



Conservation Through Knowledge

# Nutmeg State Orchid Society Inc.

Issue 26 Volume 3

April 2011

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**Affiliated with the American Orchid Society**



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## The President's Message:



Spring is finally here, thank goodness. The Phrags and Paphs are winding down and some of the Phals are finished as well. However, anticipation builds as the Cypripediums begin to poke their stems up! We also planted Dactylorhiza last fall and some of those are poking up through the mulch as well.

On May 2, we will hold our meeting for the first time at Camp Happy Hill at 87 W. Avon Road in Unionville. Our new location will allow us to conduct our meeting without having to shout above the square dance caller. Our speaker will be Cari Raven-Riemann of the orchidPhile who will make a short presentation about new developments in Phalaenopsis breeding, focusing on images from the recent Taiwan Orchid Show. Cari will then speak about caring for your Phalaenopsis. She has asked that anyone who has a problem Phalaenopsis bring it in for diagnosis. This is a chance to have one of the most knowledgeable Phal growers give you personal advice.

Our trip to Piping Rock Orchids to interact with the Northeastern New York Orchid Society will take place on June 4. We hope that everyone will participate. Details are available here on the website.

Two orchid events not associated with NSOS bear mentioning. On May 10, Harold Koopowitz will speak at the Massachusetts Orchid Society about breeding miniature complex Paphs. This is a presentation you should not miss – Koopowitz is one of the world's most accomplished Paph breeders and authors. Harold was a cofounder of Paphanatics in California and has recently "retired," to focus on his new passion – miniature complex Paph's. We will find out his definition for these tiny plants – in his famous book about slipper orchids he defines a miniature complex Paph as one that will fit comfortably as an adult into a 2 inch pot.

Then, September 10 and 11, The New England and New York/Eastern Canada Regions of the International Phalaenopsis Alliance will be holding a two-part meeting. For us, the closer venue will be the New Hampshire Orchid Society on the 10<sup>th</sup>. There will be several speakers, including Cari Raven-Riemann and others as well as miniauctions of choice Phal's. The organization is trying to arrange for AOS judging of Phal's at the meeting as well.

Hoping to see everyone on May 2!

Ron Burch

## **Massachusetts Orchid Society Sponsors Dr. Harold Koopowitz, Noted Orchid Breeder and Conservationist, May 10th**

Slipper orchids have always intrigued orchid lovers. Renowned botanist and conservationist, Dr. Harold Koopowitz has devoted his professional life to these genera (Paphiopedilum and Phragmipedium). He will speak on the "Creation of the New Miniature Paphiopedilums" on Tuesday, May 10 at 7:30pm at the Arlington Senior Center, 27 Maple Street, Arlington Center (MA). The meeting is sponsored by the Massachusetts Orchid Society. .

Dr. Koopowitz is Professor Emeritus of Ecology and Evolutionary Biology at the University of California, Irvine. He is one of the top Paph breeders in the world, and his book, *Tropical Slipper Orchids* is about the species, hybrids and breeding of Paphs. His other major research interest is in loss of biodiversity as a major conservation problem. His focus has been on studying threatened and endangered plant species, and devising methods of combating these problems, particularly in orchid species. He is Editor Emeritus of the *Orchid Digest*. His most recent books include *Orchids and their Conservation*, *Tropical Slipper Orchids*, and the well-received book, *Clivias*. He is currently working on a new introductory book on slipper orchids.







Cypripedium Inge  
Grown By Ron Burch



Hybrid ing Matts Tat  
Grown By Jeanne McDermott



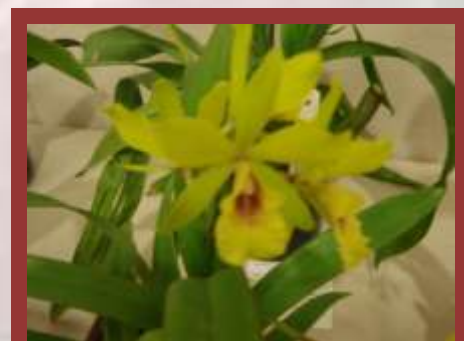
Phrag. Grande 'Stevenson'  
Grown By Ron Burch



Phal. Tawianese Dalmation



Phal. Perfume Phoenix  
Grown By Ginna Plude



Eplc Jackie Bright 'Hilo Stars'  
Grown By Ginna Plude

## NUTMEG STATE ORCHID SOCIETY MENTOR LIST 2010

|                      |  |              |  |                     |
|----------------------|--|--------------|--|---------------------|
| Ron Burch            | Cypripediums Native orchids  | 860-567-0431 | <a href="mailto:ronjonb@aol.com">ronjonb@aol.com</a>                 | Call/e-mail anytime |
| Walter Doehr         | Cymbidiums, Phals.,<br>Growing under lights<br><br>Hydroponics   | 203-634-7712 | <a href="mailto:johndeered@att.net">johndeered@att.net</a>           | Call/e-mail anytime |
| Joe Hertz            | Under lights and<br>Windowsill growing<br><br>All species  | 860-233-5505 | <a href="mailto:jhertz1015@aol.com">jhertz1015@aol.com</a>           | Call/e-mail anytime |
| Julia Massolin-Walas | All species,<br>Hydroponics<br><br>Pests & diseases,<br>Mounting/Repotting<br><br>Dividing                       | 860-673-3578 | <a href="mailto:orchidjulia@hotmail.com">orchidjulia@hotmail.com</a> | Call/e-mail anytime |
| Jeanne McDermott     | Windowsill growing:<br><br>Phals, Paphs, Brassia,<br>Oncidiums,<br>Cymbidiums,<br>Miltoniopsis & mixed<br>genera | 860-677-5381 | <a href="mailto:jtmcdermott@comcast.net">jtmcdermott@comcast.net</a> | Call/e-mail anytime |
| Sandy Myhalik        | Phalaenopsis   | 860-677-0504 | <a href="mailto:myhalik@comcast.net">myhalik@comcast.net</a>         |                     |
| Jay Presbie          | Growing under lights<br><br>All species  | 860-651-3155 | <a href="mailto:jpresbie@sprintmail.com">jpresbie@sprintmail.com</a> | Call/e-mail anytime |
| John Sziklas         | Paphiopedilums<br>Phragmepediums<br><br>Cattleyas  | 860-658-2908 |  | Call anytime        |
|                      |  |              |  |                     |
|                      |  |              |  |                     |

NSOS now has a mentor list and would like to add more folks going forward. We are looking for people that are willing to answer questions on something that you are familiar with pertaining to orchids. You do not have to be an expert, just able to help someone who has a question in your area of knowledge. We all have areas that we feel comfortable in that would be of great assistance to someone just starting out. If you wish to be added to our NSOS Mentor List, please send me a note: [johndeered@att.net](mailto:johndeered@att.net)

## **BUSINESS MEETING**

The meeting was called to order by President Ron Burch @ 7:15pm. There were 43 members in attendance. All visitors were welcomed to our meeting. The show was a great success and we have set the date for our next show on March 16<sup>th</sup> – 18<sup>th</sup> 2012 at the West Hartford Town Hall. The board apologized for the Square Dancers being so loud. A new meeting place has been found for our future meetings.

As of April 1<sup>st</sup> any member that has not renewed their membership have been removed from the membership list, as of this meeting we have 118 members.

The bus that NSOS has chartered is full and a waiting list has been started. The trip on June 4<sup>th</sup> will take the place of the June meeting.

The annual NSOS picnic will be held on Sept 10<sup>th</sup> with a rain date of Sept 11, 2011. This will replace our September meeting and we are looking for someone to host the picnic. If anyone is interested please let the board know.

## **SPEAKER**



Our speaker was Joanna K. Eckstrom, Joanna talked about 'Confessions of an Orchid Addict'. As many of you know it starts out with just one orchid and before we know it there are orchids in every spot available. The slide presentation was very informative as was



us

Joanna's talk, she gave us tips on buying orchids as well as what to look for in an orchid. The flyer below was a hand out from Joanna. Great presentation!!



## "Choosing Your Orchid"

Excerpts from Daniel S. Dutton's [e-zine@articles.com](mailto:e-zine@articles.com)

With over 20,000 species (and 100'000+ hybrids and cultivars), choosing an orchid seems like a daunting task. And you also need to be sure the orchid you buy is disease- and pest-free and has been looked after correctly. Here's some suggestions for a good "first orchid" for beginners.

**Which Genus?** Orchids have a reputation for being difficult to grow successfully. While many species fit into this category, there are also many that are relatively easy to manage:

- *Dendrobium* - Orchids from this genus originated from South East Asia and are comparatively long lasting. They produce pretty flowers and benefit from lots of light.
- *Phalaenopsis* - Otherwise known as 'moth' orchids, members of this genus originate from SE Asia and Northern Australia and produce beautiful large blooms.
- *Paphiopedilum* - Nicknamed 'slipper' orchids due to the unusual shape of their flower pouches, this genus originates from China, India and South East Asia.

**Where to buy?** Buy your first orchid from a reputable vendor ... you'll know that your orchid has been cared for properly and you'll benefit from the expert advice he can provide, before as well as after the sale ... a knowledgeable ear will only be a phone call away.

(You can buy orchids from sources like a local supermarket, but the plant may not have been properly cared for. You may also find that labeling is lacking which can lead to difficulty in the future when you come to providing the optimum environment for the genus/species.)

**Things to check** Buying a more mature orchid as your first buy. Young orchids are much more difficult to look after than one that has already bloomed or is just beginning to bloom. A mature plant has already been acclimatized and is less sensitive to changes in the local environment.

Also, look at: the color of the leaves. They should be a medium 'grassy' green color. Dark green leaves and reddish-green leaves can indicate inadequate light. The foliage and stem should also be checked to make sure there are no spots or blemishes that could indicate disease, parasites or sun damage. A sticky substance on the leaves can indicate the presence of unwelcome bugs.

Buying an orchid with some blooms and unopened buds is good so you can see what the flowers look like. A plant that has opened all its buds is usually towards the end of its 'blooming cycle'.

Ideally, the roots should be securely attached to the potting media. Check this by holding the stem at the base, near the media and gently pulling. If it feels loose or if you can pull it out of the pot, the orchid is not attached properly and you may need to re-pot it when you get it home.

If you can see the roots, make sure they're firm, thick and fleshy, not dried up or rotten. Healthy roots are white to light green when dry and dark green when wet and have a long pointed tip.

**How to look after orchids** Hopefully, the vendor that you buy from will be able to give you'll the advice and information you need; if not, seek the advice of your local orchid society whose orchid addicts are always willing to talk about their orchids.

Joanna K Eckstrom – Confessions of an Orchid Addict – [JK Eckstrom@comcast.net](mailto:JK Eckstrom@comcast.net)

## **UPCOMING EVENTS**

### **2011**

**May 1 , 12:00pm ... Northeast Judging Center - Boylston, Tower Hill Garden, 11 French Dr., Boylston, MA**

**May 2, NSOS meeting 7:00pm –TBA – Lions Clubs Camp Happy Hill, 87 W. Avon Rd, Unionville, CT @ 7 pm – 9 pm**

**May 15, 12:00pm ... Northeast Judging Center - Elmsford, The Hampton Inn, 200, Tarrytown Rd., Elmsford, NY**

**June 4, 8:30am ... Bus trip to Piping Rock orchids, Galway, NY**

**June 5 , 12:00pm ... Northeast Judging Center - Boylston, Tower Hill Garden, 11 French Dr., Boylston, MA**

**June 6, ...NSOS meeting 7:00pm – No Meeting due to bus trip on the June 4, to Galway NY**

**June 19, 12:00pm ... Northeast Judging Center - Elmsford, The Hampton Inn, 200, Tarrytown Rd., Elmsford, NY**

**July 3 , 12:00pm ... Northeast Judging Center - Boylston, Tower Hill Garden, 11 French Dr., Boylston, MA**

**July17, 12:00pm ... Northeast Judging Center - Elmsford, The Hampton Inn, 200, Tarrytown Rd., Elmsford, NY**

**August 7 , 12:00pm ... Northeast Judging Center - Boylston, Tower Hill Garden, 11 French Dr., Boylston, MA**

**August 21, 12:00pm ... Northeast Judging Center - Elmsford, The Hampton Inn, 200, Tarrytown Rd., Elmsford, NY**

**September 4 , 12:00pm ... Northeast Judging Center - Boylston, Tower Hill Garden, 11 French Dr., Boylston, MA**

**September 12, ...NSOS meeting 7:00pm – TBA - Held at the Lions Clubs Camp Happy Hill, 87 W. Avon Rd, Unionville, CT @ 7 pm – 9 pm**

**September 18, 12:00pm ... Northeast Judging Center - Elmsford, The Hampton Inn, 200, Tarrytown Rd., Elmsford, NY**

**October 3, ...NSOS meeting 7:00pm – TBA - Held at the Lions Clubs Camp Happy Hill, 87 W. Avon Rd, Unionville, CT @ 7 pm – 9 pm**

**November 7, ...NSOS meeting 7:00pm – TBA - Held at the Lions Clubs Camp Happy Hill, 87 W. Avon Rd, Unionville, CT @ 7 pm – 9 pm**

**December 5, ...NSOS meeting 7:00pm – Holiday Party & Elections - Held at the Lions Clubs Camp Happy Hill, 87 W. Avon Rd, Unionville, CT, Room C @ 7 pm – 9 pm**

**Meetings are held at the Lions Clubs Camp Happy Hill, 87 West Avon Rd, Unionville, CT @ 7 pm – 9 pm**

the first Monday of each month unless otherwise posted above or on our website.

### **TREASURER'S REPORT**

NSOS financial data is available to members upon request. Send your inquiries to our Treasurer, Tom Mierzejewski: [tommajeski@comcast.net](mailto:tommajeski@comcast.net)

### **Advertising in our NSOS Newsletter**

Advertising is now open to members and businesses. The following rates apply: \$10/month business card size ad. ¼ page \$25, ½ page \$50. Members would get \$5 & \$10 off these rates respectively. A four line word ad for members would be \$2. Contact Walter Doehr if interested and send your check to Tom Mierzejewski, our Treasurer.

### **Refreshments :**

It is requested that for the February meeting, those members with last names beginning with A thru E bring in a snack or finger food to share with members. Thanks in advance for your contributions!



Maxillaria Tenfolia

## Robert Hirnyk Memorial Library

|    | TITLE  | AUTHOR                              | PUB  |
|----|--|-------------------------------------|------|
| 1  | Book of Orchids                                  | Withner, Dr. Carl                   | 1985 |
| 2  | Botanical Orchids and How to Grow Them           | Kramer, Jack                        | 1998 |
| 3  | Complete Guide to Maine's Orchids                | Kenan, Philip E.                    | 1983 |
| 4  | Exotic Orchids -- Successful Indoor Gardening    | Rittershausen, Wilma                | 1989 |
| 5  | Expanding Your Orchid Collection                 | Rentoul, J. N.                      | 1989 |
| 6  | Field Guide to the Orchids of Britain and Europe | Williams, John & Andrew             | 1978 |
| 7  | Flowers of the Amazon Forest                     | Mee, Margaret                       | 1988 |
| 8  | Forgotten Orchids of Alexandra Brun              | Cribb, Philip                       | 1992 |
| 9  | International Book of Orchids                    | Hunt, P. Francis                    | 1979 |
| 10 | Miniature Orchids                                | McQueen, Jim and Barbara            | 1992 |
| 11 | Orchid Genera Illustrated                        | Sheehan, Tom and Marion             | 1979 |
| 12 | Orchids  | Black, Peter McKenzie               | 1973 |
| 13 | Orchids  | Menzies, David                      | 1991 |
| 14 | Orchids -- A Guide to Cultivation                | Cribb, Dr. Philip & Bales, Chris    | 1992 |
| 15 | Orchids -- Natural History & Classification      | Dressler, Robert L.                 | 1990 |
| 16 | Orchids -- Wonders of Nature                     | Kijima, Takashi                     | 1987 |
| 17 | Orchids at Kew                                   | Stewart, Joyce                      | 1992 |
| 18 | Orchids from Seed                                | Thompson, P.A.                      | 1974 |
| 19 | Orchids of Africa                                | Stewart, Joyce & Hennessey, Esme F. | 1981 |
| 20 | Orchids of Asia                                  | Eng Soon, Teoh                      | 1980 |
| 21 | Slipper Orchids                                  | Hennessey, Esme F. & Hedge Tessa A. | 1989 |
| 22 | Southern African Epiphytic Orchids               | Paul, John S.                       | 1978 |
| 23 | The Specialist Orchid Grower                     | Rentoul, J. N.                      | 1987 |
| 24 | Wild Orchids of Britain and Europe               | Davies, Paul and Jenne              | 1983 |
| 25 |  |                                     |      |

**INTERNATIONAL PHALAENOPSIS ALLIANCE “FOCUS ON PHALS” DAYS  
PLANNED FOR FALL  
SEPTEMBER “DOUBLE-HEADER” WEEKEND FOR NEW ENGLAND & NEW  
YORK**

This fall, on September 10 & 11, 2011, the New England and New York/Eastern Canada Regions of the International Phalaenopsis Alliance (IPA) will be hosting, in conjunction with two local AOS affiliated societies, a two-day double-header for their annual “Focus on Phals” day – a fun and informative day-long event with old friends and new. On Saturday, September 10, we will be in Bedford, New Hampshire, providing the program and sharing the day with the regular monthly meeting of - and in cooperation with - the New Hampshire Orchid Society. And on Sunday, September 11, we will be in the Colonie, NY area, near Albany, in cooperation with the North Eastern New York Orchid Society (one of two possible venues to be determined depending on the number of Registrants).

Our Keynote Speaker for each event will be Norman Fang of Norman’s Orchids who will cover in-depth culture of the Phalaenopsis orchid in “*The Changing Face of Moss Culture: Tips for Success*”. With so many Phals now being sold in New Zealand moss, which is packed into the pots tighter than a brick, Norman will cover all the elements of caring for and being successful with this new approach to growing these Phals to perfection – a presentation that is not to be missed.

Our second guest speaker will be Carlos Fighetti, Immediate Past President of the AOS and current First Vice President of the IPA. He will be speaking on “*Phal Species & Their Variants: Are They or Not?*”. With so many new forms of the species being shown now, he will explore the question of whether they are actually a species or a hybrid.

Our third speaker, Carri Raven-Riemann of the orchidPhile, will give a brief overview of the newest directions in breeding in Taiwan as seen at the recent March 2011 TIOS Show in Taiwan. We’re also currently exploring the possibility of having AOS judging of the show tables at each meeting.

Each day will begin in the morning with a continental breakfast, followed by presentations given by Carlos and Carri, a light lunch, a review of the show table and a mini auction of select plants to help defray the speakers’ expenses. The afternoon session will begin with our Keynote Speaker, Norman Fang, and finish with a round-table in-depth discussion of culture.

Guest vendors will include Norman’s Orchids, the orchidPhile and Kelley’s Korner Orchid Supplies (Pre-Orders from all three vendors will be made available at a later date). As soon as all the details are firmed up, we will have Registration Forms available for each event which will be made available for the society newsletters and web sites. The minimal Registration Fee is just to cover the expense of the food we provide for each event. Therefore, it will be imperative to register your intention to join us at a specific location so enough food and chairs can be provided for all who wish to attend. For this reason, we will not be taking any additional Registrations a week before either event (September 2). However, due to the summer hiatus for many societies, we may not be able to get Registration Forms into their newsletters in a timely manner. So if you would like to have the form mailed or e-mailed directly to you,

please send your request to:

Adrienne Giovino  
47 Spellman Road  
Westwood, MA 02090  
Phone: (781) 326-8921

E-mail: [ipa.adrienne@gmail.com](mailto:ipa.adrienne@gmail.com) (\*\*\*)please mention IPA Regional Meeting  
in the subject line)

Contact information will also be available at [www.phal.org](http://www.phal.org) under Upcoming Events. We're really excited about this new approach to holding our annual Regional get-togethers and hope to see many of you there. Our special thanks go to the two co-hosting societies who have so generously invited us to share this day with them.



Coelogyne Ochacca

## **Monthly Checklist for March and April**

### **Cattleya**

Although March is, in many parts of the country, still a cold and blustery month, the lengthening days and warmer temperatures allowed by increased light are long-awaited harbingers of the coming change of season. Some of the best standard cattleyas of the year will be in bloom, or will be blooming soon. The last of the winter-flowering hybrids will join the earliest of the spring hybrids in a wonderful display. Be on the alert for senescing sheaths that need removal. If these yellowing sheaths are not removed, the moisture they trap can lead to bud rot. Careful removal of the sheath will allow the buds to develop, although they will need additional support. Changing light conditions can also be a problem in March and April. An exceptionally bright day, especially immediately following a rain, can lead to sunburn of the foliage if shading is not attended to properly. There can still be periods of dull days where spikes can be weakened owing to the lower light. Lengthening days will mean increased metabolic rates necessitating increased water and fertilizer. The plants will indicate needs by drying more rapidly, which means more frequent watering and fertilizing.

With the passing of the season for winter bloomers, and the beginning of the season for spring bloom, it is also the time to be on the lookout for plants that will need potting after they bloom. Immediately after blooming has proven to be the best time to repot winter- and spring-flowering cattleyas. In most cases, they will be ready to grow roots, so if potted at this time, they will root right into fresh mix with little or no setback.

### **Cymbidium**

Plants should be putting on a spectacular show this time of year. Adjust all staking and twist-ties and be on the lookout for aphids, slugs and snails. Give adequate water because flowering strains the plants. As new growths appear later, increase the nitrogen level in the fertilizer. Should a plant look healthy but not be blooming, try increasing the light during the next growing season. The number-one reason for no flowers is lack of light.

### **Dendrobium (Australian)**

These hard-cane dendrobiums will be at their flowering peak now. It is not unusual to see a specimen of this type in an orchid show boasting 1,000 flowers. The secret with this group -- bred primarily from *Dendrobium kingianum* and *Dendrobium speciosum* -- is to provide ample water, fertilizer and light during the growing season.

### **Lycaste**

This genus of superb orchids will be coming to the end of its flowering season. Soon you will see the beginning of new root growth, which is an excellent time to repot into fresh media. As new growth emerges, provide ample fertilizer and water. A sign of good culture is an increase in the size of pseudobulbs with each successive year.

## **Miltoniopsis**

This marks the beginning of the flowering season. Amazing displays of color will dazzle the grower over the next few months. Prepare your plants for optimum display by staking spikes (if needed) and cleaning off the older yellow foliage. Do not miss the wonderful fragrance as the flowers unfold.

## **Paphiopedilum**

March is the beginning of the season of heaviest potting for lady's-slipper orchids. However, it is a month where the volume of plants needing attention is still small. It is an excellent month to take the time to work with your paphiopedilums before the pressure of other potting prevents your doing the thorough job you should. Look at each plant: Is it clean of dead and dying foliage? Is it weed free? Does it need potting? Is it in spike? Does it have an insect problem? Cleaning and restaging your paphs is one of the most satisfying tasks of the orchid year. Cleaned and potted paphiopedilums look happy.

The summer-blooming types will be showing the first of their buds in March and April. Be on the lookout for the buds, as well as any insect pests that may have found their way into the crowns of your plants. It is especially difficult to clean mealybugs, in particular, once they have become established in the plant. Better to get to them before they get a good toehold.

Increasing light levels should give emerging spikes the strength they need to grow straight and strong. Do not be too anxious to stake the spikes, because if they are staked too soon, the flowers may develop a "nodding" stance, where the dorsal will not stand upright. If the spikes seem to develop at an angle, let them, and stake after the flower has hardened for best carriage, especially on the hybrids with fairieanum background.

## **Phalaenopsis**

In most of the country, March is the peak blooming month for phalaenopsis. Staking needs to be carefully attended to, so that the flowers will be displayed at their best for orchid shows and judging -- even those intended for your home will look best if properly staked. One of the most decorative aspects of phalaenopsis spikes is the way they gracefully arch. If not staked properly, the spike will lack this grace and will not be as pleasing. Most growers like to have the final support just below the first flower, allowing maximum support, without sacrificing the beauty of the arching spike.

Rapid-growing spikes and open flowers place extra demands on the plant. Careful monitoring of watering and feeding will give the plants the energy they require to give their best floral display. Remember, too, that the lengthening days will also increase the frequency at which plants need water.

Beware of the invasion of sucking pests that accompany the flowering season. Flowers and spikes are favorite targets of mealybugs and scales. Be on the look out for their presence, often indicated by the appearance of sooty mold resulting from the exudate of the bugs, and treat before flowers or buds are too advanced. If flowers and buds are too far along, the chemical treatment may damage or abort them.

## Pleurothallids

Members in this large and increasingly popular group will be looking their best now. If plants are not in flower, the next few months provide an excellent time to divide if needed or repot into fresh mix. Taking care of these tasks now will allow enough time for your plants to become established before the hot weather arrives.

*The AOS thanks Ned Nash and James Rose for this essay .*

## **Growing Paphiopedilums — a Fine Art<sub>1</sub> — Part I**

WALTER BERTSCH

VERY FEW OF US are as successful with "Slipper orchids" as we would like to be. The plants grow slowly. Their fans are small. Some plants have thin, desiccated leaves with fine wrinkles and poor roots. The roots of certain plants may be almost non-existent, the sad insecure fans tending to rock back and forth in anguish whenever they are watered. Old fans may tend to die back too soon, so the plants do not get much bigger each year. A few plants may actually get smaller each year, until they finally meet their maker. The leaves on some of our plants may be yellowish instead of dark shiny green. Some leaf bases may have a brown soft rot which can destroy whole plants in no time at all. Some plants may refuse to flower, even though they are vigorous, healthy and of giant size.

The difficulties mentioned early in the above paragraph are usually due to a whole complex of wrong cultural conditions, while the problems at the end of the paragraph tend to have specific solutions. These specific problems will be dealt with at appropriate points in the following discussion of individual cultural conditions: temperature, light, humidity, air movement, amount and quality of water, type of potting medium, potting practices, fertilizing and pH, and pest control. Although I try to take these factors one by one, the discussions themselves reflect a different reality: each factor is strongly interdependent on the others. It is the balance of environmental conditions which is important. If you are getting good results, don't change anything without a lot of thought and experimentation. I am an amateur who still has lots to learn. I recently moved my orchids from New York City to Pomona College in Claremont, California, and found that I had to rethink many of my cultural practices in the new environment. This experience led me to question the reasons behind methods which we had been using for years; it also underlined the fact that cultural practices which work well in one situation may be all wrong in a different situation. I am unusually lucky in having three different temperature conditions in three small greenhouses, but my own practices can be approximated without such luxury. This article is an attempt to share some of the advice I received from several professional growers and to integrate it with my particular history of failures and successes. Still, most rules about growing paphiopedilums (and other plants) have important exceptions, so beware of any advice which doesn't make sense in terms of your own experience.

## TEMPERATURE

The 83 species and 30 natural hybrids<sup>2</sup> *Paphiopedilum* species grow naturally in a wide range of tropical and subtropical climates. Thus it is no surprise that different types of paphs will have to be treated differently, if we are aiming at optimal results. Nevertheless, here are some general rules about temperatures. These suggestions for *Paphiopedilum* temperature requirements are somewhat different from those found in most general books on orchid culture. We have had excellent results using these temperature ranges, and I find that the most successful commercial growers have also adapted them.

- (1) Try to keep summer day temperatures under 80F.
- (2) Best vegetative growth is achieved at relatively high night temperatures: 65-68F.
- (3) Flower induction may require 55-60F or less at night, for 2-8 weeks.
- (4) Once induced, best quality flowers are usually produced at about 60F nights and 68F days.

These general rules reflect the seasonal variations to which several important *Paphiopedilum* species are adapted: *Paph. insigne*, *Paph. villosum*, *Paph. spicerianum* and *Paph. bellatulum*. This last species is an important exception to rule Number (2). *Paphiopedilum bellatulum* is found further north of the equator and at higher elevations (up to 4000 ft) than the other brachypetalums (broad-petaled "white" paphs), and *Paph. bellatulum* grows best at a cooler night temperature: about 60F. Some first-generation hybrids from *Paphiopedilum bellatulum* may also prefer 60F nights. This is in sharp contrast to the higher temperatures preferred by the other brachypetalums. Larry Heuer (*Amer. Orchid Soc. Bull.* **46**: 141-149, 1977) suggests 70F nights and 90F days for such warm-growing species as *Paph. niveum*, *Paph. godefroyae* and *Paph. delenatii*



Grower: Harry Johnson  
Photography: Jerry Suffolk

***Paphiopedilum villosum* 'Memoria Betty Johnson', CCE/AOS (90pts.)**  
is an example of what may result with good cultural techniques

For simplicity, paphiopedilums are often divided into "cool growing" (solid green leaves) and "warm growing" (tessellated or mottled leaves) sections. I feel this division is rather misleading. Some "cool" paphs will indeed tolerate long periods of continuously low night temperatures (55F), but most of

these plants invariably grow much better with a 65F night. In any case, many hybrids have both "cool" and "warm" species in their background, so their leaves are green with slight tessellations. Also, a few tessellated species are cool-growing, such as *Paphiopedilum venustum*. In many greenhouses it is impossible to keep summer day temperatures under 80F and, of course, the green leaf paphs do not immediately expire. Nevertheless, growth in most hybrid green-leaf types is inhibited by temperatures above 80F. Give your paphs plenty of moisture whenever the temperature climbs above 80F, and damp down their leaves lightly in the early part of the day. Day temperatures up to 90F may actually be beneficial for some tessellated paphs such as *Paph. callosum*, *Paph. Clair de Lune* and the warm-growing brachypetalums. This is also true for certain large, strap-leaf paphs,



Photography: R & E Ratcliffe Orchids

**Paphiopedilum Demurs 'Allstars'** (*Blendia* X *bellatulum*), an English-bred hybrid, represents a fascinating new avenue in *Paphiopedilum* hybridizing through the use of the *Brachypetalum* species.

which may have no tessellation, such as *Paphiopedilum philippinense*. We find that certain plants seem to prefer particular spots in the greenhouse. When a plant is growing and flowering well, it is best to leave it right where it is — regardless of what temperature range the leaf color and/or hybrid background might suggest. On the other hand, a plant which looks unhappy may be asking for a different position in the greenhouse, where its particular requirements would be more adequately satisfied. Unfortunately, some modern, green-leaf *Paphiopedilum* hybrids will not produce many (or indeed, any) flowers at 65F night temperature. Certain clones need low night temperatures (55-60F) to induce flowers, although the plants themselves do rather poorly at such low night temperatures. To my mind the best results are achieved by varying the temperature range of paphs according to their seasonal requirements, as shown in TABLE 1. Many growers, however, get fine results by using a year-round compromise for the range of night temperature: 59-62F.



**Paphiopedilum Belisaire 'Pluton'** (*Atlantis* X *bellatulum*) further illustrates the unique shapes and often intense colors obtainable in the breeding line discussed under

*Paphiopedilum* Demura.

Photography: Walter Bertsch

My old friend, Byron Geer of San Diego, California, raises wonderful specimen plants of *Paphiopedilum* species and primary hybrids using only 50F nights in the winter. Byron has no difficulty inducing flowers! Most greenhouses have specific spots with low temperature microclimates, and you may be able to induce flowers in difficult paphs by moving them to a cold spot in the fall.

TABLE 1

**General Rules for Temperature Requirements of Green-Leaf *Paphiopedilum* Hybrids**

| Season           | Grower's Aim      | Temperature Range °F |                |
|------------------|-------------------|----------------------|----------------|
|                  |                   | Night<br>Minimum     | Day<br>Maximum |
| Spring-Summer    | Vegetative Growth | 65°-68°              | 80°            |
| Fall (2-8 weeks) | Induce Flowers    | 55°-60°              | 75°            |
| Winter           | Develop Flowers   | 60°                  | 68°            |

Some mottled leaf paphs, such as *Paphiopedilum* Maudiae, do not need low night temperatures for flower induction. These plants may do well with 65F nights and 80F (or higher) days all year long, but they can also be grown beautifully at 5F less day and night. *Paphiopedilum* fairrieianum, on the other hand, develops the darkest red flowers only when the buds develop very slowly, probably at night temperatures of 50-55F or even less. Avid *Paphiopedilum* growers near the ocean in southern California grow their best awarded *Paph. fairrieianum* clones outside in winter, but protected from rain and wind. Nevertheless, paphiopedilums are basically greenhouse plants. Even near the ocean here in southern California, most modern hybrids are recalcitrant. If you want to try some paphs outside, start with the "cool" species or primary hybrids from them: *Paph. fairrieianum*, *Paph. insigne*, *Paph. Leeaanum* (*insigne* x *spicerianum*), *Paph. villosum*, *Paph. venustum*. The beautiful giant hybrids from *Paphiopedilum* rothschildianum require special treatment to flower well. Develop large plants of these hybrids by using the vegetative growth conditions given in TABLE 1 plus lots of light, fertilizer, water and big pots. You may need to push these plants for several years before they are large enough to flower. Then attempt to induce flowers with low temperatures (55F nights and 70F days are usually low enough but even lower temperatures may be required), high light and a slight drying off (but don't desiccate the leaves). Develop flowers as for other paphs. In southern California, many growers leave these hybrids outside for part of the winter, to induce flowers. Growers with a cool greenhouse often hang these plants near the glass to induce flowers. We keep the minimum night temperature at 60-62F year around in Pomona College's small *Paphiopedilum* house. This is where we develop flowers during the winter. We never raise the winter day temperature artificially (above 60-62F) because we like the flowers to develop slowly. On most winter days, sunlight raises the temperature to 65-70F. Any large plants which show no signs of blooming are moved, usually in October or November, into Pomona College's *Odontoglossum-Lycaste* house. The temperatures are 55F night and 70-75F day. We leave the poor paphs suffering in this cool house until we see that thickening in the center of mature growths which indicates a young flower bud. Any paphiopedilum which begins to show yellow or desiccated leaves is moved immediately back to the paph house. Two to eight weeks of cool treatment really ought to be sufficient to induce flowers in most recalcitrant clones. Kathleen Black of Black's Orchids, Levin, New Zealand, uses two weeks of 55F nights in the fall to induce her

### *Paphiopedilum insigne* crop

for the spring. On the other hand, Dan Collin of Gallup and Stribling, Santa Barbara, California, uses six to eight weeks of 60F nights to induce flowering in *green-leaf Paphiopedilum* hybrids. It is obviously possible to crop your paph flowers for specific months by giving the 55-60F night cool treatment at different seasons. For instance, a cool treatment in the late spring, outside or in a cool house, will result in early fall flowers. Your *Paphiopedilum* season can be extended by treating a few selected clones this way. Some growers give 65F nights after a short, cool, flower-inducing treatment to increase flower stem length and vegetative growth. I personally feel the buds will produce better flowers if at least the last half of their development is at lower temperatures (60-62F nights, 68F days). Low light will also produce longer flower stems. Some vigorous paphs can be induced to bloom twice a year if handled carefully. Many white-flowered hybrids are easy to bloom twice a year. Let them grow into large plants, then give cold treatment whenever there are mature fans without buds.



Photography: Rex J. van Delden

These *Paphiopedilum* leaves have been burned by too much sun

The high night temperatures of 65-68F, suggested in TABLE 1 for vegetative growth, are ideal for growing seedlings from flask up to near flowering size (3-4" pot diameter). Some commercial growers use even higher night temperatures for their smallest seedlings, up to 72F. We also use this higher temperature range (65F) for many special clones which are being multiplied as rapidly as possible. It is surprising how many of these clones will go ahead and bloom at this night temperature, which we have in Pomona College's *Cattleya- Vanda* house. If a *Paphiopedilum* plant is growing rather slowly and poorly for you, it is often a good idea to repot it and then put it into a slightly shady part of the *Cattleya* house in order to give it a chance to make good, strong, vegetative growth.

## LIGHT

Most paphs grow naturally in shady places under taller shrubs and trees, in humus formed from the rotting debris of leaves dropped from above. The forest floor where paphs are found is characteristically dark, damp and cool enough to support a lush growth of moss. These natural conditions give a number of useful hints about the conditions we should try to achieve artificially. Although *paphiopedilums* need less light than *cattleyas*, we find the best policy is to give them as much light as they will take, up to the point of inhibiting leaf growth. Seedlings and other weak plants are less tolerant of high-light intensity than vigorous mature plants. Remember, sunlight is a plant's only source of energy for growth. The more light, the more growth; up to the point of overheating the leaf. If a paph leaf feels warm to the touch, it is overheated. You need to increase air movement around the plant or to reduce the light intensity it received.

## HUMIDITY, AIR MOVEMENT, AND ERWINIA ROT

My feeling is that the best relative humidity for paphiopedilums is the highest you can achieve in your greenhouse, up to the point that this causes fungal or bacterial rot on your plants. Paphiopedilums are more tolerant of low humidity than cattleyas or phalaenopsis. Nevertheless, higher humidity always seems to result in better paph growth, as long as the rot problem can be controlled. This may mean a high relative humidity (70% or so) in summer as versus a low humidity (40-50%) in the cold winter months. The most troublesome type of rot on paphs is probably that caused by two closely-related bacteria: *Erwinia cypripedii* and *Erwinia carotovora*. These bacteria typically cause soft, brown, dead areas near the base of the Leaves. The brown areas quickly spread from the base to the rest of the leaf. Growers with good noses detect a typically putrid smell given off by dead tissue. *Erwinia* rot strikes fans of any age and quickly destroys old or new growths. It will sometimes kill whole plants and is often the cause of early death of old fans. Any leaf with a soft, dead, brown area near its base should be removed immediately. Be sure to get every bit of leaf tissue off the fan, then treat the wound with a broad-spectrum bactericide.



Photography: Walter Bertsch

**An example** of *Erwinia* rot at a relatively early stage

Most *Paphiopedilum* growers have some problem with *Erwinia* contagion. Here are nine control measures which, when used together and persistently, have been successful in eventually reducing this plague to an almost unimportant status in Pomona College's greenhouses.



Photography: Walter Bertsch

**An example** of *Erwinia* rot at a relatively late stage

- 1) Have sufficient air movement (not a tornado) to dry plants quickly after your daily spot watering, and to move microscopic spores around (so they cannot settle long enough to germinate and grow).
- 2) Keep humidity low enough to inhibit rot organism growth.
- 3) Keep your growth medium on the dry side until the rot is under control.

- 4) Remove diseased and treated plants to an increased night temperature of 65-68F, for strong vegetative growth.
- 5) Increase the *pH* of your medium to 7.0-7.2, using lime-water and/or a limestone top dressing. *Erwinia* seems to dislike high *pH*.
- 6) Use a preventative bactericide spray over all your paphs and benches, at least once every six months. Many fungicides also seem to successfully inhibit *Erwinia* bacterial rot.
- 7) Control any soil insects which will spread the bacteria, particularly the common fungus gnat and its larvae.
- 8) Be a fanatical housekeeper. Do not leave old dead leaves on fans, on benches or on the floor.
- 9) Avoid splashing water from plant to plant — this seems to be the main mechanism for transmitting *Erwinia*.



Black rot caused by *Phytophthora cactorum*. The treatment is the same as for *Erwinia* rot.

Photography: Rex J. van Delden

We usually move any diseased plants, after treatment, to the *Cattleya-Vanda* greenhouse. It may be that the higher temperatures actually inhibit growth of *Erwinia*. We leave diseased paphs in the *Cattleya* house until they are strong and vigorous, usually a year or more after their treatment for *Erwinia* rot. A light top dressing of limestone (use dolomite coarse powder) after a plant is treated seems helpful. We try to get the limestone particularly on the base of the plant and into the wounds left by removal of diseased leaves. *Erwinia* seems to be inhibited by high *pH*, so adjust the *pH* of your media to 7.0-7.2 or above. You may want to use lime-water made from 1 teaspoon hydrated lime dissolved in a gallon of water, but we think this is rather extreme treatment. A *Paphiopedilum* collection with a serious *Erwinia* problem might need spraying with a bactericide/fungicide every 2 weeks at the beginning of treatment. Note that simply moving the plants further apart will help to achieve four of the control measures in the list (1, 2, 3, & 9). I do not like using the Agrimycin (agricultural streptomycin) on plants. This bactericide presumably kills *Erwinia* more effectively than fungicides, but Agrimycin appears to cause deformed flowers and even deformed leaves. Agrimycin would probably make a good bench spray for a serious contagion. *Erwinia* grows on dead tissue, and bits of dead *Paphiopedilum* leaves may spread the contagion throughout your greenhouse. The best balance between humidity, air movement and light depends on such factors as the condition of your plants, your ability to keep down summer day temperature, the elegance of your greenhouse engineering, and your capacity to damp down the greenhouse several times a day during the summer. If you can provide a really high humidity (70-80% relative humidity), then you can give a good deal of air movement (1-2 miles per hour) without desiccating the *Paphiopedilum* leaves. Ample air movement will reduce the rot problem which a high humidity might otherwise cause. Good air

movement has the additional advantage of reducing the leaf temperatures to something near air temperature. Thus, high humidity, together with plenty of air movement, will allow you to give lots of light for added growth — without burning, desiccating or overheating the leaves. On the other hand, *Erwinia* contagion may temporarily (3-12 months) require a different strategy: drier conditions and therefore some sacrifice in vegetative growth rate. Successful control of an *Erwinia* plague will require a careful compromise between killing the paphs and killing the *Erwinia*. Decreasing water and humidity, combined with increasing air movement and light, is not only a recipe for controlling rot; it is also a recipe for turning your greenhouse into a desert. So avoid desiccating your babies' leaves. Think in terms of allowing the surface of the medium to become dry between waterings, while always providing some moisture below the surface. No paphiopedilum likes to be completely bone dry. —

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'Reprinted from the *Program* of the 33rd Annual Show of the San Diego County Orchid Society, April, 1979. Parts 2 and 3 will appear in subsequent issues of the *A.O.S. Bulletin*.

2. World Checklist of Selected Plant Families, January 2011.  
Volume 48, Number 9 • September 1979 891

