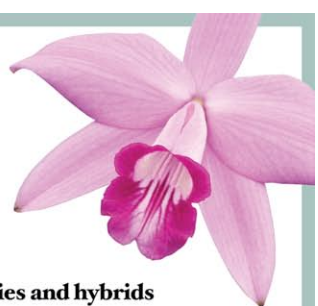

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A little trick I learned a few years ago: to catch those nasty bush snails which do not seem to respond to any other method: cut a piece of yellow sticky card and insert it into the orchid pot. If you have bush snails they will be attracted to the card and get stuck. You will not get them all but you will get an amazing number of them.

I came to this solution sort of by accident; I do not like to use chemical solutions if I do not have to and bush snails are almost impossible to get rid of. I had stuck a piece of a yellow card in a pot to catch fungus gnats and was amazed to see about 20 bush snails on the card as well. Now I try to keep a card in every one of my pots.

— Sara Johnson, Concord, California

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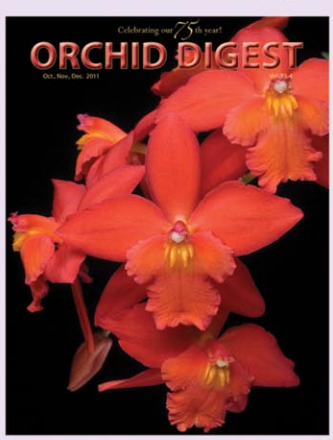

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Where to Place Baskets

MY NEW YEAR'S resolution was to enhance my skills and become knowledgeable about my orchid collection. Lately, I have been rearranging my orchids by cultural requirements and creating growing environments that will promote better vigor and growth in my plants. I am at the point where I am not killing my plants but they are just not growing or blooming as well as I would like them to.

As a result, I have been organizing some of my orchids into wire baskets. The medium-to-high light-loving orchids hang from the ceiling of my greenhouse with a retractable plant pulley (available from Amazon for about $10.00/2-pack) so they are easy to pull down to check on them. My shade-tolerant orchids are in baskets sitting on the floor. Plants are further segregated by potting medium: moss vs bark. I water my bark baskets more often than my moss baskets. I am learning more about the individual requirements of my collection with this system plus I can fit more orchids into a small space. Who would not love that!

— Cindy Jepsen (email: cindyjepsen@cox.net).

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2020 Dillon/Peterson Essay Prize

THE AOS IS celebrating its Centennial Anniversary in 2021. To join in the fun, the Dillon-Peterson Essay Contest is asking for in-depth articles relating to significant people, events, programs or even plants or technology changes that have helped shape the direction of the AOS or are likely to in the future. Was there someone special in the AOS who mentored and inspired you and others? Did an AOS award you received plant the seed that resulted in you becoming involved in judging—could you tie that into how the judging program has helped shape the AOS and Affiliated Societies? Perhaps it is technological changes that the AOS has adopted that have changed and will change the AOS and your enjoyment of orchids? Share why the AOS has had and will have an enormous influence over lifetimes.

Membership in the American Orchid Society is not necessary to enter the contest. **The deadline is September 30, 2020**. The winning entry, if any, will be published in the June issue of the following year. For complete contest rules see http://www.aos.org/about-us/article-submissions/essay-contest-winners.aspx

Submit all entries to the Dillon/Peterson Memorial Essay Prize at AOS headquarters: Ron McHatton, American Orchid Society at Fairchild Tropical Botanic Garden, PO Box 565477, Miami, Florida 33256 (email rmchatton@aos.org).

AD INDEX

CORRIGENDA

ON PAGE 277 of the April issue, in the sixth paragraph, author Carol Klonowski makes reference to "the National Capital Judging Center's Paphiopedilum Forum." This annual even dedicated to the Cypripedioideae is sponsored by the National Capital Orchid Society and not the judging center. We regret this oversight.

Thank you to Bill Jasen, a judge in the Pacific Northwest center for bring this to our attention.

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Never Give Up…

Or, Perseverance Pays Off!

TEXT BY LEE AND ROY NEALE/PHOTOGRAPHS BY CHRIS HUBBERT

THIS IMPRESSIVE PLANT was displayed at the Waitakere Orchid Club's annual Spring Show in August 2018, where it deservedly won Grand Champion Orchid of the show. It received quality and cultural awards from the Orchid Council of New Zealand, an AM (85.22 points) and a CCC (88.14 points). The combined description for these two awards reads:

"Petals and lip mahogany, self-striped with darker mahogany. Sepals chocolate red. Eight inflorescences, holding 139 flowers, cascading evenly around the plant. Substance good and texture matte. The plant is growing in a 280 mm pot and contains 12 large pseudobulbs; inflorescences are up to 500 mm long. Plant spread is 600 mm. Natural spread of typical flower 45 mm wide by 38 mm high."

The Orchid Council of New Zealand (OCNZ) subsequently honored this plant by naming it the Cultural Award of the Year 2018 and featuring it on the back cover of its yearbook, *Orchids 2019.*

The owners, Lee and Roy Neale (Leroy Orchids) wrote for the yearbook:

"We bought our first *Fredclarkeara* (*Fdk.*) flask in October 2008, from which two plants survived initially but eventually died before flowering. Our next flask was purchased in February 2010 from which we had more success. This plant originated from that flask. Total flask cost by then was (NZ) $425.00 (US $244) — a small fortune by our standards! We managed eventually to grow large healthy plants but few flower spikes.

After much trial and error and many plants dispatched either to sales tables or rubbish bins, we now think we can handle these tricky plants. When the leaves drop over winter, store the bare pseudobulbs in a warm position. We hang ours in the end of our shed that is heated to a minimum of 50 F (10 C) over winter; they get an occasional misting at this stage. When growths start emerging in spring, get them growing fast and furious — pot them in a mix of No. 2 bark (a fine grade). 50%; good general potting mix, 40%; and pumice, 10%. Add a sprinkling of 8–9 month slow release fertilizer, and water and feed with a CF (conductivity factor) up to 8 (equivalent to an Electrical Conductivity [EC] of 800 microsiemen — 400 ppm TDS), every day if possible or at least every second day, and watch them grow, repotting about every six weeks to a larger pot. We use the same mix even as the pot size increases. By the time the flower spikes emerge we are starting to reduce the watering but we do not dry the plants out completely while the spikes are forming. Give the plants very bright light, preferably hanging for extra warmth and light. Watch the underside of the leaves for silvering, this indicates spider mite infestation; spray as soon as noted.

It has taken 10 years of trial and error to earn this prestigious award. It was frustrating at times, but we are pleased we persevered. Thanks to OCNZ judges who acknowledged our endeavors.

Acknowledgments

We are grateful to the Orchid Council of New Zealand and Chris Hubbert for the use of photographs.

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***Fredclarkeara* After Dark 'Leroy' AM-CCC/OCNZ (2018) (*Mormodia* Painted Desert × *Catasetum* Donna Wise)**

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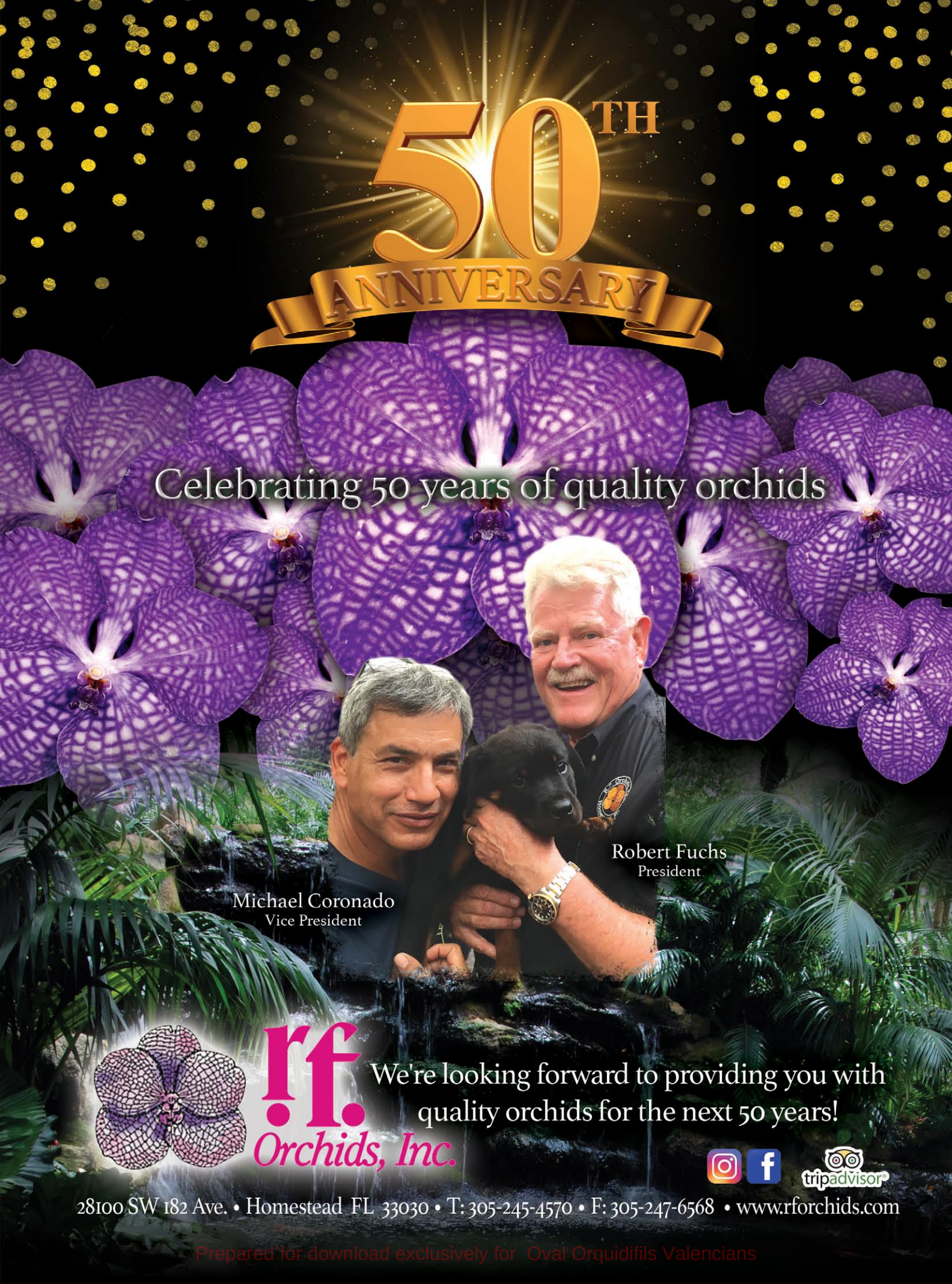

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