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ORCHIDS

THE BULLETIN OF THE AMERICAN ORCHID SOCIETY

VOL. 88 NO. 7 JULY 2019



ORCHID SOCIETY OF AMERICA



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ORCHIDS

The Bulletin of the American Orchid Society

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FRONT COVER

The new *Cynorkis xranaiivosonii* photographed by Johan Hermans in Central Madagascar with its parent in the background.

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The American Orchid Society provides leadership in orchids

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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>.

Aerangis (air-RANG-iss)
Angorchis (ang-ORE-kiss)
Angraecum (an-GRAY-kum)
angustifolium (ang-gus-tih-FOLL-ee-um)
angustipetala (ang-gus-tih-PET-a-la)
Ansellia (an-SELL-lee-a)
bensoniae (ben-SON-ee-eye)
bicolor (BYE-kull-ur)
Bletilla (bleh-TILL-la)
borbonicus (bore-BON-ih-kus)
bosseri (BOSS-er-eye)
bracteata (brak-tee-AY-ta)
Brassavola (brass-AH-vol-lah)
brymeriana (brye-mer-ee-AY-na)
Bulbophyllum (bulb-oh-FILL-lum)
Calanthe (kal-AN-thee)
Calopogon (kal-oh-POH-gon)
candida (KAN-dee-dah)
Catasetum (kat-a-SEE-tum)
Cattleya (KAT-lee-a)
chocoensis (cho-koh-EN-sis)
cinnabarinum (sin-a-bar-EE-num)
citrata (sih-TRAY-ta)
Coelogyne (see-LOJ-ih-nee)
cordeliae (kore-DEE-lee-eye)
cordeliana (kore-dee-lee-AY-na)
corrugata (kor-roo-GAY-ta)
corymbis (KORE-im-biss)
Corymborkis (kore-imb-ORE-kiss)
cristata (kris-TAY-ta)
Cymbidium (sim-BID-ee-um)
Cynorkis (sin-ORE-kiss)
Cypripedium (sip-rih-PEED-ee-um)
Dendrobium (den-DROH-bee-um)
digbyana (dig-bee-AY-na)
Dimerandra (dye-mer-AN-dra)
dolichangis (dole-ik-ANG-iss)
dowiana (dow-ee-AY-na)
elongata (ee-long-AY-ta)
emarginata (ee-mar-gin-AY-ta)
Epidendrum (eh-pih-DEN-drum)
Epidendrum (eh-pih-DEN-drum)
Epidorchis (eh-pid-ORE-kiss)
fastigiata (fas-stij-ee-AY-ta)
flexuosa (fleks-yew-OH-sa)
fulcinosa (few-lih-sin-OH-sa)
Galearis (gal-ee-AY-ris)
gaskelliana (gas-kel-lee-AY-na)
Gastrorchis (gast-RORE-kiss)
Habenaria (hab-ih-NARE-ee-a)
Habenorchis (hab-in-ORE-kiss)
infracta (in-FRAK-ta)
labiata (lab-ee-AY-ta)
Laelia (LAY-lee-a)
lentiginosa (len-tij-in-OH-sa)
Lepanthes (leh-PAN-theez)
loddigesii (lod-ih-GEEZ-ee-eye)

majorensis (mah-hore-EN-sis)
marshalliana (mar-shall-ee-AY-na)
Masdevallia (mas-deh-VAIL-lee-a)
micranthum (mye-KRAN-thum)
mossiae (MOSS-ee-eye)
Myrmecophila (mir-meh-KOFF-ih-lah)
nervosa (ner-VOH-sa)
Odontoglossum (oh-don-toh-GLOS-sum)
Oxyglossum (oks-ee-GLOS-sum)
pandurata (pan-dew-RAY-ta)
Paphiopedilum (paff-ee-oh-PED-ih-lum)
Papilionanthe (pap-ee-lee-oh-NAN-thee)
Phalaenopsis (fail-en-OP-sis)
Pholidota (foh-lih-DOH-ta)
Phragmipedium (frag-mih-PEED-ee-um)
planifolia (plan-ih-FOL-lee-a)
Platanthera (plah-TAN-ther-a)
Pleurothallidinae (plur-oh-thal-ID-ih-nee)
Pleurothallis (plur-oh-THAL-liss)
Podochilus (poh-doh-KYE-luss)
pulchra (PULL-kra)
purpurata (per-per-AY-ta)
quadricolor (kwad-RIH-kull-ur)
ranaivosonii (ray-nee-voh-SON-ee-eye)
Renanthera (ren-AN-ther-a)
Rhynchoaelia (rink-oh-LAY-lee-a)

Rhynchoaeliocattleya (rink-oh-lay-lee-oh-KAT-lee-a)
rothschildianum (roths-child-ee-AY-num)
Satorchis (sa-TORE-kiss)
Satyrium (sa-TEER-ee-um)
schilleriana (shill-ler-ee-AY-na)
Schomburgkia (shom-BURG-kee-a)
sesquipedale (ses-kwi-peh-DAY-lee)
Sophranitis (so-fro-NYE-tis)
speciosa (spee-see-OH-sah)
strobilii (stroh-BEL-lee-eye)
swaniana (swan-ee-AY-na)
syringescens (seer-rinj-ESS-senz)
tenebrosa (ten-eh-BROH-sa)
Thunia (TUNE-ee-a or THUNE-ee-a)
 trianae (TREE-an-ee)
triangularis (trye-ang-yew-LAIR-iss)
Trichosalpinx (trik-oh-SAL-pinks)
Trisetella (trye-seh-TELL-la)
uniflora (yew-nih-FLOR-a)
veitchiana (veech-ee-AY-na)
venosa (vee-NOE-sah)
warszewiczii (var-shuh-VITZ-ee-eye)
webbiae (WEB-bee-eye)
winniana (win-ee-AY-na)
zollingeri (zol-LING-ger-eye)

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Dracula syndactyla



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It Is All About Growing

by Lois Holmes

Carter Kuehn

TRIPS TO THE grocery store with his mother and father afforded eight-year-old Carter Kuehn an opportunity to meet orchids. He liked the flower department and enjoyed selecting a bouquet for the table at home.

But one day he saw something new — a whole plant with blooms on an arched stem.

The store-bought plant (a phalaenopsis) began making household changes. Bedtime stories with little brother and a parent became reading books and magazines about orchids, without little brother. They haunted the local library.

When special occasions called for gifts, Carter requested orchid books, magazines or plants. A birthday gift certificate from Orchids Ltd. prompted a shopping expedition for the family of four plus grandma and grandpa. He depleted his gift with two masdevallias and a cattleya.

While shopping, he met two men from the Orchid Society of Minnesota. The men were fascinated by Carter's interest in orchids so they invited him to their society show. Attending an orchid show sounded like a good idea so the whole entourage arrived and savored the beauty of so many blooming orchids. They also saw their new friends who gifted Carter with a paphiopedilum. His collection was growing.

Carter's parents said, "They are trying to get you hooked." He agreed and he liked getting hooked. That summer he joined the Orchid Society of Minnesota. In 2010 he became a member of the American Orchid Society. Joining groups opened pathways to knowledge about good plant care.

As the collection developed, Carter's mantra became "different needs for different plants." He acquired two small terrariums to accommodate very wet plants. Phalaenopsis grew well on a bench. For other orchids he has a 4-foot (1.2-m) metal rack. His father helped him assemble the package of metal and affix the proper lights.

Heavy plastic trays became housing for the remainder of his nearly 100 plants. Each tray has a particular spot on the rack. The phrase "purposeful placement" determines the assigned space for each plant. Another phrase used as a guide



Carter Kuehn, midground, at the Minnesota Orchid Society show table. In the foreground is Ross Hella.

for tray space is "like needs with like needs." However, when summer comes everything goes outdoors.

As summer sets in, so does interest in county fairs. Carter thought his orchids worthy of ribbons so he entered some of them. He was disappointed when he noticed they were ignored so he asked why. The lady in charge told him one of the blooms was not open. Another bloom was so perfect the judges felt it was not real. At that point Carter knew the judges did not know anything about orchids. He relayed information to the judges from time to time. After a few years the people at the fair surprised him with a new category. It is called "strange and unusual." Since that time Carter has entered some of his orchids and enjoys the ribbons he has received.

At first glance Carter looks like a basketball player, but not so. Orchids are his hobby. He plays an oboe and has a part-time job repairing musical instruments. Owatonna, Minnesota, a small city of

about 25,000 people, is his hometown. Neighbors and friends in the area know of his hobby. When he was a high school sophomore, the 444 Garden Club asked him to present a program. He described the audience as mixed and mature.

As an orchid society member, he performs the same duties as the other members — bagging at plant sales, answering questions at shows and helping with judging at the monthly plant table.

Currently, Carter is studying colleges and the possibility of having some of his orchids with him is included in his observations.

Meanwhile, everything in Carter's life is all about growing.

— Lois Holmes passed away May 9, 2019. She was a staunch supporter of the American Orchid Society, the Mid-America Orchid Congress and the Orchid Society of Minnesota. Lois had served on the AOS Library and Archives Committee for decades and her service was recognized in 2017 with an AOS Silver Medal.

PRESIDENT'S MESSAGE

THERE ARE STILL several committees that I have not yet introduced to you. This month we hear from the chair of the Conservation Committee, Tom Mirenda. If Tom's name sounds familiar to you it is because he has been writing at least one, if not two, articles for our magazine every month for years. This is what Tom has to say about the Conservation Committee:

"When Susan tapped me to lead the AOS Conservation Committee, I considered it the ultimate compliment. After all, the AOS mission focuses on the trifecta of "Education, Conservation and Research." So naturally, I worried if I would be up to the task and responsibility that goes along with the title. While my proficiency remains to be seen, the committee and its activities have been moving toward some lofty goals for a couple of decades now.

We all love to be conservationists, and if you cherish orchids, you likely care deeply that wild orchids survive for our children, grandchildren and generation after generation to come. The thought of a world without natural orchid habitat is too depressing to bear. Even so, the world is changing rapidly, with environmental degradation and climate fluctuations that threaten the long-term survival of wild orchids, virtually everywhere on our planet. We consider it our mission to promote conservation of our beloved orchid species, and by definition, their habitats and ecosystems, and all the creatures they interact with and they depend upon.

Some of you may wonder what it is we actually do, as I did when I became a member of the group about five years ago. For several years the Conservation and Research committees were combined as one entity, but it was acknowledged that although there is certainly overlap between conservation and research initiatives, and that they could and should work synergistically, ultimately, they have different areas of focus, with the science basically 'informing' the conservation effort. Indeed, research tends to be conducted by scientists and scholars, whereas conservation is often done by community groups and grassroots organizations. Indeed, any and all of us can be conservationists.

I was pleased to find out that the committee is allocated funds each year to promote worthy conservation projects in many parts of the world. In past years we have supported and engaged in projects in at least five continents. This year is no exception, as the committee has reviewed several fantastic proposals for



JOHN MIRENDA

Tom Mirenda, chair of the AOS Conservation Committee.

creating reserves, orchid gardens, seed and mycorrhizal banking, propagation and eventual reintroduction to the wild, and more. Even though funds are somewhat limited, we believe we can do a lot of good in the world by supporting such projects.

Most heartening is the fact that young people around the world are seeking funds for orchid conservation-oriented projects. Even though we cannot fund every worthy proposal, the fact that so many recognize the need for action gives me hope that we can preserve the natural world for another generation of orchid and nature lovers.

Ultimately, the main goal of the AOS Conservation Committee is to nurture the upcoming generation of orchid conservationists. Your gift to the Conservation Endowment of the AOS will support the preservation of our favorite plants, as well as the wonderful, hard-working and committed individuals that are doing the heavy lifting."

THE FAIRCHILD TROPICAL BOTANIC GARDEN The AOS is helping the Garden to become more visible with orchids. The AOS and the Garden came up with the idea of an orchid garden, where guests could stroll through an area at the Fairchild Tropical Botanic Garden and enjoy orchids.

I am pleased to announce that the vanda garden was completed in April. We extend our thanks to Robert Fuchs and RF Orchids, Inc., and their workers, for the donations and installation of vandas, which helped Fairchild's personnel create the start of the orchid garden. Other focus gardens are planned for the future, including cattleya, phalaenopsis, dendrobium and oncidium gardens, to name a few. If you would like to donate plants of any of the genera listed, please let me know.

I conclude with a reminder to mark your calendars for our next American Orchid Society Members' Meeting; our fall meeting will take place October 16–20, 2019 in Homestead, Florida in conjunction with the East Everglades Orchid Society show. More details will be forthcoming.

Until next time, happy growing!
—Susan Wedegaertner, President
(email: susan@aos.org)



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July: The Festive Month

Text and photograph by Thomas Mirenda

ONE OF THE things I enjoy most about being an orchid speaker is the travel. Often, when I am visiting other cities, I have the honor of staying with local orchid aficionados and seeing their fine collections while enjoying their incredibly kind hospitality. Invariably, some gorgeous specimens will have found their way from the greenhouse to the living room or bedroom for everyone's enjoyment during my stay. Sometimes these plants are remarkable specimens that owners take great pride and joy in showing to me. There are few other types of plants that are so impressive when brought inside for display. I find that when orchids bloom in the hottest month of the year, usually this one, bringing them inside often allows the flowers to last considerably longer than they might in a sweltering greenhouse.

In this month when we gather for family reunions, have friends over for festivities and celebrate America, it is truly wonderful to have such stunning summer bloomers like the larger laelias, myrmecophilas, ansellias, thunias, renantheras, brassias, antelope dendrobiums and so many others celebrate with us! It is almost like having our own indoor fireworks displays without the fire hazard. We all love our orchids because they give us a taste of the wild glory of the natural world. Bringing that wildness indoors in a month like this is a great daily reminder of the diversity and beauty that exists on our fantastic planet, and we can enjoy them in air-conditioned comfort.

THE HEAT July generally brings us the first truly hot days of the year and depending on what plants you have in your collection, many relish the heat, growing rampantly, while others simply cannot take it. Most of the warmth-loving plants do superbly outdoors in dappled light or hanging from a tree. The aforementioned large Central American laelias and myrmecophilas (ex schomburgkias), vandas and renantheras, catasetums, brassavolas and hard cane dendrobiums are in their glory preparing to bloom soon, if they have not already. Make sure such plants that are in active growth have plenty of water and food. The occasional splash of water might also cool them off a bit on the hottest days.

CAM PLANTS Many of these



This magnificent specimen of *Aerangis citrata* was photographed in the living room of Ben and Mirtha Oliveros, Mountain View, Hawaii.

warmth-loving plants are delightfully succulent, engaging in a type of metabolic process common in desert plants known as crassulacean acid metabolism or CAM. Basically, they generally do not respire or open stomata during the heat of the day in order to conserve water. This leaves us with a bit of a quandary as we are often told to water our orchids in the morning to avoid fungal pathogens. The idea is that any standing water in a plant crown such as a phalaenopsis or vanda will have evaporated by midafternoon and will not cultivate any crown rot. Trouble is, most of CAM plants will only take up water in the evening and so we may be doing them a disservice by watering them so early. Indeed, many of these hot orchid habitats actually do have rains at night and the orchids from those places seem to prefer an evening watering. If you go this route, make sure you have adequate air movement in your growing area to ensure you do not have puddles of detrimental standing water on your plants that might lead to fungal pathogens.

THE COOL Orchids from the

montane or boreal regions are often stressed out in the summer heat, particularly if you live in an area where temperatures do not dip much at night. Many of the cooler-growing orchids, (such as odontoglossum-type oncidiums and sophronitis-type cattleyas) really require cool nights to thrive and should not be kept outside where nights in the 70s and 80s F (21.1–32 C) are common. Keep such plants in a light room or air-conditioned windowsill until the dog days have ended in September. Many miniature orchids such as pleurothallids and oxyglossum dendrobiums will summer well in a terrarium. Many people have converted wine refrigerators for growing cloud forest plants with amazing success, but unless you have a really large one it will only be for miniature species.

THE GARDEN It may be blisteringly hot outside this month and therefore certain garden orchids may be having some serious stresses now. Spring ephemeral orchids, such as cypripediums and galearis, may already be dormant in hotter climates. An extra layer of mulch

or pine straw will be helpful for their survival through the scorching days of July and August. Other hardy orchids that keep foliage above ground in the summer, such as bletillas, calanthes, calopogons and platantheras will benefit from more frequent waterings to get them through the hottest season. Our goal is always to replicate natural conditions as best we can and these plants often occur in bogs or streamside situations where they have wet feet. Good luck with these wonderful garden subjects. Let's hope we get to celebrate July festivities with them for many years to come.

— Tom Miranda 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. He recently coauthored The Book of Orchids: A Life-Size Guide to 600 Species From Around the World (email: biophiliak@gmail.com).

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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Topic	The Story of White Cattleyas	Greenhouse Chat (Orchid Q&A)	Greenhouse Chat (Orchid Q&A)	Judging Vandas
Presenter	Jean Allen-Ikeson National Training Coordinator, Chair of the AOS Editorial Board	Ron McHatton Chief Education and Science Officer	Ron McHatton Chief Education and Science Officer	Bob Fuchs Accredited AOS Judge

REGISTRATION REQUIRED: www.aos.org/orchids/webinars.asp

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Sylvia Strigari

Angraecum sesquipedale

By Franco Pupulin/Watercolor by Sylvia Strigari

Tribe VANDEAE
Sutribe ANGRAECINAE
Genus ANGRAECUM *Bory*

Angraecum sesquipedale Thouars, *Histoire Particulière des Plantes Orchidées* (Hist. Orchid.), pl. 66 & 67. 1822. TYPE: Madagascar, without specific locality, 1798, L. M. A.-A. du Petit-Thouars s.n.; lectotype, designated by Du Puy et al. (1999), plates 66 and 67 of Hist. Orch.

A large, epiphytic, lithophytic or semiterrestrial, monopodial, erect *herb* to over 60 cm tall. *Roots* flexuous, glabrous, thick, to 8 mm in diameter, produced from the base of the node subopposite to the leaf on the lower part of the stem. *Stem* slightly flattened, to 12 mm wide, completely covered by the conduplicate, subancipitous, tightly clasping leaf sheaths, the oldest ones becoming brown-papyraceous. *Leaves* articulate with the sheaths, coriaceous, dark green, detaching when old, ligulate, irregularly bilobed at apex, 10–30 × 1.4–2.7 cm. *Inflorescence* produced laterally from the stem and emerging from the axil of one of the upper sheaths, a lateral, 1- (*Ang. sesquipedale* var. *angustifolium*) to few-flowered (no more than six), arched to gently pendent, successive or simultaneously flowering raceme 25–30 cm long including the peduncle; peduncle terete, green, 10–12 cm long, with 2–3 triangular, cucullate, hyaline bracts becoming brownish with age, ca. 1 cm long. *Floral bracts* broadly ovate, cucullate, acute, somewhat inflated, semihyaline, to 1.6 cm long. Pedicellate *ovary* slender, terete at the base, apically clavate, with distinct, low, sharpen ridges, up to 9 cm long. *Flowers* resupinate, large, thick, waxy-coriaceous, spreading, showy, strongly and spicily scented at night, ivory white, sometimes flushed with pale green at the base, the spur green. *Sepals* subsimilar, 7–9 × 2.0–2.5 cm, with slightly reflexed lateral margins; *dorsal sepal* narrowly lanceolate, erect, slightly conduplicate, acute to subacuminate; *lateral sepals* triangular-lanceolate, acute to subacuminate, conduplicate towards the apex. *Petals* narrowly triangular from a biarticulate, obliquely asymmetrical base, subacuminate, more or less reflexed in natural position, 6.5–8.0 × 1.8–2.5 cm.

Lip attached to the base of the column, concave, narrowly obovate-subpandurate, obtusely acuminate at the conduplicate apex, 6.5–8.0 × 3.5–4.0 cm, extending on the rear into a pendent, conical spur gradually narrowing from the base to the apex, 27–43 cm long; disc with two large calli flanking the sides of the spur entrance. *Column* very short and stout, ca. 1 cm long, almost as broad as long, semiconical from a broad base, narrowing toward the apex where it extends into two large, flaplike, rostellar lobes; the stigma deeply recessed, elliptic. *Anther cap* ovate-cuspidate, deeply cucullate, keeled in the middle, bilocular. *Pollinia* two, each on a triangular, hyaline stipe, both the stipes affixed to a hyaline, peltate-cordate viscidium. *Fruit* an ellipsoid capsule ca. 5 cm long, plus the pedicel.

The Malagasy orchid, Christmas orchid, or Star of Bethlehem orchid, *Angraecum sesquipedale*, represents something of an epitome of the living interconnections revealed by evolutionary biologists. And it is no accident that the “father of evolution,” Charles Darwin himself, speculated on the significance of the extraordinary nectar spur of this species (which can reach the remarkable length of more than 16 inches [40 cm]), making one of his major contributions to evolutionary biology: coevolution (Arditti et al. 2012). Darwin’s “prediction” about the existence of a moth with a proboscis long enough to effectively collect nectar at the end of such a long tube, has been quoted, by and large, in any modern text of biological sciences, not to mention any possible orchid book devoted to both the botanist and the passionate grower. How much Darwin must have been impressed with the flowers of *Angraecum sesquipedale* is well demonstrated by the fact that he discussed this now famous case of relationship between this orchid and its pollinator in the first edition of his classic work on orchid pollination (Darwin 1862), despite receiving the flowers from James Bateman less than four months before its publication on May 15, 1862 (Arditti et al. 2012).

Contrary to the common misconception that Darwin’s prediction was “ridiculed” at the time, Joseph Arditti and colleagues

(2012) have aptly shown that most of the reviews were laudatory and the few criticisms were scholarly and polite. The predicted pollinator of *Angraecum sesquipedale* (the sphingid *Xanthopan morgani* var. *praedicta*) was actually found in the primary forests of Madagascar 41 years after Darwin’s publication (Rothschild and Jordan 1903), and the effective pollination was only demonstrated 135 years after the prediction (Wasserthal 1997). It is also noteworthy that, although most angraecoid orchids display white, nectariferous, long-spurred flowers, strongly scented at the crepuscule, which are typical of the sphingophilous syndrome, a few species of *Angraecum* from Reunion provided with short-spurred, unscented flowers, have been recently shown to be pollinated by an endemic bird, the white-eye *Zosterops borbonicus* (Zosteropidae), which perches on inflorescences and probes fresh-looking flowers for nectar (Micheneau et al. 2006).

A remarkable orchid with a remarkable scientific history, *Angraecum sesquipedale* also features a curious taxonomic history. The original description published by the French botanist Louis Marie Aubert-Aubert du Petit-Thouars (1756 or 1758–1831) in his work *Histoire Particulière des Plantes Orchidées Recueillies sur les Trois Isles Australes d’Afrique* (Thouars 1822) which includes good quality line drawing plates, contains no written description at all. The elasticity of the International Code of Nomenclature in regard to early, post-Linnaean botanical works, allows acceptance of Thouars’ name as the first legitimate for the species, even though this is only one of the two alternative names proposed by him (more on this later), no written description was provided, and no type conserved. In absence of any actual type, David Du Puy and colleagues (1999) typified *Angraecum sesquipedale* with the two illustrations published by Thouars in 1822. Even though most of the references to Thouars’ work reproduce the black and white illustrations of his work, colored figures in *papier velin* were also published and sold at three times the regular price. Furthermore, between 1804 and 1819, Thouars also gave to the press a series of six, large *in-folio* plates of African

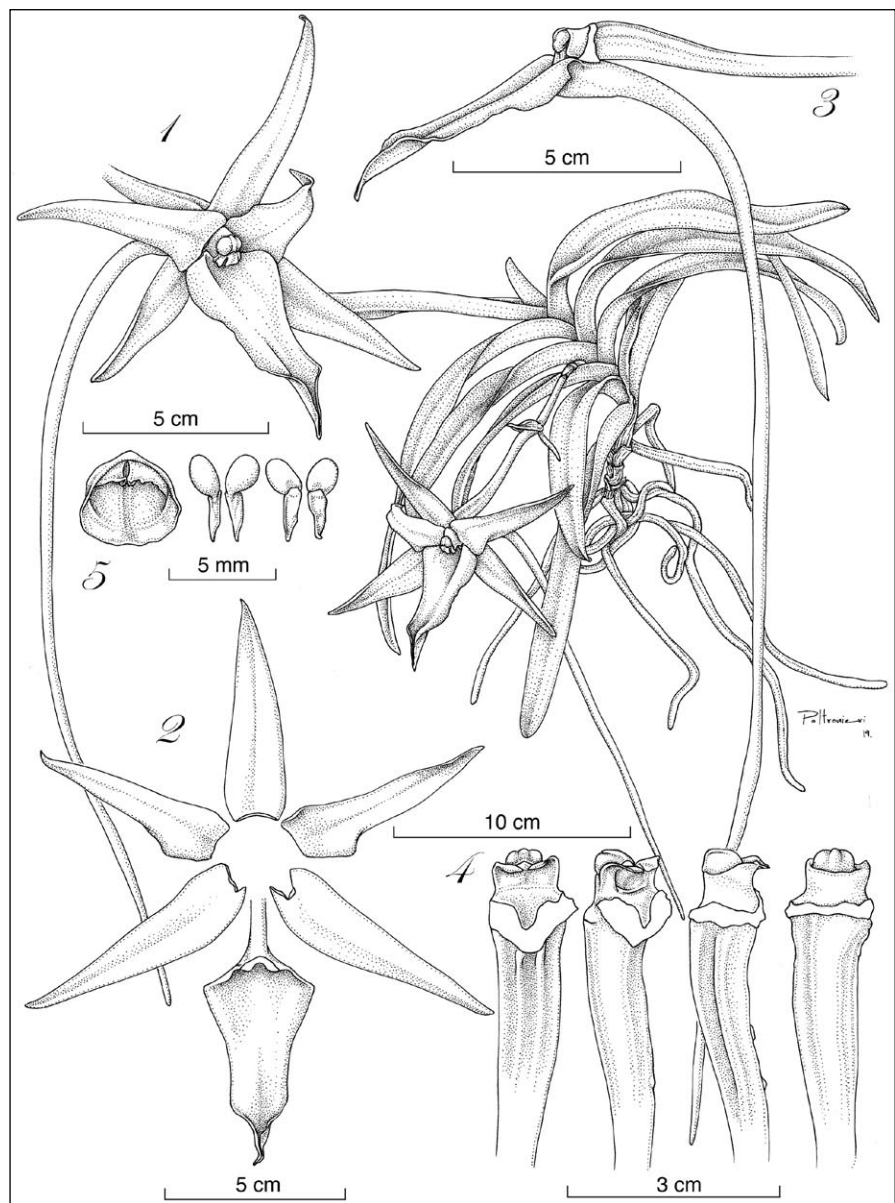
orchids, the first of which is a beautiful illustration of *Angraecum sesquipedale*, originally sketched by Thouars himself from a living plant in 1795 (Thouars 1804–1819).

After 265 years of Linnaean binomial nomenclature for plants, it may seem strange to imagine that an alternative set of principles was proposed by Thouars, who consistently coined names according to his own system, as alternatives to names in accordance with traditional nomenclature. Thouars first presented his ideas on botanical nomenclature in 1809, in his enumeration and short notes of the genera of orchids that he had collected during his African journey. Thouars proposed forming all genus names in the orchid family utilizing a name formed by the same termination, *-orchis*, and a prefix — allusive or not — to distinguish the names between them (so, for example, *Satorchis* for *Satyrium*, *Habenorchis* for *Habenaria*, *Angorchis* for *Angraecum*, and *Epidorchis* for *Epidendrum*). In 1822 Thouars also proposed his principle for the creation of specific epithets, which must be formed by a prefix — indifferent — and an ending made from the first part of the generic name, always with the termination *-is*. In his plates for 1822, Thouars' generic name is written on the top of the page, the specific epithet in the lower left corner, and a binomial in traditional nomenclature on the lower right corner. In the case of *Angraecum sesquipedale*, Thouars' name is *Angorchis dolichangis*. Although most of the genera created in this way by Thouars are synonyms of previously described genera, a few are the first generic name ever proposed for a given taxon, and that are therefore valid (i.e., the genera *Corymborkis*, *Cynorkis* and *Gastorchis*), and even some of his binomials, such as *Corymborkis corymbis* have validity.

Angraecum sesquipedale is widely distributed throughout the eastern part of Madagascar but it is most commonly found near the coast. Toward the south, scattered populations grow in littoral forest, where they grow terrestrially in white sand. Some of the populations from the dry southern region of the island have narrower leaves and single-flowered inflorescences (Cribb & Hermans 2007). This variant was described as *Ang. sesquipedale* var. *angustifolium* Bosser and Morat, but it is still often found in cultivation under the name of *Angraecum bosseri* Senghas.

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Angraecum sesquipedale. The plant.

1. Flower.
2. Dissected perianth.
3. Column and base of the lip, lateral view.
4. Column, four views.

5. Anther cap and pollinia with stipes (two views). The basal viscidium is not shown.
 Drawn from JBL-9881 (JBL) by Sara Poltronieri.

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Selected Botanical Terms

acuminate – tapering to a point
 acute – pointed
 ancipitous – flattened, having a double edge
 articulate – hinged
 biauriculate – having two earlike lobes
 bilocular – two-chambered
 concave – curved inward like the inside of a sphere
 caudate – having a tail
 caudicle – slender, elastic structure to which the pollen masses are attached
 clavate – club-shaped
 concave – bowl-shaped
 conduplicate – folded lengthwise
 congested – closely spaced
 connate – fused to form a single part
 cordate – heart-shaped
 coriaceous – leathery
 cucullate – hooded
 cuspidate – having a cusp; terminating in a point
 distichous – arranged alternately in two opposite rows
 elliptic – oval
 emarginate – having a notched margin or tip
 epiphyte – a plant that grows on another

er plant for support
 flexuous – flexible, full of bends and curves
 fusiform – spindle-shaped
 glabrous – smooth
 hirsute – hairy
 hyaline – glassy, translucent appearance
 infundibulate – funnel-shaped
 lanceolate – a narrow oval tapering to a point at both ends
 ligulate – strap-shaped
 lithophyte – a plant that grows on rocks
 loculi – small separate cavities, especially in an ovary
 membranaceous – thin, pliable
 monophyllous – having one leaf
 obovate – egg-shaped with the wide end up
 obtuse – blunt or rounded
 ovate – egg-shaped with the narrow end up
 ovoid – egg-shaped
 pandurate – fiddle-shaped
 papyraceous – papery
 pedicel – a stem carrying a single flower
 peduncle – the lower part of the inflorescence below the first bud
 peltate – shield-shaped
 petiole – the stalk joining a leaf to a stem

or pseudobulb
 pollinarium – In orchids, a set of pollinia with their viscidia and collecting parts
 primordial – earliest stage of development
 quiescence – inactivity
 rachis – portion of the inflorescence on which the flowers are carried
 raceme – flowers arranged along a central stem
 recurved – bent or curved backward
 resupinate – in orchids, lip lowermost
 rostellum – projecting part of the column separating the anther from the stigma
 sinuate – wavy, S-shaped
 staminode – infertile anther of some orchids especially Paphiopedilum
 stipe – stalk or stem
 subacute – moderately pointed
 subfalcate – more or less sickle-shaped
 subulate – awl-shaped
 terete – pencil-like
 viscidium – the sticky pad on the caudicle or stipe of the pollinarium that attaches the pollinarium to a pollinator

Apical Dominance and Growth Patterns

Text by Sue Bottom/Photographs, unless otherwise credited, by Terry Bottom

APICAL DOMINANCE IS the tendency for the main or central stem of a plant to grow more strongly than the side branches. The internal plant signaling mechanism controlling apical dominance involves plant hormones, naturally produced substances created in small amounts in one part of the plant that affect the growth of plant tissue in a different part of the plant. Auxins are formed in the growing point of the plant, sometimes called the shoot apical meristem, and move within the plant, suppressing lateral bud formation. This phenomenon causes the main, central stem of a plant to grow more strongly than the side stems. When you pinch the top of an annual to encourage it to have a bushier shape, you remove the source of auxins so hormones called cytokinins that promote branching become more dominant. Apical dominance is expressed differently in monopodial and sympodial orchids.

MONOPODIAL ORCHIDS Vandas and phalaenopsis are monopodial orchids growing continuously upward, sprouting new leaves from the apex of the plant. These orchids typically have at least two bud primordia at each leaf axil that can waken from quiescence to develop into inflorescences or keikis. When the signal to initiate an inflorescence is received, one of the buds begins to grow to form an inflorescence. Another bud can be activated to form a keiki. Some monopodial orchids have a natural tendency to form offshoots so they form multiple keikis. Others tend to remain dormant until damage to the growing tip triggers the bud to form a keiki to ensure the continued survival of the plant. Some phalaenopsis also have the tendency to form keikis from nodes along the inflorescence. This tendency is seen more commonly in species than in hybrids, particularly the summer-flowering species related to the *Phalaenopsis lueddemanniana* group, such as *Phalaenopsis pulchra*.

Crown rot can be fatal to a phalaenopsis or vanda. If the rot destroys the growing tip of the plant, it can no longer grow new leaves. The death of the apical tip changes the internal hormonal balance and encourages basal keikis to sprout from one of the lower bud primordia as long as the rot has not destroyed these buds. Do not repot or disturb the roots during



the several-month period it takes for the new plantlet to form. Simply remove the rotting tissue, disinfect with some hydrogen peroxide, water sparingly and wait. When the new plant is large enough to be self-sustaining, you can separate it from the dying mother plant.

You may have seen a phalaenopsis with an apical inflorescence, in which the flower spike emerges from the central crown of a plant rather than from an axillary bud adjacent to the leaves. This inflorescence consumes the apical tip of the plant so it can no longer grow more leaves or inflorescences from the plant apex. You will normally have to wait for a basal keiki to form for this plant to continue growing and flowering for you.

If the top of a vanda is damaged, the internal hormonal balance is altered and the plant responds by sprouting offshoots from the lower axial buds. Sometimes

[1] Monopodial orchids grow upward, forming new leaves at the apex of the plant and inflorescences and keikis form from bud primordia in the leaf axils. New roots also emerge from nodes around the stems.

[2] The growing tip of this phalaenopsis has succumbed to crown rot, so new leaves can no longer be produced from the growing tip. After disinfecting the wound, wait for a basal keiki to form.

vandas get so tall they are difficult to manage and become unattractive due to loss of leaves at the base of the stem. Vanda growers can let their too-tall plants flop over on their sides to release apical dominance. As David Grove (1995) wrote in his book on vandas:

Any plant that shows signs of serious stress, whether from Fusarium wilt or any other cause, will benefit from several



- [3] Some phalaenopsis freely form basal keikis from the primordial buds present between the leaf axils; others do not sprout new growths unless the growing tip is damaged.
- [4] Some phalaenopsis freely form keikis from nodes on the inflorescence.
- [5] An apical inflorescence growing from the crown rather than a bud between the leaves usually consumes the apical growing tip of the plant.
- [6] This one has not read the orchid books. After the apical inflorescence formed, it is not supposed to grow a second one from the apex.
- [7] Sympodial orchids grow laterally from a rhizome with new growths emerging from a renewal bud on the rhizome to form a pseudobulb that ultimately terminates in an inflorescence.

weeks or a few months of the upside-down treatment. Hanging the plant in this way prevents water from lingering in the leaf axils, thus discouraging the growth of fungi and bacteria. The principal benefit, however, comes from a reversal of apical dominance. Hanging the plant upside down thwarts apical dominance by reversing the direction of the internal flow of hormones that normally inhibit root and lateral shoot growth in order to provide more energy to the top of the plant. As a consequence, energy is diverted from the production of new growth at the old top of the plant to production of new roots at what now is the uppermost section...

SYMPODIAL ORCHIDS Orchids that have a lateral growth pattern in which each new shoot arises from the apical renewal bud or eye on the basal, rhizomatous part of the plant are sympodial. In pseudobulbous plants, the new growth enlarges into a swollen stem, the pseudobulb, as it matures and then the apical growing part of the plant is consumed by the formation of either a terminal inflorescence or terminal leaf (the process is the same in those sympodial plants that do not form pseudobulbs, such as paphiopedilums and phragmipediums, except no pseudobulb is produced). Once the apical tip terminates, its production of auxins ceases. This stimulates a renewal bud to grow and form another pseudobulb, repeating the process. The result is that the rhizome, which may appear to be continuous, is derived from multiple meristems, different from a monopodial plant whose stem derives from a single meristem. Many orchids are sympodial, including those with obvious pseudobulbs, such as cattleyas, cymbidiums, dendrobiums, oncidiums and bulbophyllums, as well as those without obvious pseudobulbs, such as paphiopedilums and phragmipediums. Sympodial orchids can be further divided into two groups depending on whether the blooms originate at the growing tip of the plant or from the leaf axils.

Single-Terminal-Bud Primordia In most cattleyas, the apical tip of the pseudobulb is consumed when it changes from the vegetative to the reproductive state and forms an inflorescence. Most pseudobulbs have several triangular patches of meristematic tissue at their bases that are capable of rapid division and differentiation. These eyes can produce a new pseudobulb when triggered into vegetative growth. There are usually two primary eyes at the base of the pseudobulb and there may be



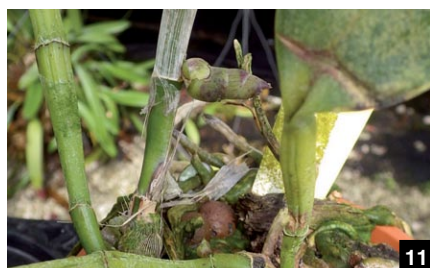
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11

KEITH DAVIS

COURTNEY HACKNEY

smaller secondary eyes on the next node up on the pseudobulb. Some species, such as *Cattleya elongata*, have dormant vegetative eyes on the internodes higher up the pseudobulb that may grow if the primary eyes are damaged.

The older parts of cattleyas can get a new lease on life as long as there are viable eyes. The back bulbs can be set in a tray or empty pot, misted daily and potted up once the renewal eye starts to swell and roots begin to form. Better yet, if you know you are going to divide a plant, you can cut the rhizome several months prior to repotting to encourage the dormant eyes to sprout prior to disturbing the root system. When the time comes to repot, the new plant growth has already begun and it will reestablish more quickly.

Multiple-Bud Primordia at Leaf Axils Some sympodial orchids, such as dendrobiums and cymbidiums, have several bud primordia located at the leaf axils from which the flowers and keikis form. Dendrobium growths emerge from the rhizome and lengthen, forming from one to many leaves along the nodes until the growth terminates in a leaf at the apex, consuming the apical growing tip. The axial buds can either continue vegetative growth to form keikis or be triggered into the reproductive growth phase and form flowers.

Some dendrobiums freely keiki from the canes while they are attached to the plant and can simply be twisted off and potted up once the roots are a couple inches (several centimeters) long. This growth pattern means many dendrobiums can easily be propagated by laying the cane horizontally along a bed of moist sphagnum moss or other suitable potting

[8] This cattleya has been hanging upside down under the bulbophyllums. The buds are swelling and new roots are forming, time to repot.

[9] *Cattleya* Maui Plum 'Volcano Queen' AM/AOS (*guttata* × Summerland Girl) putting on a show. A cattleya growth terminates when the apical meristem forms an inflorescences.

[10] Keikis growing from the nodes of a leafless, dehydrated backbulb of *Cattleya bicolor* that was partially severed from the mother plant.

[11] Nodes sprouting new growths on this *Cattleya* Terry Bottom (Fort Motte × Allen Condo), you just never know what Terry will do! Was it the Purely Organic fertilizer?

medium and waiting for the axillary buds to sprout.

Cymbidiums have multiple dormant bud primordia at the basal portion of the pseudobulb that can be activated to form inflorescences. Two or three can be expected from a single pseudobulb, and once that pseudobulb has flowered, new vegetative growths are needed before the plant can rebloom.

Paphiopedilums have a sympodial growth habit similar to cattleyas, but have no pseudobulb or enlarged stem. While growing vegetatively, the stem is short with an apical meristem that is often below the surface of the potting medium and continuously generates leaves. Once it receives the signal to begin reproductive growth, the differentiation of tissue into a flower bud terminates the growth of the vegetative shoot.

There is a whole new generation

of plant growth regulators, generally natural or synthetic plant hormones, used by commercial nurseries to control plant growth habits. We orchid growers are most familiar with the auxin-bearing hormone products available in various strengths and formulations that can be used to encourage root growth. Many orchid growers use seaweed extracts on a routine basis, in part because it contains hormonal plant growth regulators such as auxins and cytokinins. Using natural substances such as seaweed or synthetic rooting hormones for a month or two on newly repotted plants or plants with compromised root systems is a common practice for jump-starting root growth to return plants to health. As with any hormonal supplement, it should be used with discretion to avoid unintended consequences.

Apical dominance is not a strategy for world domination. It is an adaptation to encourage upward (or outward) growth so the plant can capture as much light as possible. In the event of damage, plants have a Plan B in which different plant hormones trigger a growth response designed to ensure their continued existence. With healthy growing orchids, you should not need to supplement nature by supplying hormones from external sources. After you have stressed your plants in the repotting process or if your root system is ailing, a jolt of hormones, particularly the rooting hormones, can help them get reestablished more quickly.

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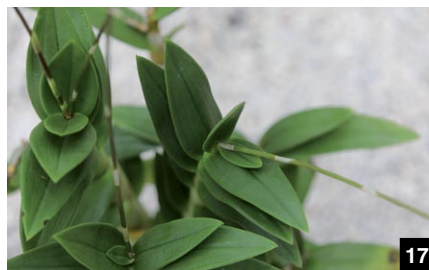
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— Sue Bottom started growing orchids in Houston in the mid-1990s after her husband Terry built her first greenhouse. They settled into St. Augustine, Florida, Sue with her orchids and Terry with his camera and are active in the St. Augustine Orchid Society, maintaining the society's website and publishing its monthly newsletter. Sue is also a member of the AOS Editorial Board (sbottom15@gmail.com).



- [12] Semi-nobile dendrobium forms many new leads during the growing season.
- [13] Semi-nobile dendrobium bloom from the leaf axils on the previous year's mature growths.
- [14] Dendrobiums tend to have a dense growth habit with canes nestled closely together, so they can grow for many years in a seemingly too-small pot.
- [15] Notice the terminal leaf at the apex of this *Dendrobium spectabile* along with the prior bloom stems that emerged from bud primordia around lower leaves.
- [16] Dendrobiums tend to freely form keikis from nodes by the leaf axils.
- [17] Section *Phalaenantha* and *Spatulata* dendrobiums have a terminal leaf and the first flower stem forms at the closest axillary bud.
- [18] Section *Pedilonum* dendrobiums such as this *Dendrobium Hibiki* 'Tiny Bubbles' (*bracteosum* × *laevifolium*) bloom at nodes along the prior year's leafless stems.



GENUS OF THE MONTH

Thunia by Thomas Mirenda

Easy Breezy Beauties



I ADMIRE THIS spectacular genus of terrestrial and epiphytic deciduous orchids from Southeast Asia, even though they are vexingly unavailable, and often are absent from popular orchid books. Why this is true is beyond my comprehension. While I tend to wax poetic about all orchid genera, I think *thunias* have received a bad rap and should instead be among the most popular and ubiquitous orchids in personal collections. The flowers are large, colorful and beautiful (if a bit short-lived, about a week or two); the plants are ridiculously easy to grow; and their propensity to produce keikis (plantlets) and propagate freely and profusely should make them widely available. We all should have them. So what is the problem? Well, for one thing, they are deciduous and barren in the autumn and winter. The canes, seemingly dead for six months out of the year, may put off some growers. I prefer to look at it this way: Here is a showy plant that requires absolutely zero effort on my part for half of the year. When the plants shed their leaves in September, I put the pots on their sides so they stay completely dry until their reemergence in March or April. Once growing commences, signaled by the presence of lettuce-green rosettes at the base of the barren canes, I find their daily progress exciting and encouraging. I once measured the growth of a newly emergent cane in April and found it had expanded a full inch (2.5 cm) over 24 hours.

Hailing from monsoonal habitats in Southeast Asia — India, Bhutan, Myanmar and Thailand — these plants experience torrential rains in the spring when they reemerge. In cultivation, they need copious water and fertilizer in April and May to achieve their full potential. But this minimal spring effort is worth it as each developing cane is crowned by umbels of large, fragrant, nodding flowers. The lips in particular are often vividly colored and decorated with orange and purple keels, frills, ridges, stripes and pubescence, all creating a spectacular show. When well-tended, plants increase in size each year making for multigrowth specimens.

Unfortunately, their nomenclature is confusing. Although five species are recognized as valid on the World Checklist of Select Plant Families, the few species in cultivation are virtually always mislabeled or bear names of synonyms that are no longer valid. Most of the plants I have come across are varieties of *Thunia alba*. Originally said to be a smaller-bloomed,

LOURENS GROBLER



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ERIC HUNT



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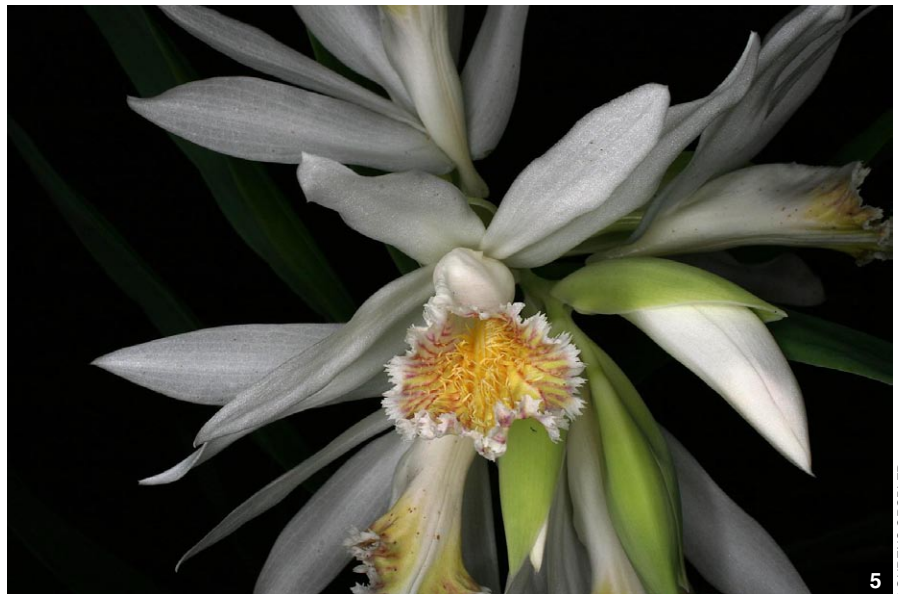
- [1] *Thunia bensoniae* 'Irene' CBR/AOS. Photographed by Charles Marden Fitch.
- [2] *Thunia alba* var. *bracteata* (also called by its synonym *Thunia venosa*).
- [3] *Thunia alba*



4

ERIC HUNT

pale- or white-lipped flower, this species concept now includes some showy plants, such as *Thunia alba* var. *alba* (including the synonyms *Thunia alba* var. *marshalliana* and *Thunia marshalliana*), which has vivid orange and purple stripes, as well as *Thunia alba* var. *bracteata*, with lovely pale lavender nectar guides on the lip. Some of the less-frequently cultivated species would be worthwhile horticultural subjects. *Thunia brymeriana* has a brilliant reddish-purple lip and would make some stunning hybrids. *Thunia Gatttonensis*, registered as (*majorensis* × *winniana*) in 1917, remains one of the few hybrids. The actual parents are the subject of a certain amount of speculation considering that *Thu. majorensis* is now a synonym of *Thu. alba* var. *alba* and *Thu. winniana* is now a synonym of *Thu. bensoniae*. If correct, this would make *Thu. Gatttonensis* a synonym of *Thunia Veitchiana*. Although I have never seen it in person I continue to lust after *Thunia bensoniae*, with its gorgeous mauve-purple coloration and vibrant labellum. I purchased a plant labeled as such years ago, but it turned out to be a form of *Thu. alba*. Other hybrids with *Thu. bensoniae* include *Thunia Inverleith* (*Veitchiana* × *bensoniae*), registered in 2006 by the Royal Botanic Gardens, Edinburgh, and *Thu. Veitchiana* (*bensoniae* × *alba*), the first *Thunia* hybrid, registered in 1895.



5

LOURENS GROBLER

These plants must surely have graced many a turn-of-the-century orchid house with their delightful presence. I wish they were still doing so today. — *Tom Miranda 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. He recently coauthored The Book of Orchids: A Life-Size Guide to 600 Species From Around the World (email: biophiliak@gmail.com).*

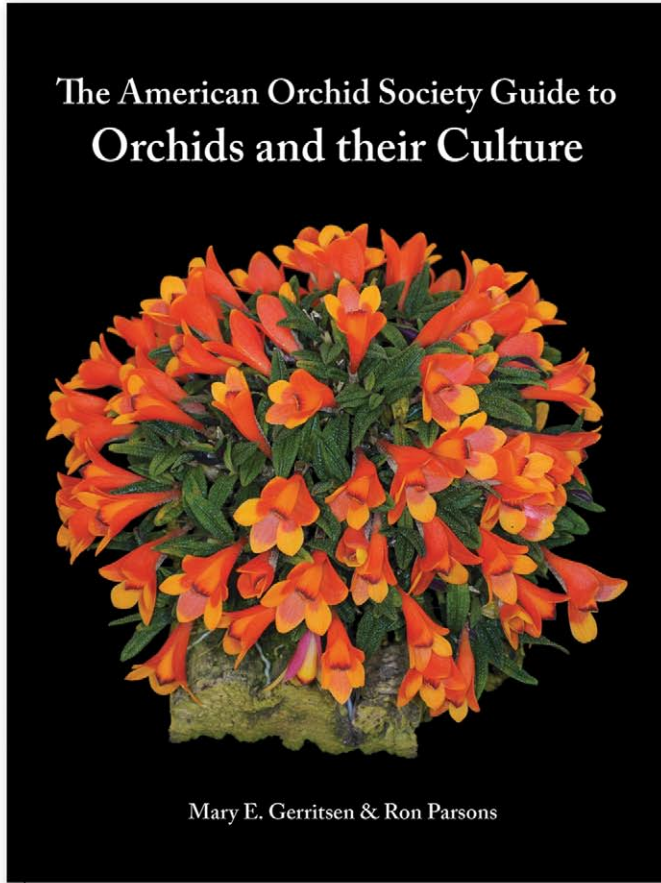
- [4] *Thunia Gatttonensis*. Although rare in contemporary collections, the hybrid is still available and a number of cultivars have received AOS awards. *Thunias* are unusual among orchids in that they can be propagated from cuttings of the canes and inflorescences much like some dendrobiums.
- [5] *Thunia alba* var. *alba*, also known by its synonym *Thunia marshalliana*.

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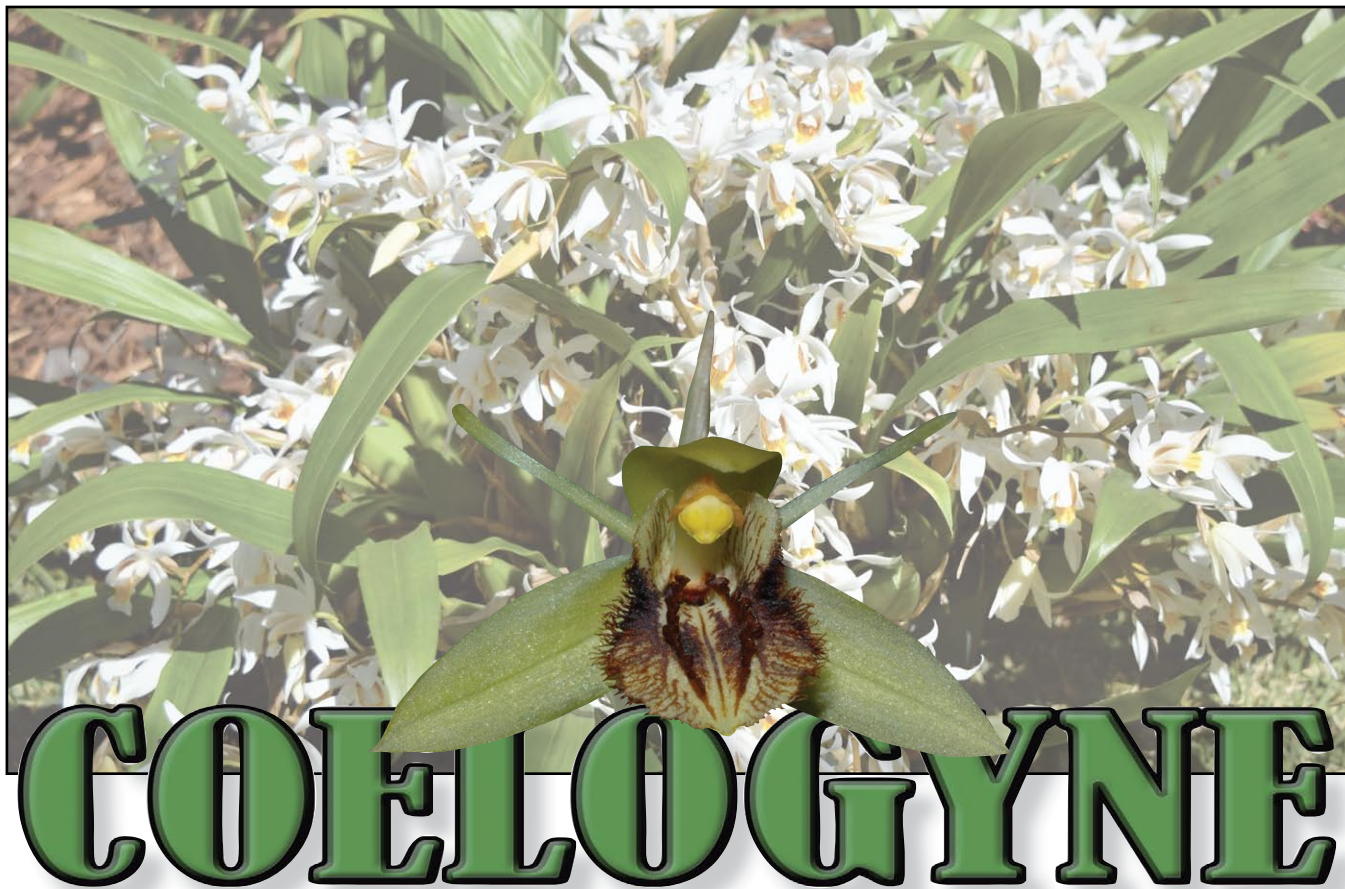
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Coelogyne

by Peggy Alrich and Wesley Higgins

An Asian Genus



LINDLEY, *COLL. BOT.* (Lindley), t.33 (1821); and *Coll. Bot.* (Lindley), t.37 (1825).

ETYMOLOGY: From the Greek for hollow (*koilos*) and female (*gyne*). Suggestive of the deeply concave stigma.

LECTOTYPE: *Coelogyne cristata* Lindley designated by Butzin, *Taxon*, 32(4): 630 (1983); Averyanov, *Bot. Zhurn. (Moscow & Leningrad)*, 75(12): 1767 (1990); and type selected by C. H. Curtis, *Orchids*, 82 (1950).

Two hundred eleven sympodial epiphytes, lithophytes or accidental terrestrial species are found in low to upper elevation, coastal dunes, swampy to hill scrub, montane cloud forests and along rocky cliffs with a vast range extending from southern China (Xizang to Yunnan, Guangxi to Jiangxi and Hainan), northern India (Kashmir to Assam), southern India (Karnataka to Tamil Nadu), Sri Lanka, Nepal, Myanmar to Vietnam, Indonesia, the Philippines and to the southwestern Pacific Archipelago, with the greatest diversity found in Borneo and Sumatra.

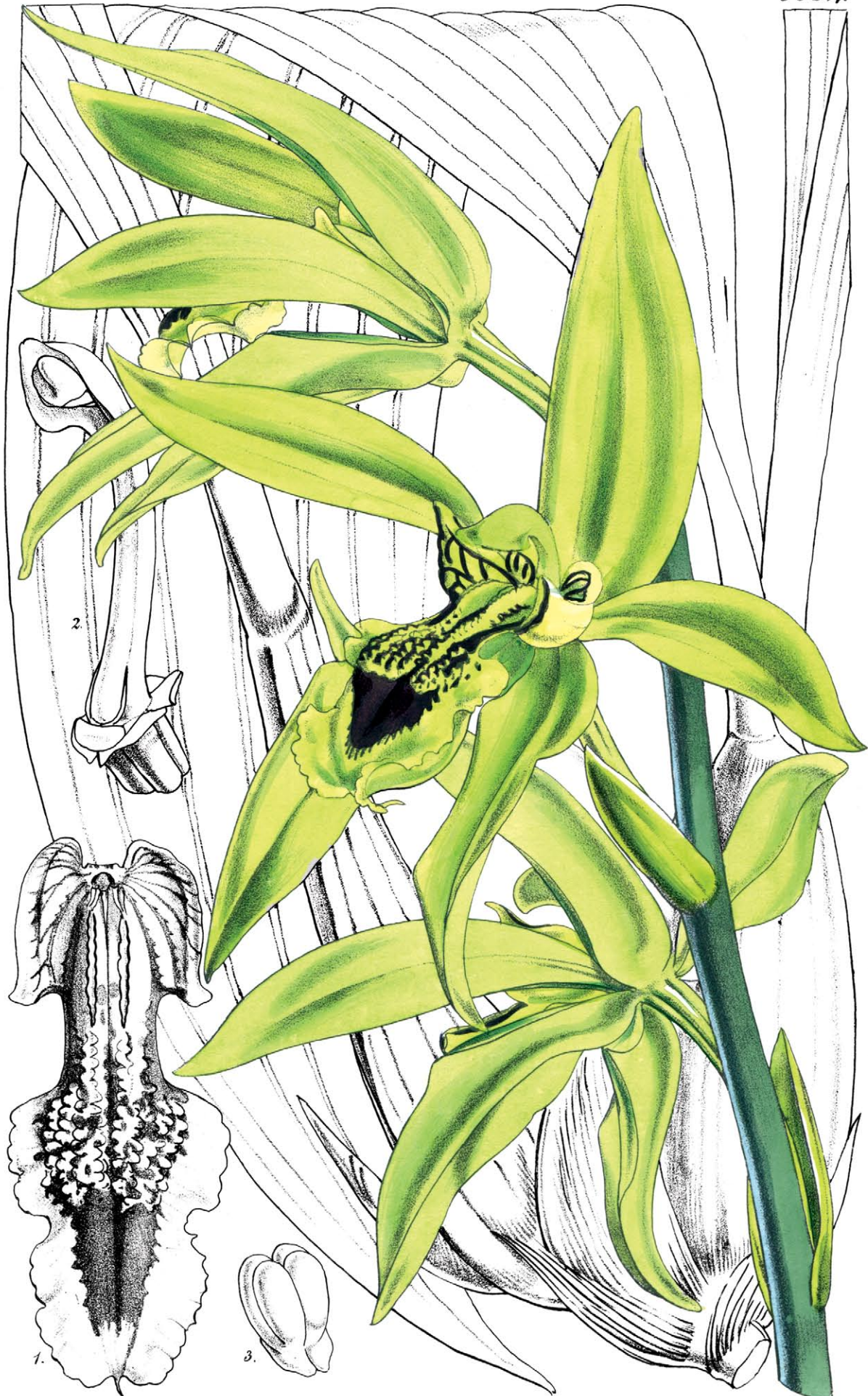
These plants have large, ovoid, cone-shaped or cylindrical pseudobulbs, crowded or remotely spaced on the rhizome, each with a pair of narrow to elliptical, evergreen, channeled, petiolate leaves, borne from the tip of the pseudobulb. The small to fairly large flowers are produced singly, in pairs, or more commonly on long, multifloral inflorescences. The inflorescence develops in one of four ways: (a) produced on a separate shoot that does not develop to produce a pseudobulb and leaves, (b) produced on a mature shoot with full-grown leaves, (c) produced before the pseudobulbs and leaves on the same shoot, and (d) produced at the same time as the pseudobulbs and leaves. The typically fragrant, pristine white, yellow-green, green to coppery brown, rather short-lived flowers come in a variety of shapes and sizes. The petals range from narrow to threadlike in shape and the sepals are small to rather large. In some species the flowers open in succession and in other species open simultaneously.

Many species have intricate dark brown or bright yellow mottling or blotches on the complexly keeled, callused, and usually trilobed lip. The flowers have a rather long, winged, footless column. Pollinia four, in two pairs, waxy, each with an ear-shaped depression that becomes shallower toward the caudicle. Recent SEM studies show that the seeds of *Coelogyne* species are more truncated than those of *Cymbidium* or *Pholidota*. The increased buoyancy of the seeds could attribute to the wide distribution of the genus.

CULTURE These plants like a fairly coarse mixture and plenty of water while actively growing; once new growth has finished reduce watering. Provide cool conditions, high humidity, strong air movement and bright light.

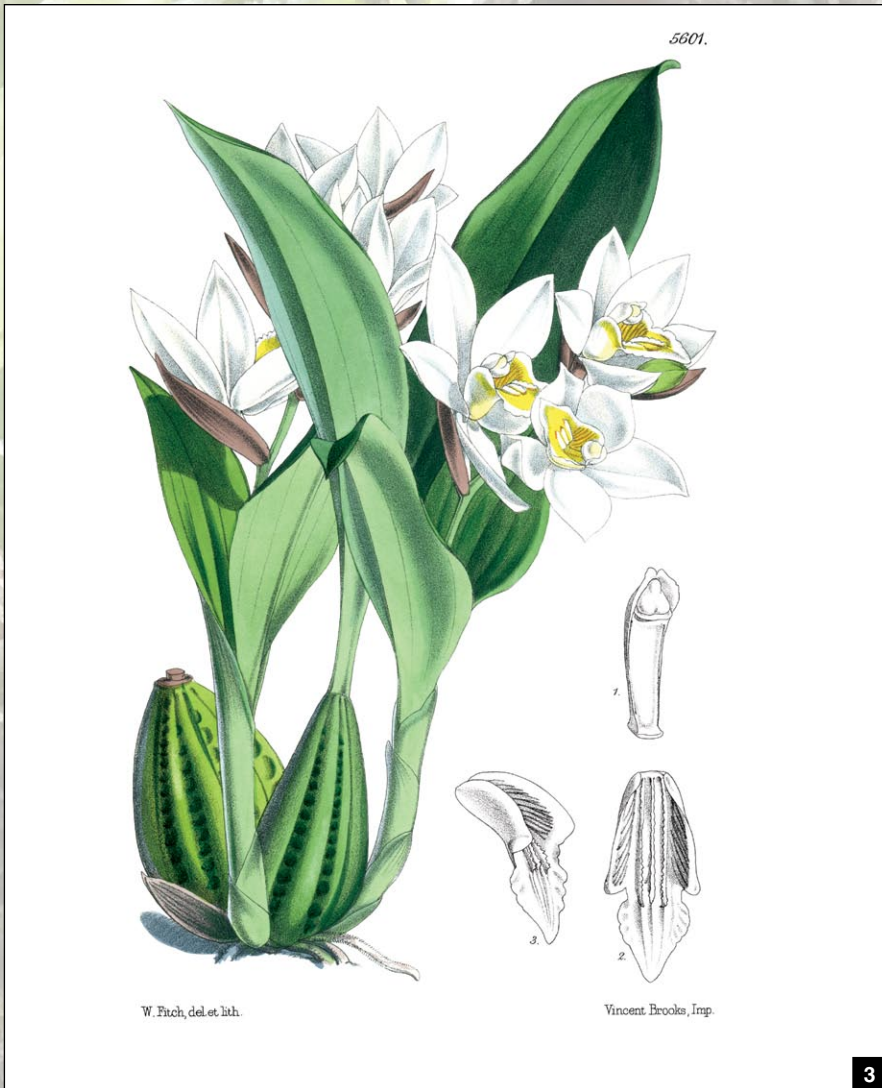
— Peggy Alrich is a freelance graphic designer (sunflowerltd@earthlink.net).

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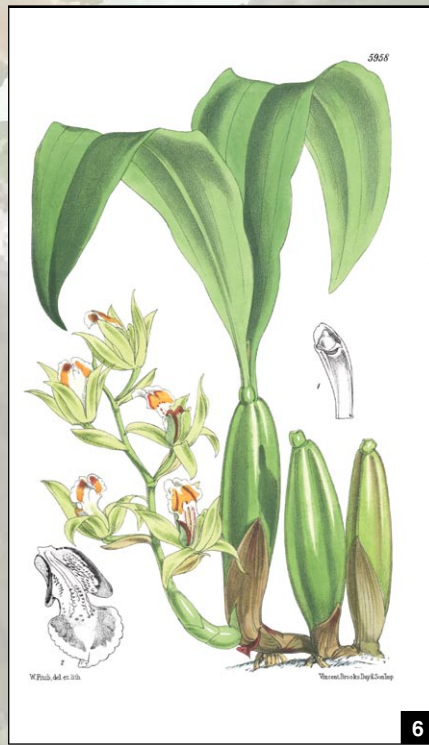


W.Fitch, del. et lith.

Vincent Brooks, Imp.



- Antique Plates — *Coelogyne***
- [1] *Coelogyne swaniana*, *Reichenbachia*, 2:t.92 (1892).
 - [2] *Coelogyne pandurata*, *Botanical Magazine*, 84:t.5084 (1858).
 - [3] *Coelogyne corrugata* (*Coelogyne nervosa*), *Botanical Magazine*, 92:t.56012 (1868).
 - [4] *Coelogyne fuliginosa* and *Podochilus zollingeri* (*Coelogyne ovalis* and *Appendicula elegans*), *Choix de Plantes Rares ou Nouvelles*, t.25 (1863).
 - [5] *Coelogyne speciosa*, *Botanical Magazine*, 81:t.4889 (1855).
 - [6] *Coelogyne lentiginosa*, *Botanical Magazine*, 98:t.5958 (1872).
 - [7] *Coelogyne schilleriana*, *Botanical Magazine*, 84:t.5072 (1858).



In Search of *Cattleya quadricolor*

BY PHILIP SEATON



SURELY NOTHING IS more irresistibly exotic than a cattleya in full bloom, and nowhere better to see cattleyas in their natural environment than Colombia. Imagine my delight then, when soon after my arrival at their home on the eastern slopes of the Western Cordillera of the Andes, a short drive from Cali, my good friends Vicente Perdomo and Leticia Abdala offered to take me on a Sunday drive to see *Cattleya quadricolor* growing in its natural habitat at Jardín Botánico Juan María Céspedes.

The botanical garden is located in tropical dry forest a little over 60 miles (96 km) due north from Cali, and covers around 380 acres (154 ha) of undulating terrain bordering the Tuluá river. At between 3,445 feet and 4,265 feet (1,050–1,300 m) above sea level on the west facing slopes of the Central Cordillera, it is a dream destination for researchers, scientists and lovers of the natural world alike. Doubtless I was going to see plants of *C. quadricolor*, but would they be in flower? There was a large clump growing in a tree at Vicente and Leticia's nursery, Vivero Medio Dapa, with a couple of flowers in evidence, but I was told that, as it was November, its peak blooming time had passed. If truth be told, however, I get almost as much pleasure from just seeing the plants growing in their natural habitats and learning a little more about how to grow them. Flowers are always a bonus.

And so it proved to be the case, *C. quadricolor* was not in bloom, but then again there were fat, green seed capsules. As someone with a special interest in orchid seed banking, I do get excited by seed capsules, with their promise of future seedlings! *Cattleya quadricolor* was growing on the trunks and branches of large trees, typically caracolí (*Anarcardium excelsum*) and guácimo-colorao (*Luehea seeemanni*). I also saw a nice clump growing high in a tachuelo berrugoso (*Zanthoxylum verrugosum*). Many of the trees were draped in long, ragged curtains of silver-grey Spanish moss (*Tillandsia usneoides*) with *C. quadricolor* occasionally nestling in the crooks of the branches. Although the day was hot and humid, the seasonal dryness of the habitat was evidenced by the presence of rhipsalis, an epiphytic cactus. The trunks and branches were dappled with gray lichens and the silver tufts of tillandsias. Occasionally I found the leathery leaves of an oreja de burro (*Trichocentrum carthagenensis*) and long thin canes of *Dimerandra emarginata*



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3



4

PHILIP SEATON

NICOLA FLANAGAN AND GABRIELA TORRES

- [1] Typically colored *Cattleya quadricolor* photographed in situ. Some examples express lavender petal flares that have been accentuated by line breeding (inset photograph courtesy of the Asociación Vallecaucana de Orquideología). Photograph by Nicola Flanagan and Gabriela Torres.
- [2] *Cattleya quadricolor* is often found in association with Spanish Moss (*Tillandsia usneoides*). Photograph by the author in the Juan María Céspedes Botanical Garden.
- [3] *Cattleya quadricolor* with seed capsules photographed in situ.
- [4] *Cattleya quadricolor* with last season's open seed capsules. Unlike other *Cattleya* species, *C. quadricolor* often grows in this horizontal to downswept habit.

bearing delicate lavender flowers.

Today, *C. quadricolor* is confined to the margins of the Cauca Valley, where tropical dry forest transitions into montane forest, but this was not always so. Driving across a broad flat plain that is largely an immense monoculture of sugarcane, it is difficult to imagine what the valley was like in the nineteenth century. But when the early orchid hunters were combing the region in search of new species, the area was a mixture of forests and cienagas (swamps). The trees have since been cut down, the swamps drained and the land turned into one of the most fertile agricultural regions of Colombia.

In 1894 John Lager wrote that *Cattleya chocoensis* (today's *C. quadricolor* — we will talk about that in a moment) grew mainly in forests along a narrow strip of flat land extending along the Río Cauca in the Department of Cauca, at an elevation of around 3,000 feet (914 m) above sea level. As the ground was largely marshy and inundated at times, the plants received considerable moisture throughout the year, and the evaporation of the stagnant pools produced a light mist that enveloped the trees and branches on which *C. chocoensis* grew. The trees were short and stunted, and mostly covered with decayed matter and vegetation. The trunks and branches were covered with the plants in all imaginable positions.

Earlier, in 1869, Roezl had seen many thousands of plants blooming in trees on swampland not far from the small town of Buga. Similarly, Lager (1932) wrote it was the only kind of orchid that he had seen growing in great numbers on the trees.

“Some of the trees were practically covered with plants and at one time in August when I was passing here the plants were in flower presenting a beautiful sight. The plants grow so low down on the trunks that I sat in the saddle and picked a handful of flowers” (p. 440).

Lager thought the best time to collect this orchid was in August and September, when it was in flower, as the pseudobulbs would be in good condition for shipment. Collecting and shipping at the time was problematic, as the areas where the orchid grew were sparsely populated, making it difficult to secure help and obtain provisions. Because the Río Cauca was only navigable for a short distance above its confluence with the Río Magdalena, the orchids had to be carried on muleback across the valley and the Western Cordillera to Buenaventura on the Pacific coast, from where they were



shipped.

NAMING CATTLEYA QUADRICOLOR — OR, WHO WOULD BE A TAXONOMIST? Sitting in a café in Mexico City in 2000, I remember Miguel Soto telling me, over a cup of strong black coffee, that he loved being a taxonomist because it was like being a detective. As I have become immersed in the twists and turns of the story of the naming of *C. quadricolor* I now understand what he meant.

I walked into the hushed sanctum of Kew's orchid herbarium more in hope than expectation. I had often passed the wall of pale cream metal cabinets containing Lindley's herbarium on my way to the Orchid Library, but had not felt it appropriate that I should delve into their contents without the permission of a Kew taxonomist. Happily, André Schuiteman was more than willing to assist me in my quest. *Cattleya quadricolor* first appeared in Europe in 1848, when a plant was given to the English orchid grower Sigismund Rucker by a friend who had been traveling in Colombia (at that time, New Granada). When the plant bloomed in 1849, Rucker sent flowers to John Lindley.

After consulting the catalogue, André opened the door and carefully removed the buff folders containing the herbarium sheets. And there they were, the two flowers that Lindley had received more than a century and a half ago, attached with thin strips of white tape to the herbarium sheet, which was slightly foxed along its edges. The two squashed, crispy



OUR ORCHID COLLECTOR, MR. LOUIS FORGET, PASSING A VILLAGE IN THE OF COLUMBIA WITH A CONSIGNMENT OF CATTLEYS.

toffee-colored blooms, one compressed laterally, the other flattened full-face to demonstrate the broad petals and lip. A note in ink between the flowers in Lindley's rounded handwriting read, “*C. quadricolor* Rucker Feb. 49.” On a rectangle of white paper pasted on the bottom left someone had written in black ink, and underlined, “*Cattleya quadricolor* of Bateman” below a printed heading half in red and half in black saying “holotype.” The first specimen to be formally described; if in doubt, the one with which all subsequent collections of *C. quadricolor* should be compared.

Job done. So why, in 2001, did Arthur Chadwick say, “No *Cattleya* species has been more abused than *Cattleya quadricolor*” (p. 1156). The name *C. quadricolor* first appears in print in

Paxton's Flower Garden (Lindley 1850–1851), where Lindley says that he is not sufficiently acquainted with *C. quadricolor* to say how it differs from *Cattleya labiata*. In 1864, James Bateman published a description of *C. quadricolor* in *The Gardeners' Chronicle and Agricultural Gazette* under the heading of "New Plants," saying that he was indebted to Rucker for the plant that was blooming in his collection at Knypersley. Bateman said that *C. quadricolor* was "distinct from every previously known species of the genus" (p. 269), the petals and sepals being pure white, with the purple, yellow and lilac of the lip making up the sum of the four colors. He said that it "accorded with a sketch that he had seen in Dr. Lindley's herbarium" (p. 269). In the following year (1865), Bateman wrote an article in *Curtis's Botanical Magazine* with an accompanying illustration in which he speculates that *C. quadricolor* may eventually be downgraded to varietal status. So far so good.

However, in 1870, Linden and Eduard André described *C. quadricolor* and *C. chochoensis* as separate species in *L'illustration Horticole*, noting that all varieties of *C. quadricolor* had four distinct colors. *Cattleya chochoensis* was a new entity, "introduced recently by M. Linden (via his collector Gustav Wallis) from the Choco (a province between the Río Cauca and the Pacific)" (p. 37) and taken out via the Río Atrato. This is followed up by a more complete description of *C. chochoensis* in *L'illustration Horticole* (Linden 1873) accompanied by a beautiful chromolithograph by Pieter De Pannemaeker. I cannot help but wonder if the fact that Bateman says *C. quadricolor* was collected in the valley of the Río Magdalena (Bateman, 1865) helped to cause the subsequent confusion.

Writing in *L'Orchidophile*, Roehl (1883) could not understand why the name *C. chochoensis* was still being used, as the orchid originated in the Cauca Valley, and nowhere near the region of Choco. He felt that *Cattleya trianae* or *Cattleya caucaensis* were more legitimate names. The confusion continued. In his "Manual of Cultivated Plants," Veitch (1887) considers *C. trianae* to be a variety of *C. labiata*, and *C. chochoensis* to be a subvariety of *C. trianae*! In 1898, Robert Allen Rolfe, editor of *The Orchid Review*, appeared to have had the last word, when he confirmed that *C. quadricolor* was indeed the correct name — which does not explain why plants labeled *C. chochoensis* are still occasionally encountered for sale!



PHILIP SEATON

To add further insult to injury, as I was about to submit this piece for publication, I was sent an article by Saulea (2013), saying that the correct name was, in fact, *Cattleya candida*! Well, I hope that you will forgive me, but I am going to stick with the World Checklist of Selected Plant Families, which lists *C. quadricolor* as the currently accepted name, and *C. candida* as being a synonym. The latter is in fact a so-called illegitimate name, because it duplicates an earlier, identical name, for a different species (Schuiteman, pers. comm.)

CATTELEYA QUADRICOLOR IN CULTIVATION The typical *C. quadricolor* has pure white sepals and petals, sometimes tinted with pale lilac. The upper part of the lip is suffused with a pale amethyst-purple, the disc is orange-yellow, and there is a purple blotch at the front. The fact that the flowers tend to remain almost bell-shaped and typically do not open fully, displaying a nodding habit means that the flowers may not conform to current concepts of ideal form, but for me at least, this is part of this lovely species' charm. It has the additional attraction of being the most fragrant of the cattleyas. Although less frequently seen than *C. trianae* in greenhouse-grown collections in temperate countries, it is often seen growing in gardens of Colombian

- [5] Lindley's *Cattleya quadricolor* herbarium sheet, © The Board of Trustees of the Royal Botanic Gardens, Kew. Reproduced with the consent of the Royal Botanic Gardens, Kew; <http://specimens.kew.org/herbarium/K000501966>.
- [6] Shipment of cattleyas being transported by mule in the Cauca Valley.
- [7] *Cattleya quadricolor* flowers often do not open fully, remaining somewhat bell-shaped as these seedlings at Vivero Medio Dapa photographed by the author.

aficionados. It is a very variable species, and a semialba variety is frequently found in natural populations. Breeding programs in Colombia have produced many beautiful and awarded varieties.

Orchid growers in today's Colombia are able to distinguish *C. quadricolor* from other cattleyas by the long, narrow, 444 upright pseudobulbs to which Bateman referred in 1865, and by its strongly downward-arching leaves. Lager (1932) advised that "its fondness for moisture at the roots should be borne in mind, particularly during its growing season; and when at rest the atmosphere should be kept as damp as possible" (p. 440).

RESCUE AND REINTRODUCTION Endemic to Colombia, *C. quadricolor* is considered to be one of the

most endangered of the large-flowered species in the Cauca Valley (Calderón-Sáenz 2007). Today it can be found in the Departments of Valle del Cauca, Quindío and Risaralda, growing in the most threatened of the major tropical forest types — dry tropical forest. This particular biome is found in lowlands from Mexico to Brazil where there are several months of severe to absolute dry season, with most rain falling during a (usually) brief wet season. Typically, the mean annual temperature is greater than 63 F (17 C) and rainfall is in the range of 10–80 inches (25–200 cm) per year (Janzen 1988).

Cattleya quadricolor grows on various tree species that make up the tropical dry forest. The Cauca Valley management plan has identified *Anacardium excelsum*, *Guazuma ulmifolia*, *Ficus insípida* and *Erythroxylum ulei*. *Cattleya quadricolor* is found associated with various tillandsias, including *Tillandsia usneoides*, other bromeliads, lichens, mosses and a few ferns. Many trees lose their leaves during the dry season and there is marked seasonality in the flowering and fruit production. After reading the descriptions of Roezl (1883) and Millican (1891) however, it would appear that the optimum habitat for *C. quadricolor* has disappeared, and today it only survives at the margins of its former habitat. This may be significant when one reads that Roezl (1883) commented that the plants were much more vigorous, with robust pseudobulbs and leaves, and flowered best when growing in full sun or partial shade.

At the Pontificia Universidad Javeriana in Cali, undergraduate student Gabriela Torres, together with her supervisors Nicola Sian Flanagan and Nhora Helena Ospina-Calderón, is undertaking a demographic study of *C. quadricolor* in the buffer zone around the Jardín Botánico Juan María Céspedes with the aim of generating baseline data to enable the population to be monitored and allow its conservation in situ. This project forms part of a wider research program at the university, led by Nicola Flanagan, that aims to further understand the ecology of the few remaining natural populations of *C. quadricolor*. Another student is joining the team to study the mycorrhizal interactions of this endangered species. With a greater understanding of the species ecology, more effective conservation actions may be implemented. There is currently little information available about *C. quadricolor* and the two principal pressures that endanger it. The first is habitat



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fragmentation due to the extension of the frontiers of farming, cattle ranching and mining. The second is the illegal collection of this species that still persists. It appears that sacks full of *C. quadricolor* are still removed illegally from the forest, and the investigators have seen various tools used for the extraction of plants, such as ropes, crowbars and spades during their survey.

It is important to harvest seed from plants growing in their natural habitat as, over time, it is likely that they have become adapted to that environment by natural selection, and may carry specific genes that may enhance the possibility of successful reintroduction, and also

maintain the diversity of the natural gene pool. If mature seed is harvested just as the capsule begins to split, then dried and stored at low temperature in sealed tubes according to Orchid Seed Science and Sustainable Use (OSSSU) protocols (Seaton and Pritchard, 2008) the probability is, if the seed is of good quality (i.e., high initial percentage germination), that the seed will remain viable for many years. However, there is a need for further research. Storing seed representing the wild gene pool in an orchid seed bank will provide valuable insurance against further losses, and provide material for future reintroductions if necessary.

Given suitable facilities, *C. quadricolor* is relatively easy to grow from seed using asymbiotic techniques, and Vicente Perdomo and Leticia Abdala are currently raising seedlings for the project.

There are an increasing number of successful reintroduction projects around the world, such as that of *Cyrtopodium punctatum* in the Fakahatchee Strand in Florida (Ferriera et al. 2012), and numerous orchid species in Singapore (Yam et al. 2010). There is no reason to suspect that similar success cannot be achieved with *C. quadricolor*. All of this will be to no avail unless it benefits, and is supported by, the local community.

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— Philip Seaton has been growing orchids for more than 40 years and is passionate about orchid conservation. A biology lecturer by profession, he took early retirement and became project manager of the global seed banking project *Orchid Seed Stores for Sustainable Use (OSSSU)*. Phil has authored and coauthored numerous popular and scientific papers, and book chapters. He has both written and illustrated orchid seed sowing laboratory manuals and books both on his own and with colleagues. Phil currently runs a volunteer orchid laboratory in a local school (philipseaton@gmail.com).

[8–11] Line breeding has produced some exceptional forms of *C. quadricolor* in a virtually all of the typical cattleya color forms:

[8] A fine, clear white form.

[9] This uniformly light lavender form is called a concolor form among cattleya enthusiasts.

[10] As *Cattleya quadricolor* goes this is a fine, dark example.

[11] Blue or caerulean forms of *Cattleya* species aren't exactly blue but rather a grayish or bluish shade of lavender that is exceptionally difficult to photograph.

Orchids in Watercolor

Paphiopedilum Gloria Naugle

Marcia Whitmore

PAPHIOPEDILUM GLORIA NAUGLE is a primary hybrid of *Paphiopedilum* (*rothschildianum* × *micranthum*) and is one of the most striking primary hybrids. In the past, this was a difficult plant to bloom but some of the newer strains are much easier. My plant grows with high light, pure rainwater from my cistern and regular fertilizing. It grows somewhat cooler in the winter with less water and fertilizer. In warmer months, I water more frequently and continue to fertilize on a regular schedule. This plant produced two inflorescences this fall. The first flower was large and rich in color. The same inflorescence produced a second flower that was somewhat smaller. The second inflorescence also produced two flowers. I painted this orchid on 400 lb. Arches watercolor paper. I was pleased with the outcome and feel I have captured the orchid's rich color. — *Marcia Whitmore* (email: whitbrits@yahoo.com)

Marcia Whitmore began growing orchids in a basement room under fluorescent lights in 1972 and moved into a 14-ft × 18-ft (4.3 m × 5.5 m) greenhouse in 1984. Marcia is a retired teacher and fine arts coordinator and taught in public schools for 35 years. She has earned many AOS awards and is a member of the Illowa Orchid Society, Eastern Iowa Orchid Society, American Society of Botanical Artists and the Great River Chapter of Botanical Artists (whitbrits@gmail.com, <https://asba-art.rog/member-gallery/marcia-whitmore>).



Paphiopedilum Gloria Waughii

M. Whitmore '18

First Ladies and Their Cattleyas

Rhyncholaeliocattleya Melania Trump

BY ARTHUR E. CHADWICK AND A.A. CHADWICK/PHOTOGRAPHS, UNLESS OTHERWISE CREDITED, BY A.E.CHADWICK

MELANIA KNAUSS TRUMP is the wife of the 45th United States President. Prior to marrying Donald J. Trump in 2005, she was a successful model working with major fashion houses in Milan and Paris and later appearing on the covers of dozens of magazines including *Vogue*, *Vanity Fair*, and *Glamour*. She also had her own watch and jewelry line.

The former Melanija Knavs was born in Slovenia (formerly Yugoslavia), where her mother was a fashion designer. She moved to New York City in 1996 and became a naturalized U.S. citizen in 2006. Over the years, she has been active in the American Red Cross as well as the American Heart Association.

In her role as First Lady, Mrs. Trump focuses on issues affecting children. She recently launched BE BEST — an awareness campaign that encourages wellness, lessens the negative effects of social media, and helps to reduce opioid abuse.

One of the benefits of being associated with the project, *First Ladies and their Cattleyas*, is that everyone goes out of their way to help the cause. No sooner had Mr. Trump been elected, than clients began offering their connections in Washington and a streamlined way to give the new First Lady her namesake orchid.

In early 2018, one of the seedlings received a prestigious flower quality award from the American Orchid Society. The Highly Commended Certificate or HCC/AOS designation moved the cattleya into an exclusive club of honored First Lady hybrids. Only those namesakes of Bess Truman, Betty Ford, Nancy Reagan, Hillary Clinton, and Laura Bush have been given similar accolades.

The fall of 2018 brought fresh political momentum to the project when our local Virginia congressman got involved. House member Dave Brat was so impressed with the Trump orchid that he sent a staffer to the White House with a vase of cut flowers along with an impassioned plea that they be formally accepted.

Shortly thereafter, former First Lady



Laura Bush called Mrs. Trump to encourage the orchid presentation after hearing a garden club lecture, “First Ladies and their Cattleyas,” given by the author. Mrs. Bush is quite familiar with orchids, having accepted her own namesake in 2005 at the United States Botanic Garden.

Just before Congress was scheduled to take its winter break, we received an email from the Office of the First Lady. The timing was perfect because there were at least four varieties in bud that would be fully open after the New Year and she could choose her favorite. The colors ran the gamut and represented the natural variation in seed-grown plants.

However, no sooner had we responded to the White House than the government shut down for the next 33 days and, with it, our hopes of presenting the orchids. The emails stopped and one by one, the flowers folded until there were none left.

[1] This selected variety of *Rhyncholaeliocattleya* Melania Trump illustrates the rich color and excellent form of the hybrid.

[2] The orchid presentation took place at the White House in April when the gardens overlooking the East Wing were planted with spring tulips and pansies.

[3] The National Park Service kept the cattleyas in their offsite greenhouse for 12 days. The accomplished growers are responsible for all plants in the White House gardens.

Then, one March afternoon, we had an interesting visitor at the greenhouse. He was a serious orchid hobbyist from the Northeast and was interested in bulbophyllums and other unusual genera. In passing, he mentioned that he was also the personal chef of the President’s daughter, Ivanka Trump and her husband

Jared Kushner.

Stephen Kotarski had been catering for the Trump family in New Jersey for a decade before moving to the District of Columbia. Upon hearing of our project, he immediately offered to assist and took two spring-blooming examples of *Melania Trump's* hybrid back to Washington, where they were warmly greeted.

An official date was set for the presentation, but it was nearly two weeks away and we wondered whether the flowers would still look fresh for the photograph. In the interim, the National Park Service was given the task of caring for the delicate plants in their secure offsite greenhouse facility half an hour away. It was unseasonably warm during this period as the delicate cattleyas were shuttled back and forth through safety check points. The day before the scheduled event, one of the two plants folded.

On a sunny morning in early April, history was made. First Lady Melania Trump sat down in the East Wing of the White House and was photographed with her namesake hybrid. The seedling that made the arduous journey was the same plant that had been awarded by the American Orchid Society the previous year — *Rlc. Melania Trump* 'First Lady' HCC/AOS.

The next day, I was summoned to pick up the plants from the White House grounds. The security was intense as I entered through the E Street gate and drove down East Executive Avenue. Massive barricades opened and closed and a dozen armed guards looked me over.

The gardens overlooking the East Wing were lovely, with perfectly manicured hedges and spring plantings of yellow tulips and blue pansies. Brick walkways led visitors around and pink dogwoods dotted the landscape. The White House itself is a formidable structure, and I was honored to be in its presence.

Per Mrs. Trump's request, the cattleya that she was photographed with was taken across the street and donated to the United States Botanic Garden (USBG), which serves as a repository for the First Lady orchid collection. Since 1929, the wives of 15 consecutive presidents have been honored with namesake cattleyas and most of the hybrids are still in existence today. The public can see these historical plants when the USBG and the Smithsonian Gardens cohost an annual orchid show in downtown Washington,



D.C. each spring.

Rhyncholaeliocattleya *Melania Trump* is the most complex of all the First Lady hybrids, with 10 generations of breeding. In general terms, the cross combines a *Cattleya* *Bow Bells*—influenced big white with a free-spirited artshade *Rhyncholaeliocattleya* Chia Lin (Oconee × Maitland).

One parent of *Rlc. Melania Trump* is *Cattleya* *Bold Swan* (Old Whitey × Swan Lake). This lovely white hybrid has a lengthy ancestry and relies heavily on three of the workhorses of the cut-flower era — *Cattleya* *mossiae*, *Cattleya* *gaskelliana*, and *Cattleya* *trianae*. Together, they provide big round flowers and exceptional vigor.

The legendary *C. Bow Bells* is a grandparent on both sides of the lineage.

It has been nearly 75 years, almost the length of a human lifetime, since a *Cattleya* hybrid named *Bow Bells* burst upon the orchid stage. The year was 1945 and the stage was the September meeting of the Trustees of the American Orchid Society. At the meeting, Clint McDade of Rivermont Orchids exhibited five plants of a new white cattleya hybrid called *Bow Bells* that had such outstanding flowers that one was awarded a First Class Certificate and the whole group received a rare Silver Medal of Excellence. Amazingly, four of the five plants were seedlings flowering for the first time.

The next appearance of *C. Bow Bells* was at the 1948 Miami Orchid Show, where two more plants received First Class Certificates. Such accolades were unprecedented, and in one brief moment

in the long history of cattleyas, this fragile flower had revolutionized the quality of white cattleya hybrids. It had raised it to the rarefied level of near perfection by all the judging standards, and *C. Bow Bells* would go on to become one of the most awarded hybrids in orchid history.

Cattleya Bow Bells was a product of the breeding program of the British orchid company Black & Flory, who gave it its name and registered it with the Royal Horticultural Society in April 1945. Black & Flory was known for breeding fine cattleya hybrids, and Clint McDade had purchased a large number of *C. Bow Bells* seedlings before any of them had flowered. When they began blooming in his greenhouses on Signal Mountain, Tennessee, he found he was sitting on a gold mine. McDade later described *C. Bow Bells* as “a botanical phenomenon among orchid plants.” He said, “All plants grown from this one seed capsule are strikingly similar in having all the superior qualities desired in orchids. The plant itself is noted for its vigor and consequently is less difficult than most plants to grow. The flowers have all the desirable qualities of a fine orchid. The wide petals and sepals have good form and carriage and the large wide lip has a ruffled edge.”

In addition to *C. Bow Bells*, we find such fine stud plants as *Cattleya Ethel Bishop* (registered in 1945), *Cattleya Empress Bells* (in 1952), and *Cattleya Vesper Bells* (in 1958) in the lineage of *Cattleya Bold Swan*. *Cattleya Vesper Bells* carries genes of the tall-growing species, *Cattleya loddigesii*, which tend to impart flatter, waxy flowers.

The other parent of *Rlc. Melania Trump* is the 1980s reddish stud, *Rlc. Chia Lin* (Oconee × Maitland). Over the years, there have been a handful of AOS awards for this hybrid and the colors range from ruby red to red-violet to fuchsia. It is truly a beautiful flower and few, if any, big reds today are an improvement.

As a breeder plant, *Rlc. Chia Lin* is wildly unpredictable, given its colorful lineage that comprises 16 species. Most influential is the naturally occurring yellow, *Cattleya dowiana*, which is always the prized plant in anyone’s collection despite its reputation as being tricky to grow (experts recommend giving *C. dowiana* warm nights, no cooler than 65 F [18.3 C]). We also find such unlikely studs as *Cattleya tenebrosa* and *Cattleya bicolor* — hardly the standards of big round flowers.

With so many generations of dissimilar plant combinations, it is hard to



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MICHAEL MACCONNAILL

get a handle on the inner workings. The *Rlc. Oconee* parent, from 1976, is heavy on dark purple breeding beginning with the earliest of primary hybrids, *Cattleya Callistoglossa* (*warscewiczii* × *purpurata*) from 1882 as well as the dark form of *Cattleya Fabia* 1894 (*dowiana* × *labiata*) registered in 1894. Our experience has shown that breeding with *C. dowiana* tends to darken the offspring of other purples.

The *Rlc. Maitland* parent is also from the 1970s and is not a particularly well-shaped yellow. The petals are narrow and fall forward, but the cultivar ‘Miles’

[4] The legendary *Cattleya Bow Bells* is a grandparent on both sides of the lineage of *Cattleya Bold Swan* (Old Whitey × Swan Lake). Shown is *C. Bow Bells* ‘Anne Chadwick’ which received a Best in Show at the inaugural Central Florida Orchid Society Show in 1960.

[5] *Rhyncholaeliocattleya Chia Lin* ‘Wilson’s Choice’ AM-CCM/AOS (Oconee × Maitland). Cultivars of this grex have been popular studs for reds since the 1980s. Its lineage is lengthy and comprises 16 different species including some unlikely characters.

HCC/AOS, named after the originator, has intense yellow color that can partly be attributed to the 1904 primary hybrid, *Cattleya Triumphans* (*dowiana* × *rex*).

Early breeders were enamored with *C. dowiana* until they found out that it did not produce hybrids that were yellow. The pigment in its sepals and petals is so genetically recessive that it disappears when bred with any other large-flowered cattleya. It was not until a strange new *Cattleya* species was imported from the jungles of Peru in 1890 that *C. dowiana* finally produced a yellow-petaled hybrid. The secret ingredient that made everything work was *Cattleya rex* — a blossom whose creamy appearance resembles pale lemon overlaid with white.

Cattleya rex is one of the most elusive species in the history of orchid collecting, and it is a wonder that it ever made it to Europe. It had been previously seen in the wild by Jean Linden, the well-known explorer, who at the time was a young man in his 20s, traveling through South America for the Belgian government in the 1840s. It was seen again 30 years later by the orchid collector Gustav Wallis. In Linden's case, he was just surveying the plant life of Peru and Ecuador and was not in a position to bring back many epiphytes. Wallis, on the other hand, was in the business of gathering wild plants, but found it impossible to extract *C. rex* specimens from the tops of 70-foot (21.4-m) tall trees and transport them alive through the dense jungle to a suitable port.

For years, other explorers tried to coax *C. rex* out of the jungle, but all were unable to bring even one healthy plant back to Europe and the horticultural world. The biggest obstacle was the isolated rainforest area in which *C. rex* is endemic.

It was not until after a carefully planned effort by experienced plant collector Eric Bungeroth that a small number of *C. rex* finally arrived in Liverpool, England in November, 1890. The orchids that lived were sold to Jean Linden's company, L'Horticulture Internationale, where a client named Charles Maron was the first to bloom a plant. He would later use *C. rex* in hybridizing and crossed it with *C. dowiana* to produce the primary hybrid *C. Triumphans*.

Other exciting early hybrids found in *Rlc.* Maitland include the yellow *Cattleya* Prince John (*dowiana* × *Hardyana* [1896]) from 1913, which produces deeply colored magenta lips, and *Rhyncholaeliocattleya*



[6] *Cattleya Triumphans* (*dowiana* × *rex*) was a breakthrough cross in 1904. Up until this time, breeders were not able to make a yellow hybrid using *Cattleya dowiana*.

[7] *Cattleya rex* is one of the most elusive species in the history of orchid collecting. When finally brought back to Europe in 1890, breeders had a field day.

[8] *Cattleya Callistoglossa* 'Low's' (*purpurata* × *warscewiczii*) from 1882 provides some of the earliest dark-colored flower genes in *Rlc.* Chia Lin.



[9] *Rlc. Melania Trump* seedlings are wonderfully unpredictable and produce hues rarely seen in cattleyas including blush, apricot, burgundy, and rust. Some have yet to bloom and could further surprise us.

Heatonensis (*Rhyncholaelia digbyana* × *Cattleya Hardyana* [1896]) from 1902, which offers *Rlc. Maitland* a touch of frilly lip.

The Trump cross was named by Chadwick's and bred by Michael Sinn of Canaima Orchids in Atlanta, Georgia. Mr. Sinn is a world-class hybridizer who is often sold out years before his seedlings bloom. He is originally from Venezuela and earned a degree in civil engineering there. But his true love is orchids. "When my friends were going to the beach, I was going to the jungle looking for plants," he says.

The first Trump seedlings to bloom at Chadwick's produced hues rarely seen in cattleyas — blush, apricot, burgundy, and rust. Later, some traditional colors such as pink and purple came along. The one trait that is consistent throughout is the vigor of the plants, which all have robust leaves and strong inflorescences.

The flowers are medium-sized and they appear mostly in the fall and winter. Fortunately, there are a few spring bloomers, as these were the plants that were sent to the White House.

What will be remembered about Mrs. Trump's namesake cattleya is the wonderful unpredictability in the seedlings. Although nearly all previous

First Lady hybrids are white, purple or a combination of the two, *Rlc. Melania Trump* can be found in a rainbow of colors. As of press time, the official photograph of Mrs. Trump with her namesake hybrid has not been released by the White House.



Arthur E. and A.A. Chadwick

— A.A. Chadwick and his son, Arthur E. Chadwick, are coauthors of *The Classic Cattleyas*. A.A. Chadwick has been growing orchids since 1943 and is a regular contributor to *Orchids*. Arthur E. Chadwick is president of Chadwick & Son Orchids, which operates 11 greenhouses in Powhatan County, a retail store in Richmond, Virginia and boards over 13,000 orchids for local clients. Arthur E. Chadwick presented First Ladies and Their Cattleyas at the 22nd WOC in Guayaquil, Ecuador and he and his father have the distinction of having named cattleyas after the last five first ladies of the United States (email art@chadwickorchids.com; Website www.chadwickorchids.com).

FIRST LADIES AND THEIR CATTLEYS

- 1915–1921 Edith Bolling Wilson
— *Orchids* 86(9):678–683
- 1929–1933 Mrs. Herbert Hoover
— *Orchids* 82(8):478–479.
- 1933–1945 Eleanor Roosevelt
— *Orchids* 82(11):664–667.
- 1945–1953 Bess Truman
— *Orchids* 83(2):98–103.
- 1953–1961 Mamie Eisenhower
— *Orchids* 83(5):294–297.
- 1961–1963 Jacqueline Kennedy
— *Orchids* 83(8):488–493.
- 1963–1969 Lady Bird Johnson
— *Orchids* 81(8):498–500.
- 1969–1974 Patricia Nixon
— *Orchids* 83(11):674–679.
- 1974–1977 Betty Ford
— *Orchids* 84(2):98–103.
- 1977–1981 Rosalynn Carter
— *Orchids* 84(5):292–297.
- 1981–1989 Nancy Reagan
— *Orchids* 84(8):478–483.
- 1989–1993 Barbara Bush
— *Orchids* 84(11):674–679.
- 1993–2001 Hillary Rodham Clinton
— *Orchids* 85(3):210–217.
- 2001–2009 Laura Bush
— *Orchids* 85(9):684–689.
- 2009–2017 Michelle Obama
— *Orchids* 86(5):360–365.

A Journey of a Lifetime

The Adventures of an Orchid Hunter

BY CAROL ZAKAHI

ONE CAN ONLY imagine going around the world in search of new species. My title, "The Adventures of an Orchid Hunter," comes from a book by Albert Millican, in which brave men would go into steaming jungles filled with wild animals and head hunters (Millican 1891). How in the world did I have this book in my possession you may ask? Let me take you on this journey involving the book and my adventures with vanilla without ever having to leave my island home in Hawai'i.

In 1957, I met a forester for the Hawaii Sugar Planters' Association in Hawai'i. His name was Col. Leicester (Lester "Bill") Winthrop Bryan; he was born in Boston and came here to Kona in 1921. He was instrumental in planting 10 million trees in his lifetime of working here in the islands. There are two monuments commemorating his achievements. One is at the Manuka State Wayside in Kau where eight acres of forest land were cleared and planted with 48 species of native Hawaiian plants and 130 species of exotic plants. The other one is on the grassy side of the Queen Kaahumanu Highway in Kailua-Kona by the Kona Outdoor Circle in remembrance for his service.

Col. Bryan and his wife Irma owned a beautiful house near the ocean, and my mom was offered a job as a housemaid. My mom thought it would be a good idea for me to have a glimpse of their lifestyle compared to how we lived on a coffee farm. She took me to clean houses and serve at cocktail parties. At 13 years of age, I was the youngest housekeeper Mrs. Bryan ever had.

My dad always told me about Col. Bryan, his monuments and that he was somehow an important man. Col. Bryan was still working as a forester and he did not retire until 1961. As I dusted the books in his library one day, he came up to me and asked me, "Do you like books?" I told him I did because coming from the hills of an old Kona coffee farm dwelling built by my grandfather in 1925, we hardly had any books other than a thick dictionary. Col. Bryan then told me to choose any two



books in his library. I was just overjoyed. I knew the word "orchid" but was not interested in them. But two books caught my eyes: *The Adventures and Travels of an Orchid Hunter* (1891) and *The Tropical Garden* (1936). I kept those books.

When orchid fever began in 1982 here, our local orchid society, the Kona Daifukuji Orchid Club, was formed. I then got to meet a man who became our advisor for the club, Tomatsu (Tom) Kadooka. Tom Kadooka was a nursery man who had *Vanda* Miss Joaquim planted in his less-than-an-acre lot in Kainaliu. His yard was a field of purple and was a popular tourist site for years. His vanda blossoms graced the plates of the high-end hotels for a while, and he used to tell us that he was paid \$.03 per blossom and, if scarce, up to \$.35 apiece.

It was not until much later that I learned that Col. Bryan, on an assignment in the Far East in 1930 for the Hawaiian Sugar Planters' Association, saw *V. Miss Joaquim* at the Singapore Botanical Gardens. He had realized immediately that this orchid could successfully be grown outdoors in Hawai'i. He brought back with him 28 cuttings of the plant and took them to Hilo. His original cuttings were propagated into 10,000 blooming



[1] Col. Leicester Winthrop Bryan

[2] Papilionanthe (*Vanda*) Miss Joaquim

plants. Soon other growers saw the potential of this orchid as a paying crop for local and tourist consumption. Even more profitable, however, was the market on the mainland, where plane loads of orchid blossoms were shipped. Everyone in the town of Hilo grew this orchid in their backyards, with some nurseries growing *V. Miss Joaquim*, including Tom. This launched vandas as the "people's orchid," and the island of Hawai'i became known as the "The Orchid Isle" and was recognized as one of the leading orchid-growing centers of the world in the 1950s.

Tom Kadooka, a self-educated flower grower and plant enthusiast, also was interested in a vine that he discovered on his parents' land in the 1940s, which we now know as *Vanilla planifolia*. This was the first orchid he introduced to the members of our orchid society. We all could not guess what type of orchid this was.

He loved vanilla so much that he tried to find more information about this mysterious plant. The only book there for him at the time was *The American Orchid*

Culture (White, 1942). It contained an article on vanilla that was less than half a page.

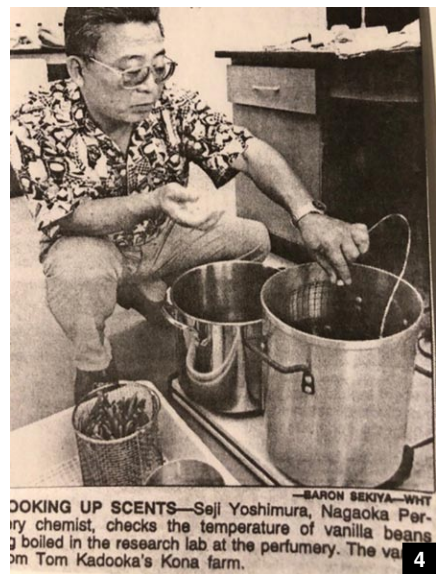
He gave our orchid society members cuttings and growing instructions over the years, and he succeeded in having some members grow vanilla, eventually selling plants and beans. Few people caught on to vanilla culture but the interest was there.

He definitely convinced me that having a little space for a big yield on a product that had an indefinite shelf life was something we all could do. We tried all kinds of ways to grow them.

When a chemist, Seiji Yoshimura of the Nagaoka Perfumery of Japan, approached him in the late 1980s, Tom was willing to share what he had learned about vanilla. By this time, Tom already had filled his former cattleya greenhouse with vanilla plants, producing beans and many small vanilla plants for sale. There was even a time when a spice company called him and asked, "Do you have a tonne of vanilla for sale?" Tom's reply was, "I may have two pounds." Mr. Yoshimura told him that vanilla could be a main ingredient in the perfume business along with the many fragrant blossoms in Hawai'i with which they were experimenting in Kona. He agreed to work with the chemist. Despite years of experimenting with the compounds that could be found in vanilla and other flowers and the generosity of the perfumery, they ended their research in 1995. They donated all their chemistry equipment, valued at thousands of dollars, to the local high school. Tom was also given materials by Yoshimura to continue his work on vanilla. The company then moved back to Japan.

I had the pleasure of speaking with Tom and also demonstrating the ways vanilla could be used throughout Kona, Hilo, and in Honolulu at the 1993 AOS's Trustees' Meeting at the Honolulu Orchid Show. Also there with us were several members of our orchid club, Tom's daughter Janice Uchida, who was a plant pathologist with the University of Hawai'i at Manoa, his son Pat, who did the folders for our display, and his son Chris, assistant researcher with Janice. The chemist Seiji Yoshimura also joined us before returning to Japan. We all tried to convince the people of Hawai'i that this might become our state's future crop. Exposure to the rest of Hawai'i was good for Tom. Several articles in Hawaii's newspapers and international coverage by the perfumery made its way to the general public.

This coverage began a spark in Jim



Redekopp, a local tour operator who tried to talk to Tom, initially on the phone, and then sent thank you notes with local drug store certificates and asked to stop by one day to talk to him. Jim did not give up. After talking to Tom and receiving a grant, Redekopp started The Hawaiian Vanilla Company, the only vanilla company in the United States in the late 1990s. It had taken years for vanilla to take hold in Hawai'i, and Tom Kadooka was able to see The Hawaiian Vanilla Company become a reality.

An ice cream was developed with Tom's and Jim's pictures and story on the carton. A story was written on this adventure and published in the July 2002 issue of the *AOS Bulletin*, now called *Orchids*.

During this time, another person

who came to Hawai'i entered my life. Her name was Patricia Rain. She was known as the Vanilla Queen, and owned a company named The Vanilla Company (vanillaqueen.com) in Santa Cruz, California. In one of her books published in 2004, I had shared my story of Tom. Her books involving vanilla were *The Vanilla Cookbook* (Rain 1986), *The Vanilla Chef* (Rain 2002) and *Vanilla, The Cultural History of the World's Favorite Flavor and Fragrance* (Rain 2004).

Thirteen years went by before another vanilla company, named The Vanillerie, was established here in Kailua-Kona. The Vanillerie was founded by Dr. Guy Cellier on six acres of agricultural land that now looks like a park. Although born in South Africa, Dr. Cellier came from Alaska and was working for the Hawaii Sugar Planters'

Association in the 1990s. He also planted 10 million trees like Col. Bryan. Tom Kadooka's dream of "Vanilla, Hawaii's Future" held true for The Vanillerie.

The first time I heard Dr. Cellier talk about vanilla, he talked about why he chose to grow vanilla, a plant that requires so much attention and is the most labor-intensive agricultural crop among spices. It is the second most expensive spice in the world, saffron being first. In his talk, he mentioned Tom Kadooka, who had given him cuttings in 2003, the year before Tom had passed on. All his life, Dr. Cellier was known as the plant guy. He had spent a lot of time on his uncle's pineapple farm in South Africa's Eastern Cape. His education was in forestry.

There have been many vanilla entrepreneurs. Seeing Dr. Cellier's operation, where there is a galvanized steel building with French doors leading you into a retail shop full of the products made from the vanilla he grows, would have made Tom Kadooka so proud if he were alive today. Items like creams, scrubs, washes, balms, and candles are all infused with his vanilla. There is also a kit to make your own vanilla extract.

Cellier also has four separate shade houses, and a curing and storage area where he conducts tours. After finishing the tours, people get to sit in his bamboo shade house to enjoy his signature ice cream that puts people into a state of euphoria. What he enjoys most is talking about vanilla, teaching how to grow it, pollinate it, and process the beans. He also has a longtime assistant, JR Pataray, who is the chief pollinator and caregiver for nearly 1,000 plants currently producing beans.

JR uses stilts, the kind that drywallers use, to reach the vines that have grown overhead. In one of the shade houses, vanilla vines are held up with ropes, and all the roots with the freedom to roam are a sight to see. The stilts come in handy for JR, and he can pollinate 500—1,500 flowers a day. JR has done all the research and experiments on the best way to grow vanilla and came up with the ideas, while Dr. Cellier developed the curing and processing technology.

JR also implemented a natural way of growing vanilla by using jatropha plants that have vanilla climbing on them in the open field, where sweet potato vines are used as ground cover. This reminds me of the "Legend of Vanilla" found in one of Patricia Rain's cookbooks, in which a princess falls in love with a mortal man and both are beheaded by the priests



of a goddess. The blood of the couple transformed the young man into a tree and the princess became the vines that intertwined the trees. The blood of a young princess created the birth of xanath, or vanilla, also called the "nectar of the gods." According to JR, the beans become larger in the open field, maybe because they are given the freedom to cling to the trees like an embrace.

The future holds many possibilities for *Vl. planifolia* and Hawai'i. Tom's original saying, "There are those that watch things happen, those that make things happen, and those that wonder what happened," from the 1980s still rings a bell if all of the young entrepreneurs begin by making Hawai'i a destination to come to. As the islands have limited land space, this is an ideal crop that can still make the islands a special place. With all the tropical elements here, one can only imagine a place where you can have the smell of vanilla enter your consciousness and be so alive and happy.

This journey would not have happened if I had not paid special attention to these people in my life. It has been most rewarding actually to meet the people and see the events that make our island home so special. Here in the islands, especially Hawai'i Island, which still breathes lava and fire, we are hopeful that the spiritual quest we all seek helps us understand what is of the most importance...our daily lives and respect for all living things.

- [3] *Vanilla planifolia*. To produce a seed capsule, each flower must be hand-pollinated on the day it opens.
- [4] Seiji Yoshimura of the Nagaoka Perfumery of Japan checks the temperature of the vanilla beans being boiled at the Kadooka farm.
- [5] A shade house of vanilla vines in production.
- [6] Bags of dried vanilla "beans" ready for the market.

Acknowledgments

The author gratefully acknowledges the interviews with Dr. Guy Cellier, JR Pataray of the Vanillerie, and the photographer, Brad Ballesteros.

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Fifty Years and Still Growing

J&L Orchids

BY MARGUERITE WEBB AND CORDELIA HEAD

PHOTOGRAPHS, UNLESS OTHERWISE CREDITED, BY CORDELIA HEAD



IN THE LATE 1940s Leroy Kuhn introduced Janet Tooley to the orchid-growing hobby. Once married, they continued collecting, and as so often happens, ran out of space. Necessity is the mother of invention, and the Kuhn's first greenhouse was fabricated from an old car. Eventually an actual greenhouse was erected over the foundation of a former barn at their home in Pottstown, Pennsylvania. From those modest beginnings, an internationally known orchid nursery grew. J&L Orchids is now operating with its third owners, and has been growing, propagating and selling orchid plants for 50 years.

In 1970, Lee was offered an attractive job in southwestern Connecticut, and the Kuhns decided to move, quite an undertaking for a family of four and an orchid nursery. The Gothic arch style greenhouse was disassembled and re-erected at 20 Sherwood Road, Easton, Connecticut, where it stands today. After two greenhouse freezes in Pottstown that decimated their *phalaenopsis* collection, the Kuhns decided to cultivate cooler-growing orchid genera. Lee had been seduced by masdevallias and then-odontoglossums (now cool-growing oncidiums), and Janet fell in love with miniature orchids. Miniature orchids (plants that are 6 inches [15 cm] or less excluding the inflorescence) occur in a wide range of genera, and Janet often considered the plant habit of a miniature orchid as appealing as the flower. Janet was masterful at creating miniature orchid displays, a tradition that is still honored by J&L Orchids today.

Initially, the Kuhn's greenhouses were divided into a warm or intermediate zone, and a cool zone to accommodate the great variety of plants in the collection. The Kuhns had begun traveling to South America, where they collected and purchased orchid plants from local nurseries. Soon it became apparent that more space would be required. Lee had been experimenting with methods of collecting solar power and decided to implement his ideas by retrofitting and expanding the cool greenhouse. He was a brilliant engineer and designed vertical panels that would circulate water and collect solar heat to be stored. The floor was dug out, lined with a swimming pool liner and filled with gravel. It functioned as a huge collection tank. The vertical panels were ideal for mounted plants, and wire shelves were utilized for the orchids in pots.

Although J&L Orchids was an established business, the commercial



COLLECTING TRIPS TO SOUTH AMERICA

and our active hybridizing program make it possible for us to offer what we feel is the best selection of fine species and interesting hybrids in the northeast. We are particularly proud of our *Masdevallias*, *Oncidiums*, *Odontoglossums*, *Paphiopedilums* and *Phragmipediums* and have many other genera as well.

Our recently expanded facilities are 15 minutes north of Exit 46 of the Merritt Parkway. Write or phone for an appointment and directions.

J & L ORCHIDS

20 Sherwood Road

(203) 261-3772

Easton, Conn. 06612

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- [1] Every inch of space in the J&L greenhouses is put to good use.
- [2] Janet Tooley Kuhn collecting orchids in the wilds of South America. Trips to see orchids growing in their native habitat are immensely educational with respect to the conditions under which orchids actually grow. Photographer unknown.
- [3] The first J&L ad in the AOS *Bulletin* appeared in January of 1975. Over time, the ads changed as J&L's business evolved.

aspect of the nursery was not the primary concern of the Kuhns. It was all about the orchids. Janet and Lee amassed one of the most diverse collections of orchid species in the country. They never produced a catalog but did offer an occasional listing of some special plants. Their customers were international orchid lovers who sought them out. Lee became a well-respected AOS judge and served the Northeast region for many years. Lee also had an avid interest in the micropropagation of orchids and created a laboratory in what had been a storage room. There he sowed seed from species and the hybrids he created, and experimented with tissue culture propagation.

Cordelia Head began visiting J&L in mid-1970s, and spent much of her free time studying the plants and visiting with Janet. In fact she spent so much time there that Janet offered her a job, which she gladly accepted. Gradually over the next couple of years Marguerite Webb and Lucinda Winn became enamored with the world of orchids, and got their feet wet by working at J&L. In 1979 when the Kuhns decided to sell their business and property, the three young women jumped at the opportunity.

The new owners, Cordelia Head, Marguerite Webb and Lucinda Winn quickly got busy reorganizing the greenhouse in a more customer-friendly way, separating the sale plants from the stock and breeding inventory. The new owners began to promote their business by advertising in the *AOS Bulletin*, giving orchid society talks, teaching orchid culture courses, and by displaying and selling at as many orchid shows around the country as possible. At this time Cordelia Head entered the judging program and eventually became the first female judge in the Northeast. Marguerite Webb began writing articles for the *AOS Bulletin* highlighting many of the masdevallias and miniature orchids in the J&L orchid collection. Lucinda Winn lived in the house on the property and had the daunting responsibility of dealing with any overnight greenhouse emergency.

Because J&L is located in a lovely rural setting in Easton, Connecticut, and walk-in trade was minimal, the next priority was listing inventory to create a catalog for mail order. To keep catalog construction costs at a minimum they chose a black-and-white format with original botanical drawings by Richard Gates. The orchids were listed by tribe and subtribe using Robert Dressler's classification of evolutionary order. The production of



RICHARD BROWN



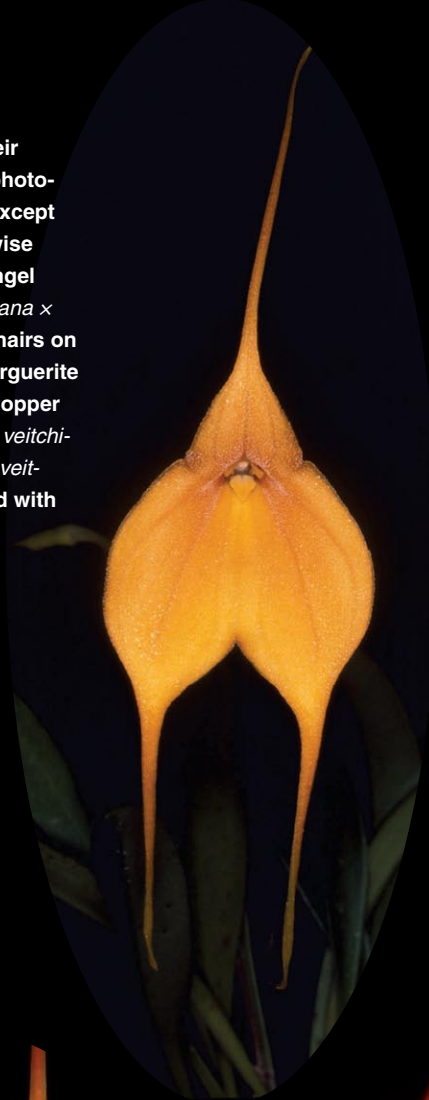
this iconic catalog continued for 25 years, even after J&L began using a website to promote sales in 1997.

Initially, J&L's inventory primarily consisted of a wide range of rare and unusual species and hybrids, but soon became focused on miniature species, with an emphasis on masdevallias, draculas and other pleurothallids. With a wealth of material in *Masdevallia* species, the new owners decided to continue the hybridizing work begun with the previous owners. There were very few *Masdevallia* hybrids, and the hybrids that existed were not very colorful. In 1982 J&L registered three crosses, *Masdevallia* Marguerite, *Masdevallia* Angel Frost and *Masdevallia* Copper Angel. The idea behind this breeding was to create a compact, colorful, showy hybrid that was easy to grow. Imparting warmth tolerance was a key factor, and each cross had one

[4] This early photograph of the three new owners of J&L Orchids was taken by Richard Brown and appeared in *Horticulture Magazine* in September of 1984. Left to right: Lucinda Winn, Cordelia Head and Marguerite Webb. Photograph courtesy of *Horticulture Magazine*.

[5] J&L's display in the Greater New York Orchid Show in April, 2005. J&L became synonymous with show-stopping displays of unusual miniature and hard-to-find species and these displays were partly responsible for the change in AOS judging requirements for Show Trophies to allow displays smaller than 25 sq ft (2.3 sq m).

J&L rapidly became known for their exceptional *Masdevallia* hybrids (photographs by Charles Marden Fitch except Angel Tang by Jay Norris). Clockwise from the upper left: *Masdevallia* Angel Tang 'Yellow Doll' AM/AOS (*veitchiana* x *tonduzii*), note the fine crystalline hairs on the flower surface; *Masdevallia* Marguerite (*infracta* x *veitchiana*); *Masdevallia* Copper Angel 'J&L' AM/AOS (*triangularis* x *veitchiana*) and *Masdevallia* Angel Frost (*veitchiana* x *strobilii*) — another hybrid with stunning surface texture.



intermediate- to warm-growing parent. The goals were achieved, and the hybrids were immediately popular and began receiving awards. *Masdevallia* Marguerite (*veitchiana* × *infracta*) has good-sized bright orange-and-red flowers on tall stems, and will often repeat bloom on the same stem. *Masdevallia* Angel Frost (*veitchiana* × *strobilii*) is another classic hybrid producing abundant concolor bright orange flowers. The interior surface of the flower is densely “frosted” with sparkling white hairs. *Masdevallia* Copper Angel (*veitchiana* × *triangularis*) is a beautiful blending of the two parents with flat triangular, golden orange flowers with dark red flecking. These three hybrids were instrumental in igniting a new passion for *Masdevallia* hybridizing. They also have been direct parents of 153 new *Masdevallia* hybrids, and their progeny totals 606 hybrids. Fifty-four AOS awards have been collectively given to the three original crosses, including an Award of Distinction in 1984 to *Masdevallia* Angel Frost for a new direction in breeding.

J&L continued to be in the forefront of the orchid world as they introduced and popularized miniature orchids. In the 1980s many new hobbyists were growing indoors, either on the windowsill or under lights, and thus faced space constraints. Growing smaller orchids allowed them to accommodate a wide variety, including those with interesting vegetative growth habits and fascinating flowers. Carrying on Janet’s legacy, J&L Orchids constructed miniature displays in orchid shows all over the world, including numerous World Orchid Conference (WOC) shows, The Japan Grand Prix, and many national and international shows, garnering gold medals, AOS show trophies, and other top prizes.

In 1993 disaster struck J&L Orchids. In March a blizzard roared up the East Coast, dumping rain, sleet and snow. This heavy mixture caused the collapse of the cool greenhouse, a sight that is burned into the memories of the partners. Fortunately, the upright panels of the solar construction prevented the roof from completely crushing the plants. With help from neighbors and family members of all sizes, the plants were rapidly removed. After much searching, temporary greenhouse space was found to house the displaced plants. To further complicate the situation, within two months after the collapse J&L participated in the WOC in Glasgow, Scotland with a display and sales area. By the end of the summer, a beautiful new greenhouse was



6 ALEX HIRTZ



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erected and the cool house was back in business.

In the 1980s and 1990s the partners traveled to Central and South America in search of plant material for propagation. Because of the variety of material that was discovered during these trips, Dr. Carlyle Luer made semiannual botanical visits to the greenhouse. Dr. Luer would sit in the potting shed and press plant material to make herbarium specimens. The line drawings that he produced during these sessions were eventually published in his monographs. Several new species were discovered and some were named after the partners who had found them. These included *Trichosalpinx webbiae*, *Lepanthes cordeliae*, *Masdevallia cordeliana* and *Trisetella cordeliae*.

After 37 years Cordelia, Marguerite and Lucinda made the difficult decision to sell the J&L business, house and property. A few interested parties came and went, and in the fall of 2016 the Carreño family stopped by, having seen the real estate listing while driving through the area. Intrigued by the idea of buying a house with a greenhouse business, they learned the history of J&L Orchids and the livelihood the greenhouses had sustained. Although they had no background in orchids, the Carreños were not deterred, having come from a past of quickly adapting to new situations. In seeking a change in their status quo, they decided it would be worthwhile to uproot and learn how to maintain one of the last New England orchid nurseries. Over the next couple of years, with the guidance of the previous generation (most notably Cordelia, who has continued working at the greenhouse), the new owners have endeavored to offer hobbyists a variety of unusual orchids, while working to restore the collection to its former distinction.

In keeping with the tradition of J&L, one of the current owners, Lucas Carreño, has joined the AOS judging program as a student, continuing the legacy of Cordelia Head and Lee Kuhn. Initially Lucas saw the judging program as a way to increase his knowledge of orchids and the people who grew them. However, after the first monthly judging he attended, he got intrigued with researching the plants, learning their habits and how to compare and appreciate the variety of orchids presented. He began to learn about the selection of orchids for breeding and how parent plants pass on particular traits to their progeny. Lucas starting thinking about being able to take advantage of the great potential of the J&L collection,



DON COOPER

which the Carreños have been diligently rebuilding. Unfortunately, the laboratory that had produced all the orchids bred at J&L had been dismantled several years prior. For a while, necessity dictated the use of the room, first an office, then a photo studio, until the time came that a new laboratory could be built. Since February, the flasking laboratory at J&L has been restored and will soon offer the orchid-growing public the fruits of the current breeding program, as well as propagations of the unique species that make up the collection.

Now in its third incarnation under the ownership of the enthusiastic Carreño family, J&L Orchids is well on the way to providing the orchid world with unusual species and intriguing hybrids for another 50 years.

— Marguerite Webb was a partner in J&L Orchids for 38 years where she specialized in *Masdevallia* and *Dracula* species and hybrids. Her retirement job is offering special support to young

- [6] Marguerite Webb, Cordelia Head and Lucinda Winn (L-R) in Maldonado, Ecuador.
- [7] March 1993 — Disaster! Only the vertical growing panels kept the greenhouse from total collapse.
- [8] The silver lining — new modern growing space.
- [9] The masdevallia house.
- [10] Two generations of J&L ownership. Left to right: Cordelia Head, Lucinda Winn, Marguerite Webb, and the Carreño family, Lucas, Ines and Gaston.

students. She enjoys growing a modest collection in her home and visits J&L often. Cordelia Head is an AOS judge and previous owner of J&L. She now works for the new owners both at the greenhouse and traveling with them to shows. She is also a hobbyist growing 100+ miniatures in a large case in her home. She looks forward to celebrating J&L's 50 years the last weekend in July (email: cordelia@jlorchids.com)





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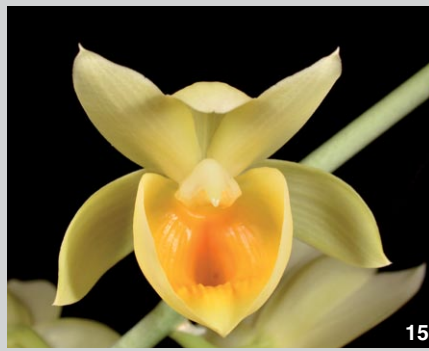
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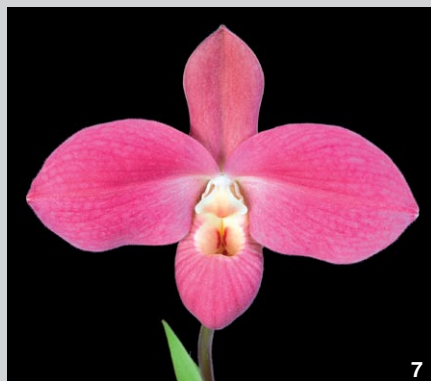
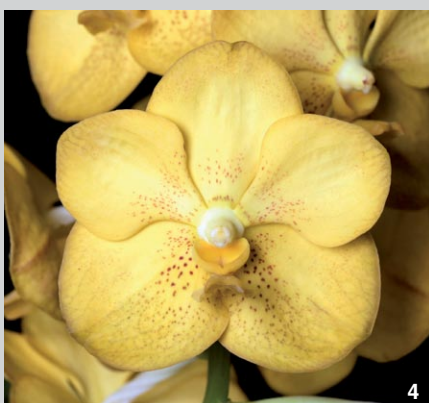
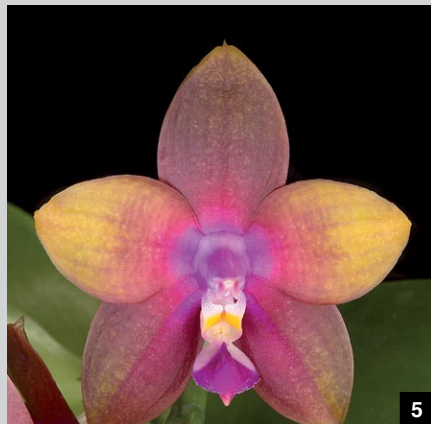


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- [1] *Phragmipedium* Memoria Mariza Rolando 'Edoras' AM/AOS (*kovachii* x Hanne Popow) 81 pts. Exhibitor Kenneth S. Wilson; photographer: Larry Livingston. Rocky Mountain Judging Center
- [2] *Sarcochilus* Allure 'Elegant Twin' HCC/AOS (Duno Nickys Twin x Elegance) 77 pts. Exhibitor: Jean Allen-Ikeson; photographer: Robin McLaughlin. Toronto Judging Center
- [3] *Cymbidium* Mellie Cruz 'Cocoa Pink' HCC/AOS (Ruby Baker x Ben Singer) 79 pts. Exhibitor: Jeanne Kaeding; photographer: Jennifer Lang Margaret Folwell. Toronto Judging Center
- [4] *Paphiopedilum* Hilo Lipstick 'Howard P. Martin' HCC/AOS (In-Charm Lipstick x California Girl) 79 pts. Exhibitor: Howard P. Martin; photographer: Jennifer Lang Margaret Folwell. Toronto Judging Center
- [5] *Phalaenopsis* Jungo Candy 'Howard P. Martin' HCC/AOS (Paifang's E-Len x Misty Green) 78 pts. Exhibitor: Howard P. Martin; photographer: Jennifer Lang Margaret Folwell. Toronto Judging Center
- [6] *Phalaenopsis* Sogo Popcorn 'Synea' HCC/AOS (Liu's Twilight Rainbow x Rong Guan Amah) 76 pts. Exhibitor: Synea Tan; photographer: Albert Mok. Toronto Judging Center
- [7] *Phalaenopsis* Brother Spring Dancer 'Louisiana' AM/AOS (Be Tris x Timothy Christopher) 80 pts. Exhibitor: Al Taylor; photographer: Charlie Riner. Shreveport Judging Center
- [8] *Vanda* Motes Adorbs 'Rosie Pearl' HCC/AOS (*ampullacea* x *christensoni-ana*) 75 pts. Exhibitor: Nancy Rosenblath; photographer: Charlie Riner. Shreveport Judging Center
- [9] *Brassocattleya* Marg Putman 'Annabella' AM/AOS (*Cattleya intermedia* x Morning Glory) 84 pts. Exhibitor: Mini Gonzales; photographer: Catrine Watt. Rocky Mountain Judging Center
- [10] *Paphiopedilum* *delenatii* f. *vinicolor* 'Brazos' HCC/AOS 76 pts. Exhibitor: Mitsi Runyan; photographer: Charlie Riner. Shreveport Judging Center
- [11] *Cymbidium* Eastern Wind 'Wilson's Choice' CCE/AOS (Sleeping Beauty x Eastern Star) 90 pts. Exhibitor: Wilson Ng; photographer: Albert Mok. Toronto Judging Center
- [12] *Paphiopedilum* Egret's Moon 'Brazos' HCC/AOS (Egret's Flight x Lunar Light Glow) 75 pts. Exhibitor: Mitsi Runyan; photographer: Charlie Riner. Shreveport Judging Center
- [13] *Rhyncholaeliocattleya* Ryan Kowalczyk 'Wilson's Choice' AM/AOS (Steve Stevenson x Goldenzelle) 87 pts. Exhibitor: Wilson Ng; photographer: Albert Mok. Toronto Judging Center
- [14] *Catasetum* *lemosii* 'B-C' CHM/AOS 81 pts. Exhibitor: B. Butts - C. Lefave; photographer: Robin McLaughlin. Toronto Judging Center
- [15] *Fredclareara* B-C Leisha 'B-C' HCC/AOS (Enter Light x *Catasetum* Marsh Hollow) 77 pts. Exhibitor: B. Butts - C. Lefave; photographer: Robin McLaughlin. Toronto Judging Center
- [16] *Phalaenopsis* Jiaho's Pink Girl 'Rosanna' AM/AOS (*schilleriana* x Zuma's Pixie) 80 pts. Exhibitor: Ed Wong; photographer: Peter Blahut. Toronto Judging Center





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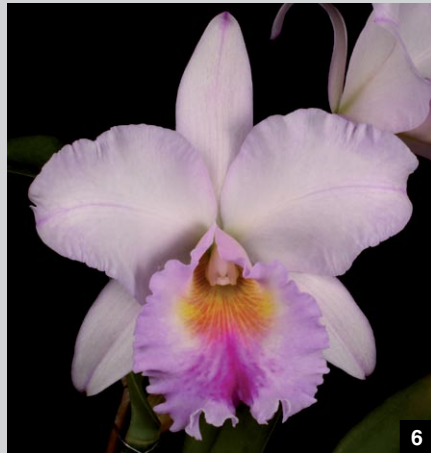
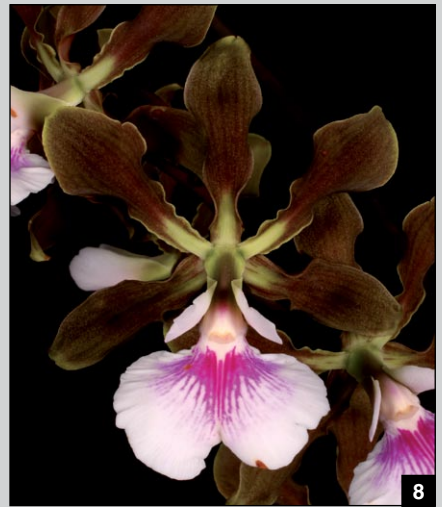


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- [1] *Phalaenopsis* Kingfisher's Dragon Wing (John Ewing 'KFO' x Dragon Tree Eagle 'DT 1' AM/AOS) AQ/AOS. Exhibitor: Pat van Adrichem; photographer: Judith Higham. Western Canada Judging Center
- [2] *Phalaenopsis* Kingfisher's Dragon Wing 'Caleta' AM/AOS (John Ewing x Dragon Tree Eagle) 86 pts. Exhibitor: Pat van Adrichem; photographer: Judith Higham. Western Canada Judging Center
- [3] *Vanda* William Bachschmidt 'Crownfox' AM/AOS (Crownfox Keylime x *tesselata*) 82 pts. Exhibitor: R.F. Orchids, Inc.; photographer Carmen Johnston. West Palm Beach Judging Center
- [4] *Vanda* Redland Golden Sunrise 'Crownfox' AM/AOS (*denisoniana* x Suzanne Mullane) 83 pts. Exhibitor: R.F. Orchids, Inc.; photographer: Carmen Johnston. West Palm Beach Judging Center
- [5] *Phalaenopsis* Kingfisher's Dragon Wing 'Sunset Ember' AM/AOS (John Ewing x Dragon Tree Eagle) 80 pts. Exhibitor: Pat van Adrichem; photographer: Judith Higham. Western Canada Judging Center
- [6] *Gastrochilus retrocalla* 'Little Monica's Eden' AM/AOS 81 pts. Exhibitor: John Little and Monica Gaylord; photographer: Charlotte Randolph. Alamo Judging Center
- [7] *Phragmipedium* Peruflorea's Cirila Alca 'Alicia Linee' AM/AOS (*kovachii* x *dalesandroi*) 81 pts. Exhibitor: Yolanda Breck; photographer: Judith Higham. Western Canada Judging Center
- [8] *Vanda* Addison's Angels 'Rosy's Laverder Lip' HCC/AOS (*Violeta* x *insignis*) 78 pts. Exhibitor: Carlos Ochoa; photographer: Carmen Johnston. West Palm Beach Judging Center
- [9] *Cattleya violacea* (Flamea) 'Crownfox' AM/AOS 86 pts. Exhibitor: R.F. Orchids, Inc.; Photographer: Carmen Johnston. West Palm Beach Judging Center
- [10] *Cymbidium goeringii* 'Mo Yin' HCC/AOS 78 pts. Exhibitor: Daniel Kwok; photographer: Judith Higham. Western Canada Judging Center
- [11] *Rhyncholaeliocattleya* Joy Sokabe 'Shinning' CCM/AOS (Fusako Yamaoka x *Cattleya Irene* Finney (1964)) 85 pts. Exhibitor: Chris Houk; photographer: Alberto Rodriguez. West Palm Beach Judging Center
- [12] *Paphiopedilum* Calgary Ken 'Paramount's Ingrid Ostrander' AM/AOS (Double Deception x *Macabre*) 80 pts. Exhibitor: Paramount Orchids; photographer: Judith Higham. Western Canada Judging Center
- [13] *Dendrobium* Ochoa's Treasure 'Rosy's Curls' AM/AOS (Jairak Spin x *helix*) 81 pts. Exhibitor: Carlos Ochoa; photographer: Carmen Johnston. West Palm Beach Judging Center
- [14] *Vanda* William Bachschmidt AQ/AOS (Crownfox Keylime 'Hercules' x *tessellata* 'Crownfox Green' AM/AOS). Exhibitor: R.F. Orchids, Inc.; Photographer: Carmen Johnston. West Palm Beach Judging Center
- [15] *Vandachostylis* Ladda Gold 'Ibis' AM/AOS (*Vanda garayi* x *Rhynchostylis coelestis*) 83 pts. Exhibitor: Chris Houk; photographer: Alberto Rodriguez. West Palm Beach Judging Center
- [16] *Phragmipedium* Paul Eugene Conroy 'Alice' CCM/AOS (*warszewiczianum* x *longifolium*) 85 pts. Exhibitor: Uli Schmidt; photographer: Judith Higham. Western Canada Judging Center





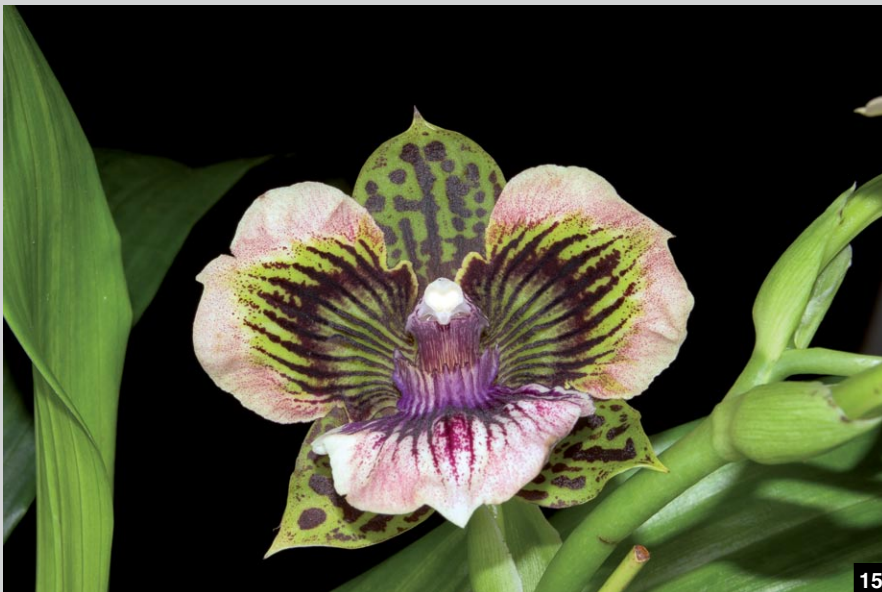
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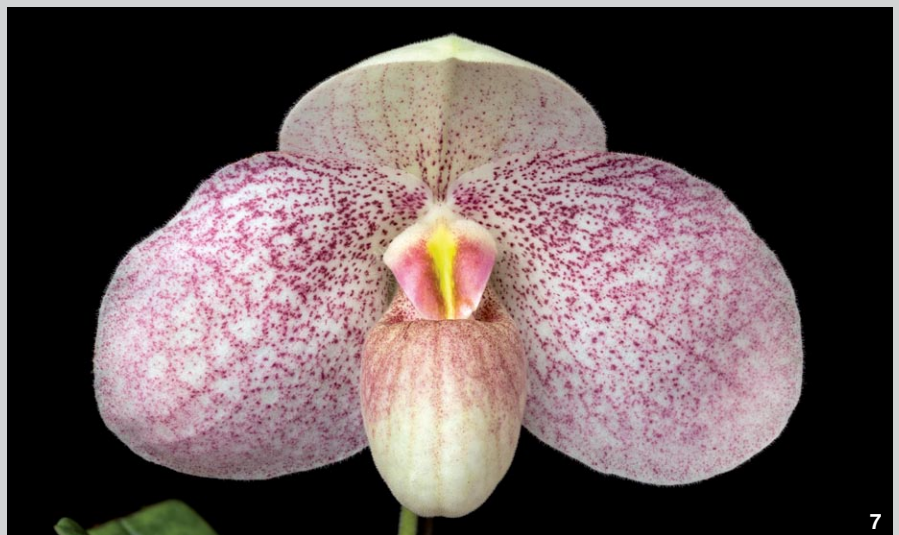
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- [1] *Phalaenopsis* Pylo's Sensation 'Jess' AM/AOS (Yaphon Sensational x Dragon Tree Eagle) 80 pts. Exhibitor: Gigi Louie; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [2] *Cattleya schilleriana* 'Crownfox' AM/AOS 81 pts. Exhibitor: R.F. Orchids, Inc.; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [3] *Cattleya schilleriana* 'Gigi' HCC/AOS 78 pts. Exhibitor: Gigi Louie; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [4] *Vandachostylis* Yen HKN Ng 'Pixie' AM/AOS (*Vanda lamellata* x *Vinita*) 81 pts. Exhibitor: Jim Longwell; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [5] *Cattleya violacea* 'Carola' AM/AOS 81 pts. Exhibitor: Armando Betancourt; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [6] *Cattleya* Remo Prada 'Tony Millet' AM/AOS (*Wilmoos* x *trianae*) 80 pts. Exhibitor: Tony Millet; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [7] *Emilythwaitesara* Patrece Rimmel 'John Deere' AM/AOS (*Prosrhyncholeya* SunCoast Citron x *Myrmecophila brysiانا*) 83 pts. Exhibitor: Jim Longwell; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [8] *Encyclia randii* 'Nico Xavier' AM/AOS 84 pts. Exhibitor: Juan Bofill; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [9] *Cattleya* Tripp Johnston 'Dark Night' AM/AOS (*Arthur Boldrini* x *aclandiae*) 84 pts. Exhibitor: Jim Longwell; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [10] *Phalaenopsis* Equalacea 'Pylo's Purple Peloric' HCC/AOS (*equestris* x *violacea*) 78 pts. Exhibitor: Jon Crate; photographer: Barney Garrison. Atlanta Judging Center
- [11] *Maxillaria* Memoria Ben Berliner 'Yellow Cape' AM/AOS (*variabilis* x *tenuifolia*) 84 pts. Exhibitor: Dorothy Rich; photographer: Tom Kuligowski. West Palm Beach Judging Center
- [12] *Maxillaria tenuifolia* 'Patty's Big Girl' CCE/AOS 92 pts. Exhibitor: Jim Keplinger; photographer: Jason R. Mills. Atlanta Judging Center
- [13] *Phragmipedium* Mini Grande 'Granfalloon' AM/AOS (*warszewiczii* x *pearcei*) 83 pts. Exhibitor: Carson Barnes; photographer: Barney Garrison. Atlanta Judging Center
- [14] *Paphiopedilum* Oberhausens Diamant 'Starvin' Marvin' AM/AOS (*primulinum* var. *primulinum* x *sanderianum*) 82 pts. Exhibitor: Ann Truesdale; photographer: Jason R. Mills. Atlanta Judging Center
- [15] *Galeopetalum* Starburst 'MBF Monster' AM/AOS (*Galeottia fimbriata* x *Zygopetalum* Jumpin Jack) 82 pts. Exhibitor: Marble Branch Farms; photographer: Jason R. Mills. Atlanta Judging Center



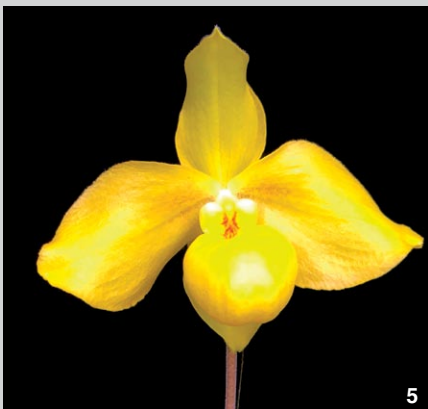


- [1] *Cymbidium* Fatal Beauty 'Jaybee' HCC/AOS (Wild Colonial Boy x *devonianum*) 77 pts. Exhibitor: Ed Dumaguin; photographer: Ramon de los Santos. California Sierra Nevada Judging Center
- [2] *Cymbidium* Pat Rowland 'Jaybee' HCC/AOS (Dorothy Rowe x Ruby Eyes) 77 pts. Exhibitor: Ed Dumaguin; photographer: Ramon de los Santos. California Sierra Nevada Judging Center
- [3] *Cymbidium* Phyllis Hebrard 'Jaybee' HCC/AOS (Red Sox x *devonianum*) 78 pts. Exhibitor: Ed Dumaguin; photographer: Ramon de los Santos. California Sierra Nevada Judging Center
- [4] *Paphiopedilum* Toni Semple 'Pinot Gris' HCC/AOS (*haynaldianum* x *lowii*) 78 pts. Exhibitor: Dave Sorokowsky; photographer: Ramon de los Santos. California Sierra Nevada Judging Center
- [5] *Paphiopedilum* Oriental Green 'Riesling' AM/AOS (Oriental Jewel x *sukhakulii*) 81 pts. Exhibitor: Dave Sorokowsky; photographer: Ramon de los Santos. California Sierra Nevada Judging Center
- [6] *Dendrobium* Micro Chip 'Lydia Clement' CCE/AOS (*normanbyense* x *aberrans*) 92 pts. Exhibitor: Ann Truesdale; photographer: Jason R. Mills. Atlanta Judging Center
- [7] *Dendrobium* Aussie's Chip 'The One' CCM/AOS (*aberrans* x *atrovioleaceum*) 83 pts. Exhibitor: Alexey Tretyakov; photographer: Judith Higham. Western Canada Judging Center
- [8] *Cattleya schilleriana* 'Kathleen III' AM/AOS 83 pts. Exhibitor: William Rogerson; photographer: Nile Dusdieker. Chicago Judging Center
- [9] Artistic Certificate; Exhibitor: Ogleshorpe Orchids; photographer: Jason R. Mills. Atlanta Orchid Society
- [10] *Phalaenopsis* Taiwan Red Cat 'Greer' JC/AOS (Taiwan Smith x Kun-Cheng). Exhibitor: Herb Windom; photographer: Jason R. Mills. Atlanta Judging Center
- [11] *Sarcochilus* Meadow Beauty 'MBF' AM/AOS (Cherie Snow x Sweetheart) 83 pts. Exhibitor: Marble Branch Farms; photographer: Jason R. Mills. Atlanta Judging Center
- [12] *Cattleya* Janice Evans 'Sweet Sixteen' AM/AOS (Claesiana x Prospector) 80 pts. Exhibitor: Waldor Orchids, Inc.; photographer: Maurice Marietti. Mid-Atlantic Judging Center
- [13] *Tolumnia* Sarah's Stunner 'Atomic Apricot' HCC/AOS (Lonesome Reef x Sundown Reef) 78 pts. Exhibitor: Sarah Patterson; photographer: James Curtis. Carolinas Judging Center
- [14] *Cymbidium* Dots Downunder 'New Horizon' HCC/AOS (Mount Vision x *devonianum*) 76 pts. Exhibitor: Ed Dumaguin; photographer: Ramon de los Santos. California Sierra Nevada Judging Center
- [15] *Vandachostylis* Blue Scentsation 'Memoria Tom Evans' AM/AOS (Thailand x Vanda Gordon Dillon) 83 pts. Exhibitor: Pam Kolb; photographer: Jason R. Mills. Atlanta Judging Center
- [16] *Sarcochilus* Kulnura Symphony 'Grass Valley' AM/AOS (Elegance x Bunyip) 80 pts. Exhibitor: Ted McClellan; photographer: Ramon de los Santos. California Sierra Nevada Judging Center





- [1] *Ansellia africana* 'Morrhight' CCM/AOS 82 pts. Exhibitor: Jeff Morris; photographer: Cynthia Unwin. Carolinas Judging Center
- [2] *Schunkeara* Big Shot 'Hilo Sparkle' AM/AOS (*Aliceara* Tahoma Glacier x *Miltoniopsis* Maui Titan) 81 pts. Exhibitor: Jerry and Ronnie Brandenburg; photographer: David Gould. Dallas Judging Center
- [3] *Paphiopedilum armeniacum* 'Orchid Court' CCM/AOS 84 pts. Exhibitor: Tennis Maynard; photographer: Richard Noel. Cincinnati Judging Center
- [4] *Paphiopedilum* Shin-Yi Madura 'Bets Ryan' AM/AOS (Hsinying Macasar x Macabre) 80 pts. Exhibitor: Steve Ryan; photographer: Richard Noel. Cincinnati Judging Center
- [5] *Phalaenopsis* Yaphon Gelacea 'Yaphon #7' AM/AOS (Yaphon Gelblitz x Chang Maw Jade) 80 pts. Exhibitor: Big Leaf Orchids; photographer: David Gould. Dallas Judging Center
- [6] *Paphiopedilum* Sander's Duck 'Gigantic' AM/AOS (Sander's Pride x *adductum*) 83 pts. Exhibitor: Orchid Inn, Ltd.; photographer: Richard Noel. Cincinnati Judging Center
- [7] *Paphiopedilum* Cam's Cloud 'Jeanie' HCC/AOS (*bellatulum* x *emersonii*) 75 pts. Exhibitor: Orchid Inn, Ltd.; photographer: Richard Noel. Cincinnati Judging Center
- [8] *Aerangis hildebrandtii* 'Gold Country' CCM/AOS 81 pts. Exhibitor: Charles and Jane High; photographer: Nile Dusdieker. Chicago Judging Center
- [9] *Cattleya schilleriana* 'Claire' HCC/AOS 78 pts. Exhibitor: William Rogerson; photographer: Nile Dusdieker. Chicago Judging Center
- [10] *Phragmipedium* Fliquet 'Morrhight' AM-CCM/AOS (Grande x Memoria Dick Clements) 85-85 pts. Exhibitor: Jeff Morris; photographer: Cynthia Unwin. Carolinas Judging Center
- [11] *Phragmipedium* Evening Blaze 'Gaby Spittler' AM/AOS (Waunakee Sunset x Twilight) 80 pts. Exhibitor: Stephen Helbling; photographer: Richard Noel. Cincinnati Judging Center
- [12] *Vanda* Tharab Beauty 'Addison Fiene' AM/AOS (Thong Chai x Sirilak) 81 pts. Exhibitor: Anthony Nuccio; photographer: Nile Dusdieker. Chicago Judging Center
- [13] *Paphiopedilum micranthum* 'Morrhight' CCE/AOS 92 pts. Exhibitor: Jeff Morris; photographer: Cynthia Unwin. Carolinas Judging Center
- [14] *Paphiopedilum rothschildianum* 'Brian's Choice' AM/AOS 84 pts. Exhibitor: Orchid Inn, Ltd.; photographer: Richard Noel. Cincinnati Judging Center
- [15] *Phalaenopsis* Zheng Min Anaconda 'Pylo' AM/AOS (Sunrise Red Pecker x Fusheng's Super Man) 84 pts. Exhibitor: Big Leaf Orchids; photographer: David Gould. Dallas Judging Center
- [16] *Phalaenopsis* Yu Pin Fireworks 'Kanina Sojo' CCM/AOS (Sogo Dove x World Class) 83 pts. Exhibitor: Dan Herring; photographer: Richard Noel. Cincinnati Judging Center





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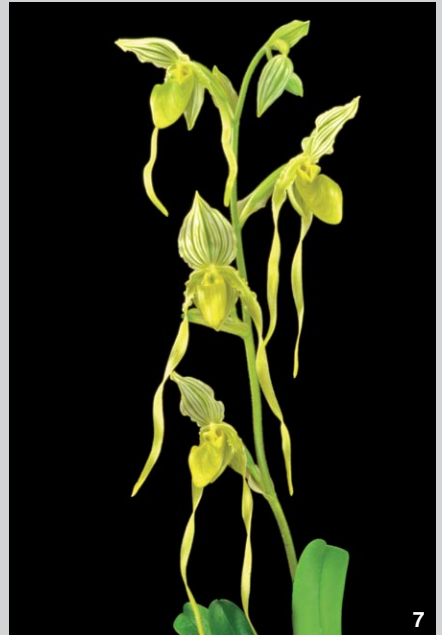
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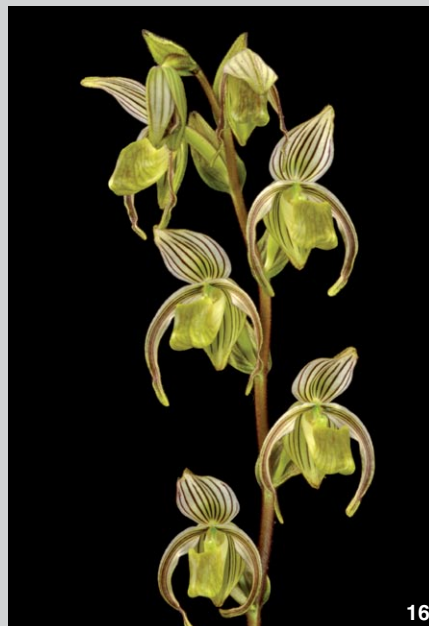
- [1] *Phalaenopsis* Zheng Min Badger 'Lady Stella' AM/AOS (Zheng Min Diffuse x *gigantea*) 80 pts. Exhibitor: Yife Tien; photographer: Brian Monk. Florida-Caribbean Judging Center
- [2] *Paphiopedilum rothschildianum* 'Deborah Henderson' FCC/AOS 90 pts. Exhibitor: James Arnold; photographer: Walter Wager. Florida North-Central Judging Center
- [3] *Papilionanda* Ben Fragrance 'YourEye' AM/AOS (Vanda Memoria Thianchai x Mimi Palmer) 80 pts. Exhibitor: Juraj Kojs; photographer: Brian Monk. Florida-Caribbean Judging Center
- [4] *Chiloschista lunifera* (Alba) 'Sweet Holiday' JC/AOS. Exhibitor: Elaine Gates; photographer: Brian Monk. Florida-Caribbean Judging Center
- [5] *Paphiopedilum* Franz Glanz 'Springwater' HCC/AOS (*armeniaceum* x *emersonii*) 78 pts. Exhibitor: Springwater Orchids and Thanh Nguyen; photographer: Wes Newton. Florida North-Central Judging Center
- [6] *Vandachostylis* Ben Mianmanus 'Dr. Libusa Svitekova' AM/AOS (Evergreen Magic x *Vanda tessellata*) 81 pts. Exhibitor: Juraj Kojs; photographer: Brian Monk. Florida-Caribbean Judging Center
- [7] *Papilionanda* Pohchang 'Marion Golen' HCC/AOS (*Vanda* Lucknow x Mimi Palmer) 76 pts. Exhibitor: Juraj Kojs; photographer: Brian Monk. Florida-Caribbean Judging Center
- [8] *Paraphalaenopsis laycockii* 'Fajen's Orchids' HCC/AOS 79 pts. Exhibitor: Fajen's Orchids; photographer: Kay Clark. Florida North-Central Judging Center
- [9] *Paphiopedilum* Hsinying Majakun 'Winter Haven' HCC/AOS (Janet Kunkle x *Maudiae*) 79 pts. Exhibitor: Keith and Dina Emig - Winter Haven Orchid Nursery; photographer: Kay Clark. Florida North-Central Judging Center
- [10] *Encyclia* Nursery Rhyme 'Odom's Orchids Midnight' AM/AOS (*Atronicum* x *cordigera*) 84 pts. Exhibitor: Odom's Orchids; photographer: Wes Newton. Florida North-Central Judging Center
- [11] *Paphiopedilum* Raingreen's Gem 'Springwater' AM/AOS (Raingreen's Honey x *concolor*) 83 pts. Exhibitor: Springwater Orchids and Thanh Nguyen; photographer: Wes Newton. Florida North-Central Judging Center
- [12] *Paphiopedilum rothschildianum* 'Vivian Arnold' FCC/AOS 91 pts. Exhibitor: James Arnold; photographer: Walt Wager. Florida North-Central Judging Center
- [13] *Conchidium summerhayesianum* 'Whisper Sweet Child of Mine' CBR/AOS. Exhibitor: Laura and Wes Newton; photographer: Kay Clark. Florida North-Central Judging Center
- [14] *Cattleya violacea* (Flamea) 'Veronica Romero' HCC/AOS 78 pts. Exhibitor: Plantio la Orquidea; photographer: Walt Wager. Florida North-Central Judging Center
- [15] *Catasetum tenebrosum* 'Jim' CCM/AOS 85 pts. Exhibitor: Bill Thoms and Doris Dukes; photographer: Kay Clark. Florida North-Central Judging Center





- [1] *Vanda* M. V. Tannins 'Denique' HCC/AOS (*lamellata* x *Memoria* Thianchai) 77 pts. Exhibitor: Stuart Henderson; photographer: Wes Newton. Florida North-Central Judging Center
- [2] *Lycaste* Dainty 'Windswept's Rosy Hue' AM/AOS (*brevispatha* x *campbellii*) 81 pts. Exhibitor: Windswept in Time Orchids; photographer: Ed Cott. Great Lakes Judging Center
- [3] *Phragmipedium* Allison Strohm 'Memoriam Dinah Huntzinger' AM/AOS (*kovachii* x *Living Fire*) 85 pts. Exhibitor: Robert Lum-King; photographer: Ed Cott. Great Lakes Judging Center
- [4] *Dendrobium* *faciferum* 'Springwater' AM/AOS 81 pts. Exhibitor: Springwater Orchids and Thanh Nguyen; photographer: Wes Newton. Florida North-Central Judging Center
- [5] *Cattleya* *aclandiae* 'Springwater' HCC/AOS 79 pts. Exhibitor: Springwater Orchids and Thanh Nguyen; photographer: Wes Newton. Florida North-Central Judging Center
- [6] *Paphiopedilum* Cloud's Abducted Mockingbird 'Red Glory' HCC/AOS (*moqueteanum* x *adductum*) 76 pts. Exhibitor: Orchid Inn, Ltd.; photographer: Ed Cott. Great Lakes Judging Center
- [7] *Cypripedium* Sabine 'Orchid Court' AM/AOS (*fasciolatum* x *macranthos*) 83 pts. Exhibitor: Tennis Maynard; photographer: Ed Cott. Great Lakes Judging Center
- [8] *Paphiopedilum* Prince Edward of York 'Golden Prince' AM/AOS (*rothschildianum* x *sanderianum*) 80 pts. Exhibitor: Sandra Dixon; photographer: Greg Filter. Great Lakes Judging Center
- [9] *Papilionanda* Magic Fragrance 'Interlaken' AM/AOS (*Vanda* Viraphandhu Kenny x Batram) 81 pts. Exhibitor: Ed Gilliland; photographer: Nick Nickerson. Florida North-Central Judging Center
- [10] *Cattleya* *violacea* (Flamea) 'Springwater Fancy' HCC/AOS 76 pts. Exhibitor: Springwater Orchids and Thanh Nguyen; photographer: Nick Nickerson. Florida North-Central Judging Center
- [11] *Paphiopedilum* Shun-Fa Golden 'Wide Wings' AM/AOS (*hangianum* x *mali-poense*) 86 pts. Exhibitor: Orchid Inn, Ltd.; photographer: Ed Cott. Great Lakes Judging Center
- [12] *Oncidium* *boothianum* 'Windswept's Cascade' CHM/AOS 86 pts. Exhibitor: Windswept in Time Orchids; photographer: Ed Cott. Great Lakes Judging Center
- [13] *Cattleya* Lacey Michelle Matherne 'Big Al' AM/AOS (*aclandiae* x *tigrina*) 81 pts. Exhibitor: Allen Valentine; photographer: Lorna Mazza. Florida North-Central Judging Center
- [14] *Phalaenopsis* Tying Shin Fly Eagle 'Odom's Orchids' HCC/AOS (*tetraspis* x *Dragon Tree Eagle*) 77 pts. Exhibitor: Odom's Orchids, Inc.; photographer: Wes Newton. Florida North-Central Judging Center
- [15] *Paphiopedilum* *philippinense* 'Seven Samurai' AM/AOS 83 pts. Exhibitor: Orchid Inn, Inc.; photographer: Ed Cott. Great Lakes Judging Center
- [16] *Cattleya* *schilleriana* 'Marlow Orchids' AM/AOS 82 pts. Exhibitor: Marlow Orchids; photographer: Ed Cott. Great Lakes Judging Center





- [1] *Tolumnia* Walnut Valley 'M and B Strawberry' AM/AOS (Irene Gleason x Maliwan) 84 pts. Exhibitor: Max Thompson and Bryon Rinke; photographer: Bryon Rinke. Great Plains Judging Center
- [2] *Angraecum* *viguieri* 'Reyna's Orange-aecum' AM/AOS 81 pts. Exhibitor: Sarah Waddoups; photographer: Bryon Rinke. Great Plains Judging Center
- [3] *Cattleya* *schilleriana* 'Gabriel Amaru' AM/AOS 87 pts. Exhibitor: Orchid Eros; photographer: Glen Barfield. Hawaii Judging Center
- [4] *Paphiopedilum* Sunlight Anita 'Mid-Michigan' AM/AOS (Lady Rothschild x *anitum*) 82 pts. Exhibitor: Jack Shumaker; photographer: Greg Filter. Great Lakes Judging Center
- [5] *Paphiopedilum* Hsinying Anita 'Slipper Zone Tall and Dark' AM/AOS (Lady Isabel x *anitum*) 82 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging Center
- [6] *Laelia* *anceps* 'Mirtha Isabel' FCC/AOS 91 pts. Exhibitor: Orchid Eros; photographer: Glen Barfield. Hawaii Judging Center
- [7] *Paphiopedilum* *philippinense* f. *albo-flavum* 'Slipper Zone Sterling' AM/AOS 81 pts. Exhibitor: Lehua Orchids; photographer: Glen Barfield. Hawaii Judging Center
- [8] *Cattleya* *violacea* (Semi-Alba Flamea) 'Sebastian Ferrell' AM/AOS 84 pts. Exhibitor: Orchid Eros; photographer: Glen Barfield. Hawaii Judging Center
- [9] *Paphiopedilum* Shin-Yi Surprise 'Hawaiian Peloric' AM-AD/AOS (Jerry Spence x *rothschildianum*) 83 pts. Exhibitor: Hilo Orchid Farm; photographer: Glen Barfield. Hawaii Judging Center
- [10] *Acianthera* *glumacea* 'Bryon' CCE/AOS 93 pts. Exhibitor: Bryon K. Rinke; photographer: Bryon Rinke. Great Plains Judging Center
- [11] *Tolumnia* *calochila* 'Bryon' AM/AOS 82 pts. Exhibitor: Bryon K. Rinke; photographer: Bryon Rinke. Great Plains Judging Center
- [12] *Cattleya* *maxima* f. *alba* 'Memoria Ellen Oliveros' AM/AOS 86 pts. Exhibitor: Orchid Eros; photographer: Glen Barfield. Hawaii Judging Center
- [13] *Paphiopedilum* *rothschildianum* 'Night Hawk' AM/AOS 85 pts. Exhibitor: Hilo Orchid Farm; photographer: Glen Barfield. Hawaii Judging Center
- [14] *Cattleya* *purpurata* (Delicata) 'Shogun's Grace' HCC/AOS 79 pts. Exhibitor: Shogun Hawaii- Matthias Seelis; photographer: Glen Barfield. Hawaii Judging Center
- [15] *Cattleya* *nobilior* 'Orchid Eros' AM/AOS 82 pts. Exhibitor: Orchid Eros; photographer: Glen Barfield. Hawaii Judging Center
- [16] *Paphiopedilum* *randsii* 'SY#1' HCC/AOS 77 pts. Exhibitor: Hilo Orchid Farm; photographer: Glen Barfield. Hawaii Judging Center

LINDLEYANA

Cynorkis × *ranaivosonii*

A New Natural Hybrid in *Cynorkis* from Madagascar

BY JOHAN HERMANS AND LANDY RAJAOVELONA/PHOTOGRAPHS BY JOHAN HERMANS



SUMMARY *Cynorkis ×ranaivosonii* from the highlands of Madagascar is described for the first time as a natural hybrid between *Cynorkis speciosa* and *Cynorkis uniflora* and it is compared with the parents.

INTRODUCTION The genus *Cynorkis* Thouars (Orchidaceae: Orchidoideae) currently comprises around 200 species, subspecies and varieties, 183 of which are endemic to Madagascar and the surrounding islands (Mascarenes, Comoros), while fewer than 20 species are restricted to mainland Africa. New species are still discovered regularly (Hermans and Cribb 2014, Hermans et al. 2017) and recent observations in the field have also identified several natural hybrids, including the large and attractive *Cyn. ×ranaivosonii* described below.

***Cynorkis ×ranaivosonii* Hermans hybrid nov.** Type: Madagascar, Fianarantsoa Province between Ivato and Ambatofinandrahana, ca. 1,500 m, Jan. 1997, Hermans 8290 (holotype K!). Erect terrestrial plant up to 45 cm high including the inflorescence. Tubers 1 to 3, elongate, ovoid, up to 19–45 × 7–12 mm, clustered, surface velvety; roots slightly hairy, fleshy, wiry, emerging from the base of the new growth, ca. 1.5 mm in diam. Stem up to 5 cm long, 4–8 mm in diam., pale green, enveloped by an acuminate sheath, 30–43 × 5–8 mm. Leaves 1 or rarely 2, erect to arching, narrowly lanceolate, acuminate, 9.5–19 × 1–2.5 cm, conduplicate, dorsally keeled, acuminate, somewhat fleshy, a little shiny on top, pale green often with broken longitudinal brownish-red streaks. Inflorescence stout, erect, emerging from the leaf axil, up to 40 cm long, 4–8 mm in diam., green, longitudinally marked with red. Peduncle with a very long leaflike lanceolate–subulate sheath in the lower half, 65–82 mm long, 8–12 mm wide, with a second and rarely a third peduncle sheath farther up, of the same shape but a little shorter, 56–74 mm long, 6–10 mm wide, green, longitudinally marked with brownish-red. Rachis tightly racemose, at the apex, with 5 to 10 flowers. Floral bracts enveloping the base of the pedicellate ovary, lanceolate–infundibulate, 21–35 × 4–9 mm, acuminate, caudate at the tip, green, longitudinally more or less marked with red. Flowers large for the genus, overall up to 4.5 × 6.5 cm without the spur, with pale green sepals more or less marked with brownish-red, green petals, and lavender to purple-red lip, with dark red markings in the throat, more or less spreading onto the disk, a dark green to brown spur, green column and reddish-



2



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[1] *Cynorkis ×ranaivosonii*

[2] The habitat of *Cynorkis ×ranaivosonii* and its parents.

[3] Habitat of *Cynorkis speciosa* (S), *Cynorkis uniflora* (U) and the natural hybrid *Cynorkis ×ranaivosonii* (xR).

brown pollinarium. *Pedice*l and *ovary* fusiform, finely hirsute becoming much denser toward the base of the flower, dark green to brownish-green. *Dorsal sepal* strongly concave, elliptic-oblong, subacute, 18–20 × 4–4.9 mm, together with the petals, forming a hood over the column, glandular-hirsute on the exterior. *Lateral sepals* spreading, a little concave, ovate-lanceolate, 20–21 × 8–9.5 mm, glandular on the exterior. *Petals* subfalcate, linear-oblong, obtuse, 18–20 × 4–4.8 mm, glabrous. *Lip* overall 32–36 × 33–35 mm, base elongated and connate to the base of the column, first narrowly angular then expanded and 4-lobed; with two slightly large oblong, spreading lateral lobes, the midlobe deeply divided, the divisions subrectangular-obtuse, the margins sinuate to undulate; *spur* 35–38 × 3.5–3.8 mm, at first shortly thickened at the lip base then pendent, tubular to slightly thickened towards the tip, obtuse, initially enveloped by the floral bracts but becoming free on opening. *Column* in a horizontal plane 12–14 mm long, 8–10 mm wide, with two curved rostellum arms for a third its length, midlobe forming a nose-like protrusion emarginate at the tip, staminodes smooth, elongate, hidden below the rostellum; pollinia 2, composed of a small disc-like viscidium and a long needle-like stipe caudicle up to 11 mm long running in a groove along the column, the pollen masses enclosed in a pair of relatively small anther loculi in the base of the hood of the column.

RECOGNITION *Cynorkis x ranaivosonii* is a natural hybrid between *Cyn. speciosa* Ridl. (Ridley 1886:122) and *Cyn. uniflora* Lindl. (Lindley 1835:331), having intermediate characteristics between the two species both in habit and in floral features (see comparison Table 1). It is recognized by the single (rarely two) narrowly lanceolate leaf, the stout inflorescence partly covered by two prominent, longly infundibulate sheaths with an apically racemose rachis of five to 10 large, brightly colored flowers. The sepals glandular on the exterior, the lip prominent and almost equally four-lobed with the lobes subrectangular-obtuse, the margins sinuate to undulate and the spur 3.5–4 cm parallel with the ovary.

DISTRIBUTION Madagascar. Endemic to Antananarivo and Fianarantsoa Provinces.

SPECIMENS EXAMINED Madagascar. Fianarantsoa Province, between Ivato and Ambatofinandrahana, c. 1,500 m, Jan. 1997 (K!); Tampoketse d'Ankazobe, Feb. 1972, *Bosser* 21133 (P00102187!).



HABITAT High plateau grassland, rocky outcrops, at the base of granite inselberg, in water seepage among rock, wet grassland; 1,200–1,500 m.

FLOWERING TIME January to February.

CONSERVATION STATUS This is a summary of the full International Union for Conservation of Nature (IUCN) Red List assessment, which will be completed and submitted for review and publication by the IUCN once the name is validly published and therefore available for assessment. The assessment has been compiled based on current knowledge of these taxa, by the second author, who is an IUCN Red List assessor, using the IUCN Red List Categories and Criteria.

Cynorkis xranavosonii is endemic to Madagascar, distributed in Analamanga and Amoron'Imani regions, Antananarivo and Fianarantsoa Provinces. The value of the area of occupancy (AOO) is estimated to be less than 10 km² and there are two threat locations falling in the threshold of the threatened category. It is also located outside Protected Areas. In addition, the Extent of Occurrence (EOO), the AOO and the habitat quality of this hybrid are suffering by continuing decline due to frequent fires. It is therefore assessed as Endangered. Further research is recommended particularly on population size of this natural hybrid.

ETYMOLOGY Named for Nirina (Niry) Ranaivoson, one of the most outstanding guides to Madagascar and its flora and fauna; he recently discovered extensive colonies of the new natural hybrid in central Madagascar.

NOTES The two parents of this natural hybrid are endemic to Madagascar, both being relatively widespread in the higher-elevation central region of the island. *Cynorkis speciosa* is common and variable; it is found in grassland, rocky outcrops and damp to marshy areas. There has been considerable confusion over its nomenclature and most of the past literature has mistaken the species for *Cynorkis angustipetala* Ridl. (Ridley 1885:514); its complex taxonomy is explained by Hermans and Cribb (2014:13–15). Ten variants have been described of *Cyn. speciosa*, mainly by Schlechter (1924:40–62) but these are now all considered part of one variable species. The new natural hybrid was compared with the description and the herbarium material of all these variants but none matched its distinct characteristics.

Cynorkis uniflora is generally restricted to rocky habitats and is most



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commonly found in a thin layer of humus overlying granite, generally near an area of water seepage. Although flower size, shape, color and number can be a little variable it is florally more uniform than *Cyn. speciosa*. Natural hybrids in the genus have been recorded a number of times and two include *Cyn. speciosa* as a possible parent: *Cynorkis xsyringescens* Hermans & P.J.Cribb (2017:21) (*speciosa* × *fastigiata* Thouars (1822:t.3) and a hybrid of *Cynorkis flexuosa* Lindl. (Lindley 1835:331) and *Cyn. speciosa* (Hermans et al., in press). A natural hybrid of *Cyn. speciosa* and *Cyn. uniflora* has been mentioned in recent literature by Bosser and Lecoufle (2011:266 as *angustipetala* × *uniflora*) and by Hervouet (2018:312), there are also photographic records from Hervouet and Pronk (pers. comm.).

During a recent field trip to the Ambatofinandrahana area of central Madagascar an extensive colony was found of this eye-catching hybrid. Both parents were growing in abundance in water seepages at the base of a granite inselberg and surrounding grassland, together with a great number of plants that were obviously intermediate between the two. This discovery enabled us to measure and compare the plants in the colony and also led us to examine herbarium material of other and historical collections and thereby make a comparison and formal description of the hybrid. The plain leaf of *Cyn. speciosa* is broader than that of *Cyn. uniflora*, which is marked with broken longitudinal lines, as are the flower



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[4–6] Different forms and colors of *Cynorkis speciosa*.

[7] *Cynorkis uniflora* growing in a thin layer of soil on granite rock.

[8–9] *Cynorkis uniflora* growing in other habitats.

[10–12] Additional examples of the natural hybrid *Cynorkis xranavosonii*.

TABLE 1. Comparison of *Cynorkis speciosa*, *Cynorkis uniflora* and *Cynorkis xranavosonii* based on field observations and 30 measured herbarium records.

	<i>Cynorkis speciosa</i>	<i>Cynorkis uniflora</i>	<i>Cynorkis xranavosonii</i>
Plant	20–45 cm tall	10–20 cm tall	15–40 cm tall
Leaves	1 to 2, lanceolate, 10–25 × 1.2–2.5 cm, not marked	1 rarely 2, ligulate, 8–19 × 1–2 cm, with brown lines	1 rarely 2, narrowly lanceolate, 9.5–19 × 1–2.5 cm, more or less marked brown
Inflorescence	5 to 30 flowers, loosely racemose	1 to 2, rarely up to 5 flowers	1 to 10 flowers densely racemose at the apex
Dorsal sepal	8–15 × 4–5 mm	19–28 × 4–7 mm	18–21 × 6–8 mm
Lateral sepals	9–12 × 4–5 mm	23–28 × 6–8 mm	20–21 × 8–9.5 mm
Petals	8–12 × 2–4 mm	19–25 × 3.5–4 mm	18–20 × 4–4.8 mm
Lip	15–30 × 11–21 mm	32–39 × 28–32 mm	32 – 36 × 33–35 mm
Spur	20–29 × 1–2.2 mm, pendent, narrowing towards the tip	29–40 mm × 3–4.5 mm, more or less thickened towards the tip	35–38 × 3.5–3.8 mm, straight but sometimes thickened at the tip
Column	5–7 × 3–5 mm	12–16 × 6–7 mm	12–14 mm × 8–10 mm
Distribution	Antananarivo, Fianarantsoa and Toamasina Provinces	Antananarivo and Fianarantsoa Provinces	Antananarivo and Fianarantsoa Provinces
Elevation	730–2,000 m	1,200–1,900 m	1,200–1,500 m
Flowering	November–April	October–May	January–February

stem and bracts; in the hybrid the leaf is intermediate in size with markings on the majority of plants. Notwithstanding its name, *Cyn. uniflora* generally has at least two flowers and rarely up to five, on a short stem with one or two long funnel-shaped bracts, whereas *Cyn. speciosa* almost invariably has more than five flowers and can carry up to 30 in a loose raceme; the hybrid bears between five and 10 flowers in a tight raceme at the end of the inflorescence, it also has the characteristic bracts of *Cyn. uniflora*. The flowers of *Cyn. uniflora* are quite large with a four-lobed angular lip ca. 3.5 × 3 cm, while *Cyn. speciosa* has smaller flowers with a four-lobed rounded lip ca. 2.5 × 2 cm; in the hybrid the lip is slightly smaller than that of *Cyn. uniflora* but has more of the shape of that of *Cyn. speciosa*. The spur of *Cyn. uniflora* is characteristically thickened in the lower half but thin and narrowing in *Cyn. speciosa*; the hybrid generally has a thin spur, but in some flowers there was some thickening toward the tip. The color of the flowers is also intermediate, with that of the dorsal sepal and petals having the characteristic reddish-brown bands and spots of *Cyn. uniflora* while the purple lip is found in both parents.

The pollination of *Cyn. uniflora* was studied by Nilsson et al. (1992), who found that nectar in the spur was accessible to endemic hawk moths of the genera *Nephele* and *Hippotion* with medium-length tongues and different long-

tongued, nectar-thieving hawk moths; most visits took place just after nightfall. The orchid has very long caudicles and they were carried attached to the eyes of the hawk moths. The pollinator of *Cyn. speciosa* is not recorded but it has a similar, although smaller, column structure with the caudicles about half the length; it is likely that one of the short-tongued hawk moths effected cross-pollination.

Acknowledgments

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12–14—Baton Rouge Orchid Society's Show & Sale, Burden Museum and Gardens, 4560 Essen Lane, Baton Rouge, LA; Contact: Wesley Mathews, 225–321–1912; wdmattthew@hotmail.com

16–21—Sociedad de Orquideología de Guadalajara de Buga – ORQUIBUGA, Coliseo de Ferias Camilo J. Cabal, carrera 8 No. 22–86, Guadalajara de Buga, Valle del Cauca, Colombia; Contact: Jorge Humberto Ramirez, +57–3155025274; orquibuga@hotmail.com

19–20—International Phalaenopsis Alliance “The 25th Phalaenopsis Symposium,” Highland Manor, 604 E Main Street, Apopka, FL; Contact: Mary Beth Clarke, 610–574–2777; orchidgma5837@gmail.com

20–21—*San Francisco Orchid Society Show and Sale “Orchids in the Park,” San Francisco County Fair Building “Hall of Flowers,” 1199 9th Avenue, San Francisco, CA; Contacts: Faye Rabino, faye@orchidsanfrancisco.org; Angelique Fry, newslettereditor@orchidsanfrancisco.org

27—Central Iowa Orchid Society Speaker's Day, Johnston Lions Club Community Center, 6501 Merle Hay Rd., Johnston, IA; Contact: Carson E. Whitlow, 515–993–4841; slipperguy@aol.com

28—*Kono Daifukuji Orchid Club “Wonderland of Orchids,” Daifukuji Soto Mission, 79–7241 Mamalahoa Hwy., Kealahou, HI; Contact: Carol Zakahi, 808–987–2625; carolazakahi@aol.com

AUGUST

2–3—Houston Orchid Society Workshop and Sale, First Christian Church, 1601 Sunset Blvd., Houston, TX; Contact: Derek Lowenstein, 631–459–7327; dereklowenstein@gmail.com

6–11—Sociedad Colombiana de Orquideología “Exposición Orquideas, Flores & Artesanias,” Jardín Botánico – Carrera 52 #73–298, Medellín – Antioquia, Colombia; Contact: Javier Rios, (57) 313 660 0946; secretariaexposicion@sco.org.co

7–11—Virtual Orchid Society “2nd Expo Orchids Shopper,” Plaza Centro Mall, Ave. Rafael Cordero #200, Cagay, PR; Contact: Reinaldo Rodriguez, 787–565–5287; vladimir4875@hotmail.com

30–September 1—Asociacion Jueces de Orquideas de Costa Rica “Exposición Nacional de Orquideas AJOCORI 2019,” Ave 16, calles 0 y 1, 6° piso parqueo, Hospital Clinica Biblica, San José, Costa Rica; Contact: Ana Cristina Rodriguez León, (506)8393–3736/(506)8980–3449;

orquideaslinda@hotmail.com

SEPTEMBER

14–15—Galveston Bay Orchid Society/SWROGA Show “Symphony of Orchids,” Hilton Houston NASA Clear Lake, 3000 East NASA Parkway, Houston, TX; Contact: Joyce McMillan, 832–279–0211; joycemcmillan@att.net

14–15—*South Bay Orchid Society Show & Sale, South Coast Botanic Garden, 26300 Crenshaw Blvd., Palos Verdes Peninsula, CA; Contact: Arthur Hazboun, 310–995–1592; webmaster@southbayorchidsociety.com

14–15—Wisconsin Orchid Society Show “Fall In Love With Orchids,” Mitchell Park Horticultural Conservatory, 524 S. Layton Blvd., Milwaukee, WI; Contacts: Richard Odders, 262–632–3008; odders2445@gmail.com/Bil Nelson, 414–467–6642; qorchids@att.net

20–22—Alabama Orchid Society 35th Show & Sale, Birmingham Botanical Gardens, 2612 Lane Park Road, Birmingham, AL; Cotact: Dr. Beverly A. Von Der Pool, 205–821–0689; bvonderpool@yahoo.com

21–22—Ridge Orchid Society Show “Orchids Gone Wild,” W. H. Stuart Center – UF IFAS Extension Polk County, 1702 US Highway 17–98 South, Bartow, FL; Contact: Glen Gary, 863–602–0778; glengary54@yahoo.com

28–29—*Fascination of Orchids International Show & Sale, South Coast Plaza Village, 1621 Sunflower Ave., Santa Ana, CA; Contact: Theo Johnson, 714–979–5887; oorchidshow@gmail.com

28–29—Kentucky Orchid Society Show, St. Mathews Episcopal Church, 330N Hubbards Lane, Louisville, KY; Contacts: Richard Humke, 502–299–1231; richardhumke@gmail.com/Catherine Luckett, 502–893–9282; catluckett@gmail.com

28–29—Smoky Mountain Orchid Society Show, Stanley's Greenhouse, 3029 Davenport Road, Knoxville, TN; Contacts: Mary Ann Lang, 865–675–3695; maryannlang@charter.net/Casey Littell, 865–297–8202; 1littellgirl@gmail.com

28–29—Tampa Orchid Club Expo, USF Botanical Gardens, 12210 USF Pine Drive, Tampa, FL; Contact: Cheryl Crilly, 813–244–7564; cents4me@aol.com

OCTOBER

2–13—Central California Orchid Society “The Big Fresno Fair Orchid Show,” Fresno Fairgrounds, 1121 S Chance Avenue, Fresno, CA; Contact: Gordon Wolf, 209–999–0181; gwsangca@yahoo.com

3–6—Maui Orchid Society – Maui Fair “Orchidland Show,” War Memorial Gymnasium, 700 Halia Nakoia St., Wailuku,

HI; Contact: Bert Akitake, 808–250–1585; jakitake@hotmail.com

5—*Deep Cut Orchid Society Annual Orchid Auction, Monmouth Park Racetrack, 175 Oceanport Avenue, Oceanport, NJ; Contact: Joan Messander, 732–787–4660; jmesand1@verizon.net

5–6—South Florida Orchid Society Show “Orchid Treasures,” University of Miami Watsco Center, 1245 Dauer Dr., Coral Gables, FL; Contact: Daniel Christensen, 954–252–8116; damorchid@aol.com

11–13—*Honolulu Orchid Society Show “Celebrating 80 Years of Orchids,” Washington Middle School Cafeteria, 1633 S. King St., Honolulu, HI; Contact: Katherine Leonard, 808–542–8672; kateleonard@hawaiiantel.net

12–13—Gainesville Orchid Society Show “Orchids in the Garden,” Kanapaha Botanical Gardens, 4700 SW 58th Dr., Gainesville, FL; Contact: Joan MacLeod, 352–665–2640; neilmacleod@bellsouth.net

16–20—Fall Members Meeting and East Everglades Orchid Society Show & Sale, members meeting begins October 16, the show is being held October 18 – 20, 2019 at R.F. Orchids, 28100 SW 182 Ave., Homestead, FL; Contact: Kimberly Belisle, 786–367–7177; kim@orchidsees.com

18–20—Club Peruano de Orquideas XIII Exposicion de Orquideas “Peru y sus orquideas,” Parque Reducto de Miraflores, Calle Ramon Ribeyro 490, Miraflores, Lima, Peru; Contact: Giancarlo Bonicelli, 0051–997386077; gbonicelliv@boniplant.com

18–20—The Huntington Library, Art Collections and Botanical Gardens International Orchid Show, The Huntington Library, Art Collections, and Botanical Gardens, 1151 Oxford Road, San Marino, CA; Contact: Brandon Tam, 626–405–3568; btam@huntington.org

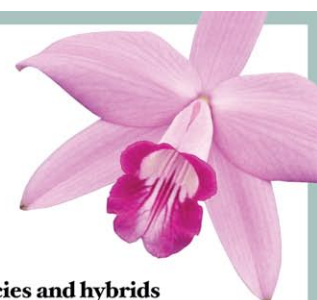
25–27—Asociacion Alajuense de Orquideología “Exposicion Nacional de Orquideas de Alajuela 2019,” Escuela Migel Obregón Lizano, Alajuela, Costa Rica; Contact: Jorge Giovanni Salazar, (508)8820–5608; suiza040@yahoo.com

25–27—Delray Beach Orchid Society Show “Orchids on the Square,” Old School Square Fieldhouse, 51 N. Swinton Ave., Delray Beach, FL; Contact: Michele Owens, 954–695–9889; molovesorchids@gmail.com

26–27—Eastern Iowa Orchid Show & Sale, Cedar Rapids Elks Lodge #251, 801 33rd Ave. SW, Cedar Rapids, IA; Contact: Andy Coghill–Behrends, 319–512–8076; mistercoghill@hotmail.com

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Mini Thermometer–Hygrometer



I FOUND THIS little gem at my favorite hydroponics store in Tucson, Arizona, while I was there for the orchid show. The Mond Mini Greenhouse Thermo-Hydrometer (under \$15) reads temperature and humidity as well as min–max

temperature and humidity in Celsius and Fahrenheit. It is exceptionally easy to use. All you have to do is turn it on and switch to C or F. It uses an L1154H battery, which is included. You can mount it, use the adjustable hanger–stand or just place it next to your plants.

I bought several and have them placed in different areas of my greenhouse for plants I need to follow more closely. I have recently purchased some plants that are more temperamental with respect to temperature and humidity and this thermo-hygrometer works perfectly. Note, however, that they are NOT waterproof so you need to move or cover them when watering. Also note that, although changes in temperature register quickly, humidity changes register over the course of a few minutes. — *Cindy Jepsen (email: cindyjepsen@cox.net)*

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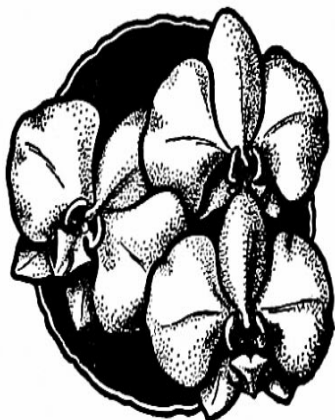
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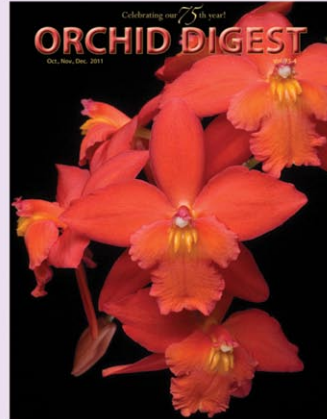


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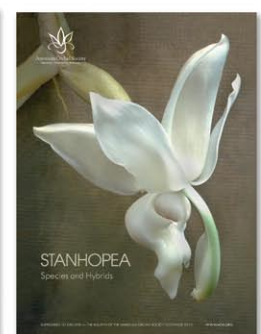
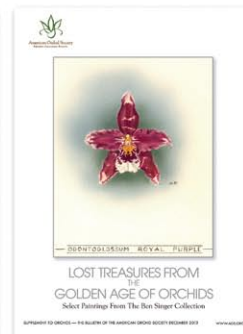
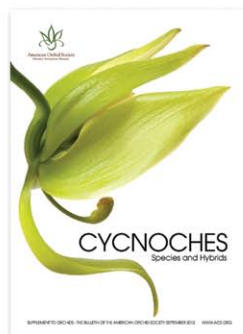
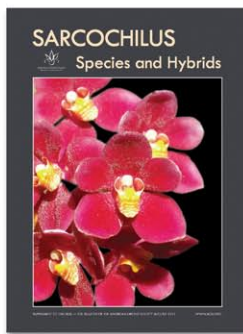
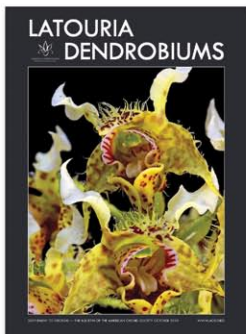
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Articles as well as inquiries regarding suitability of proposed articles should be sent to jean.ikeson@gmail.com or the editor at rmchatton@aos.org.

BOOK REVIEW

The American Orchid Society Guide to Orchids and their Culture. Mary Gerritsen and Ron Parsons. April 2019. ISBN 978-1-908787-29-3. Softcover, 6 inches × 8.5 inches (15.2 cm × 21.6 cm), 246 pages, over 450 color pictures. Redfern Natural History Productions. Replika Press Pvt Ltd. Available through the American Orchid Society for \$24.95 (members receive a 10% discount) plus shipping at the AOS web store (<https://secure.aos.org/store/>) or call the AOS at 305-740-2010.

ALTHOUGH THIS BOOK was intended to appeal to a broad range of growers from beginner to advanced, there is much to be learned by any grower at any level! A good overview of basic culture is covered in detail. Discussions of temperature, light, water, humidity, air movement, and fertilization are covered in the first 36 pages. Each of these topics contains multiple pearls of wisdom. Two tables in these sections were helpful. One covers the monthly blooming times for many common genera, while the other helps explain different temperature designations from hot-warm, to intermediate, to cool to cold.

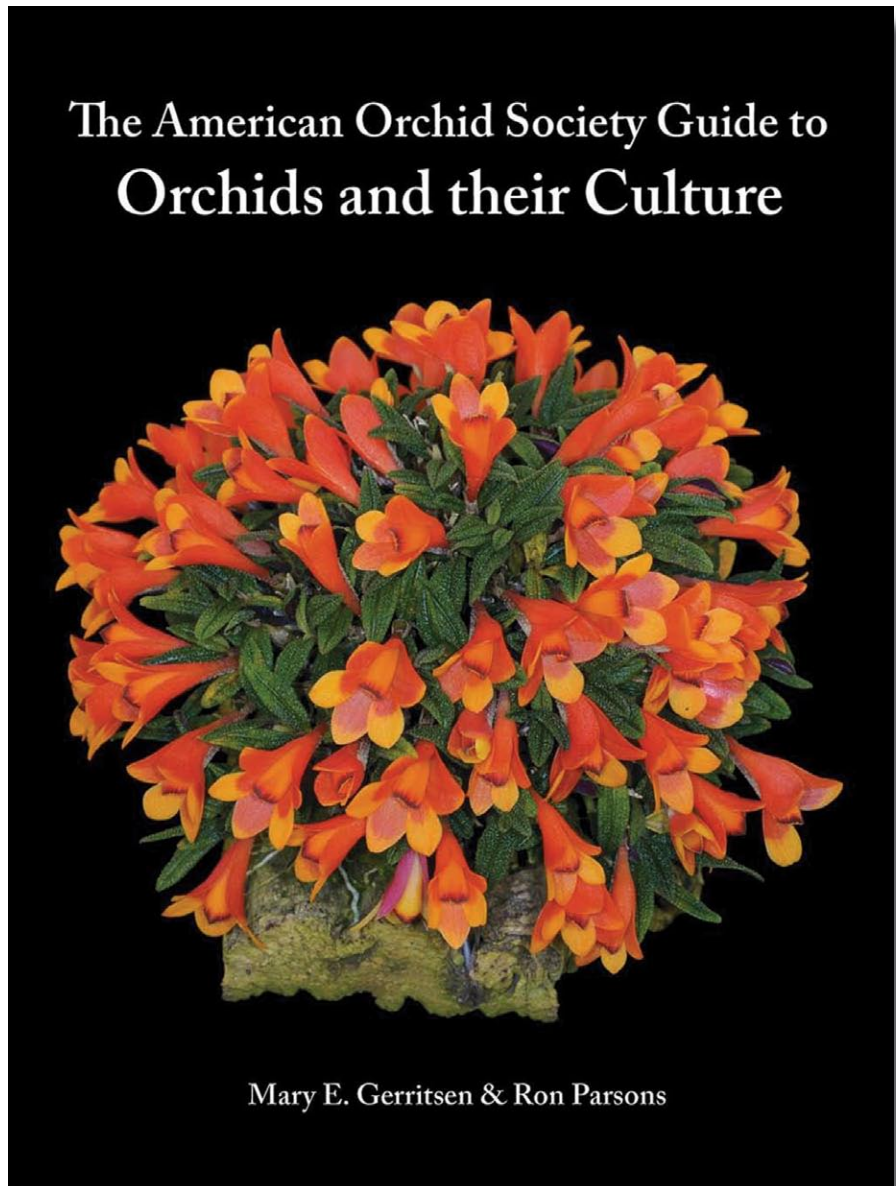
The next 15 pages delve deeply into potting, repotting, different potting media, mounting and types of mounts. There is also a section on semi-hydroponic culture. This information is quite valuable to the inexperienced grower. It answers most of the commonly asked questions about potting. My only wish is that, for the novice grower, these two sections had more illustrations.

My personal favorite section was the one on pests and pest control. It has numerous descriptive pictures of common orchid pests. As a veteran grower, I found explanations of pest life cycles and when to attack them extremely helpful. I am currently fighting small infestations of both slugs and mealy bugs. I did not realize that I needed to spray both plant and potting medium at ten-day intervals to take care of my mealy bug infestation. I am now doing that! I am also enjoying my nightly slug hunt. This is still a work in progress!

There is a 60-page section on popular groups of orchids and general features of their culture. The authors paint with broad brush strokes general notes on culture, temperature, light, water, humidity, fertilizer and potting. Fifteen large orchid groups from Aeridinae, Angraecinae to Stanhopeinae, and the Vanda Alliance are covered. Each group is highlighted with from three to 21 pictures representative of different species in that group.

The book's pictures are true delights to view! All the nearly 450 color pictures in the book are works of art. They range from full-page orchid pictures, to pages with 8–10 different orchids. They help showcase various orchid species.

The last major section of the book is



entitled *Orchids: well worth the space*. It has a keys for temperature (C: prefers cool temperatures; C-I: cool to intermediate growing; all the way up to W: warm growing; and W-H: for warm to hot grower), light (B: bright light; down to MS: medium shade), watering, (DM: drier winter, light watering every 2-3 weeks depending on how warm it has been; to DWR: dry winter rest [usually November-March]; to M: moist [do not let dry out between waterings]), and even a key for special notes (T: Terrarium selection; Tr: Terrestrial species; and Wi: windowsill selection). Over the

next 50+ pages the authors list numerous orchid genera, each followed by species examples, all keyed to the book's codes. Due, I am sure, to space constraints not all listed species are accompanied by pictures. I found this section quite helpful in looking up individual species and their specific cultural requirements.

Overall, this book provides valuable information for every level of orchid grower from novice to expert. There is something to be learned for all!

— Larry Sexton (email: orkiddoc@aol.com)

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Mike Mims from North Carolina presents, “Fragrances in *Phalaenopsis*.”

Peter Lin from Texas presents, “Novelty *Phalaenopsis*.”

Dr. Yin-Tung Wang, retired professor at Texas A&M University, well-known in the *Phalaenopsis* world for his research on *Phalaenopsis* culture, comes to us from California to lecture on “How to Grow a Perfect *Phalaenopsis*.”

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Vendors for this event include Mainshow Orchids from Taiwan, Gold Country Orchids from California, Big Leaf Orchids from Texas, Mike Mims Orchids from North Carolina and local Florida grower Krull-Smith.

The new book on *Phalaenopsis* species by Olaf Gruss will be available during the Symposium only.

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