

The BackBulb

C A R M E L O R C H I D S O C I E T Y

February 2023



January Speaker: John OConnell

Variety is the Spice of Life

Orchidaceae may be one of the largest and most diverse plant families, but you should make room for something a little different, something that gets along with your orchids but provides a bit of diversity to your collection, maybe something that is more flexible than your fussy orchids. There are many choices ranging from extreme epiphytes like Tillandsias to terrestrial succulents, odd and unusual to normal looking, rampant growers and shy bloomers, winter or summer dormancy. You really can have it all, just not in one plant!



The plant table will be a mixture of Tillandsia, Epiphytic cacti cuttings, Paphs, Tolumnias and a maybe few others that we have acquired lately.

The companions are trying to take over

- 1 February program
- 2 Upcomming Events
- 3 Air Management

In order to provide a selection of treats at our meetings, we are asking members with last names that start with the letter S thru Z to bring refreshments to the meeting.

COS Officers

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John OConnell

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Amanda Nixon

Upcoming Events

February

2/4-5 Gold Coast Cymbidium Society Annual Auction

2/6 Monday COS February Meeting

2/23-26 Pacific Orchid Exposition (POE), County Fair Building, 1199 9th Ave. Golden Gate Park, San Francisco. Preview Party is Thursday evening.

March

3/6 Monday COS March Meeting

3/10-12 Santa Barbara International Orchid Show, Earl Warren Showgrounds, Santa Barbara



For Sale: From the Scott Collins estate, all proceeds go to the society. \$35 for the plant on the left, two flowers. \$30 for the plant on the right. Call, or text, Carolyn at 831-917-3386. She will bring them to the February Meeting on the 6th.

Air Management

“Air management” is probably the single, most significant aspect of orchid culture, but a subject that is usually never directly addressed in discussions about how to grow them.

Let’s start with the basics: Orchids, for the most part, are epiphytes – “air plants” – growing attached to trees or rock outcroppings, or in the leaf litter on the forest floor, and have their extensive root systems rambling around the surface, where they are exposed to lots of air. They are not parasites, but have evolved to the point of not needing a soil medium from which to take nutrients, instead gleaning their existence by absorbing their water and nutritional needs primarily from nutrient-bearing rainwater cascading on them from the canopies of the forests and jungles in which they live. One of the more observable aspects of that evolution is the water-storage mechanisms of the plants, such as pseudobulbs or thick, fleshy leaves, and the development of the sponge-like layer of cells on the root surface, the gray or silvery velamen that turns mostly transparent when saturated, showing the green inner cells of the root. Another part of that evolutionary development, but one we tend to ignore, is that of gas exchange.

We are all aware of the fact that “animals take in oxygen and give off carbon dioxide, while plants take in carbon dioxide and give off oxygen”. (Actually, plants do both.) In animals, that gas exchange occurs through the lungs or gills, while in plants, it occurs

pretty much over their entire surface. Orchids, because they have evolved to hold onto moisture in between potentially infrequent periods of rainfall, tend to have limited gas exchange from the leaves and pseudobulbs, so have shifted much of that important activity to the root system.

As we “domesticate” our plants, putting them in pots, we unnaturally confine the root system and “set up” our plants for potential problems, some of which have led to the proliferation of orchid-culture myths.

In a pot, the volume of air to which the roots are exposed – and with which the gas exchange must happen – is limited to the pore space in the potting medium and is refreshed only through whatever openings are available in the pot itself. The more densely the medium is packed, the less volume of air is available to the root system, and some of those “air pockets” are effectively cut off from the others, so do not get refreshed. When we water those potted plants, some of the liquid is absorbed by the particles of potting medium, but another part of it is held by surface tension in little pockets between the particles, effectively reducing the free air volume and further cutting off the connecting pathways between the remaining pores, reducing the refresh rate even more. The plants are still going through their essential gas exchange processes, but they have to deal with a root environment of “polluted”-, rather than fresh air to do so. That situation sets up two stressful scenarios – suffocation and poisoning. (As an aside, it is the gas-flow limiting

effect of the trapped water that leads to problems, not the presence of water itself, although that's what we've all been taught about "overwatering causing root rot". Consider that plants grown hydroponically have constant water exposure without rotting.)

Gas exchange occurs through diffusion, a natural process in which the concentrations of ions on either side of a membrane – root cell walls in this case – try to equalize. In free air, the carbon dioxide content is typically around 0.04%, so any level slightly higher than that easily leaves the root cells and disperses in the air. If the reduced airflow of the compact or saturated medium restricts that, the gas concentration in those isolated pockets gets much higher, stopping or even reversing the osmotic process, and suffocation and cell death can occur. Additionally, as it cannot be dispersed easily into the air, the carbon dioxide can react with the water to form carbonic acid, which can poison the roots.

In both cases, the plant responds to the stress by producing phenols in an attempt to "kill" the stressful agent. Unfortunately, those phenols are toxic to the roots themselves, so if that stress is not eliminated relatively quickly, root death will occur. It is those phenols, by the way, that give the roots the brown and black colors we see in "rotted" roots.

So what is the practical significance of this to the grower?

When selecting a potting medium for the plant, above all, think in terms of maintaining free and adequate flow of

air to the root system. Consider the pore size within the medium and how it relates to root size (yes, roots can clog air flow too), and how "bridging" water droplets will play a role upon watering. Choice of medium can affect the latter, as some materials are more sponge-like than others, so "suck up" those bridging droplets and release them slowly. (Another aside here – the old adage about letting the potting medium dry out between waterings has nothing to do with letting the roots dry, it's done to allow those bridging water droplets disappear so the plants' roots can "breathe" again.)

Also consider the moisture needs of the plant and your ability to provide an adequate supply. Obviously a mounted plant should have no air supply issues, but in the home, it's most difficult to water mounted plants often enough, and maintain the humidity to give the plant time to absorb the water before it evaporates. To compensate for that, we utilize potting media that absorb and hold moisture to different degrees and for various lengths of time. We can utilize different particle sizes as well (smaller particles have higher surface-to-volume ratios than do larger ones, and can absorb more water more quickly), but then we might be compromising the size and volume of those passageways for air to reach the roots.

Keep in mind that uniform particle size in the medium provides the maximum void space. A room full of basketballs and a room full of ping-pong balls have the same void space (you can do the math yourself), but when you start to

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mix particle sizes, the small ones fill the voids between the big ones and the free volume is reduced. Read more about that here.

Armed with this information, if you aim for an airy potting medium that works with your watering habits to provide your plants with an adequate moisture supply, your growing should be headache free. All you have to do is remember this priority list:

Air -> Water -> Air -> Nutrition -> Air!

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Top: a Lycaste from Carol Easton's estate.

Bottom: *Laelia Anceps*
Both grown by Irene Patton

COS Board of Directors minutes for meeting of January 7, 2023

The meeting was held via Zoom. Attending were: Amanda Nixon, John O'Connell, Carolyn Salmon, Janette Ford, Irene Patton, Kathie Ritter, Anna Navarez-Helms and Cathy Walmsley.

Amanda called the meeting to order and the Board approved all decisions made in 2022. The minutes from the last BOD meeting which were published in the Back Bulb were approved. Janette presented an Excel breakdown of in-and-out expenses from September through December including membership renewals and new member fees.

Janette also gave a breakdown of the Fall Market expenses and sales. We netted approximately \$1,000 after expenses. Income was from sales, vendor's fees, donations: the donated plants from Scott Collins' Estate resulted in close to 25% of the market sales.

The Treasurer reported a net gain of \$326 income over 2021 for an ending balance of \$10,898.

The weather concerns led us to agree to a meeting in person for January 8 and by Zoom. The Carmel River is expected to flood and heavy wind and rain are forecast for Monday's meeting. The meeting will be as usual with the hope that the church has power and internet. John will send out a message saying the meeting is on as planned. A plant table will be provided and Janette will call the three people who get

messages other than by email. Carolyn said we can check the power situation by putting in the address for the church on PG&E's grid: 4590 Carmel Valley Road.

We agreed to re-submit our application for the 501c-3 status to help expedite the process of updating that. The membership in AOS has been submitted and we are current.

The bank is giving us more expenses with the credit card account so Irene and Janette will set an alternative system, dropping the bank from our cc usage. Credit card sales were the preferred method of payment at the Fall Market.

John mentioned cultural topics for our meeting programs and a repotting demo on a Saturday. He will speak in February and asked for ideas from Board members. Speakers suggested for our programs were Fred Clark and Bob Hamilton. Dennis Olivas invited us to tour Los Osos.

Members are encouraged to send photos of plants for sale in February to John for the newsletter.

There was a discussion of plants for the January meeting.

Expenses of insurance and post office box rental are up. We are looking for ways to trim expenses. Amanda suggested a budget of \$35/month for tech help from Sam. There was no new business.

The next Board of Directors meeting will be February 13th at 7 pm by Zoom unless otherwise noted.

Irene Patton, Secretary

BackBulb CARMEL ORCHID SOCIETY

CARMEL ORCHID SOCIETY 2023 Membership Application

Please make checks payable to the Carmel Orchid Society and mail to: Carmel Orchid Society -
Membership, P.O. Box 223462 Carmel CA 93922-3462
Please print

Date _____

Name _____

Address _____

City _____ State _____ zip _____

Telephone _____

Email address _____

If you were referred by a current member, please provide
his/her name _____

Renewal New Member

Member of the American Orchid Society

Membership

Single **\$35** _____

Couple **\$50** _____

Vendor **\$50** _____

Add an additional **\$10** to receive
the newsletter via USPS

San Francisco Orchid Society Presents: Celebrating Diversity The 70th Annual Pacific Orchid Exposition

February 24-25 10am - 5pm

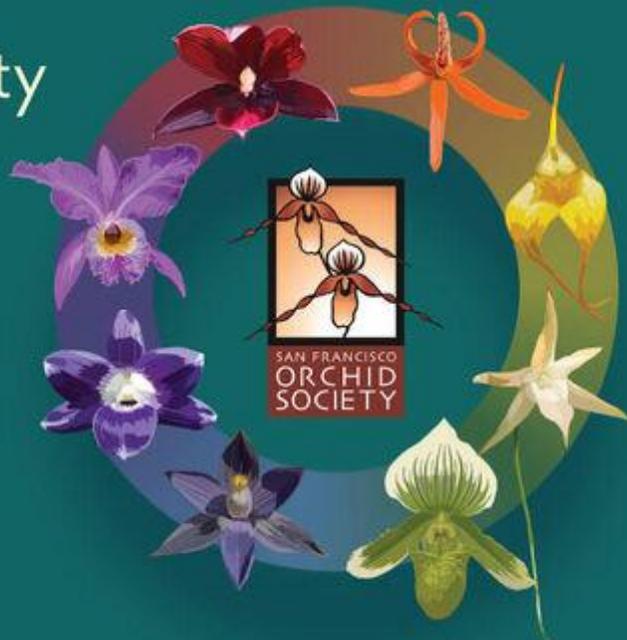
February 26 10am - 4pm

Preview Night: February 23 6-9pm
(Must be 21 or older)

County Fair Building
1199 9th Ave.
San Francisco, CA



www.orchidsanfrancisco.org
Discounted advance tickets available online



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