

AGENDA
Sunday, October 28, 2018, 1:30

[Please note: There was no agenda for September, nor a regular meeting. Instead, members visited two orchid nurseries in Ohio.]

- I. Presentation: Thomas Sampler – Orchids of Borneo, in the footsteps of Alfred Russell Wallace.
- II. Reports: Treasurer's and Minutes
- III. Old/Unfinished Business:
 - A. Louisville and South Bend shows. Sad to say, plans for a display at the Louisville were abruptly cancelled at the last minute and there was no time to find another. However, plans are still in place for the Michiana (South Bend) show. Rachel Walker is taking the display down. Plants were provided by Ian Wilhite, Karen Neiman, Lowell Flint and Kwen Hsu
 - B. We generally do not participate in the Fall Cincy show which this year is the weekend of 10/20-10/21. If you wish to go, it is at the Krohn Conservatory in Eden Park which is along the Ohio River and just east of downtown.
- IV. New Business
 - A. Calendar: Dates - November 18, December 9
 - B. From THE NEW YORK TIMES, 4/10/18, p. D5:
An Orchid's Sex Life Turns Bleak
The early spider orchid relies on deception to reproduce. Each spring, the orchid, whose bulbous crimson body looks like an insect releases a pheromone that tricks solitary male bees into thinking the plant is a mating partner – a key step for pollination.
This ruse, which scientists call pseudo-copulation, works because the orchid tends to bloom during a specific window each spring – shortly after lonely male bees emerge from hibernation but before female bees appear.
Yet, with spring coming earlier, female bees are now emerging sooner and luring the male bees away from the lovelorn orchids, according to a 2014 study from Britain.
 - C. An old CIOS member contacted us to donate some plants – we have about 15 to raffle off today. Of especial interest, since there weren't many plants, was the fine greenhouse available for purchase at a very low price. One member expressed interest in the purchase. Thanks to the Okey family.

Minutes of August 26, 2018 meeting.
19 attendees.

- I. Presentation by Dick Wells, owner of Hilltop Nursery in Cloverdale, IN. The informal topic of Tips For Better Orchid Care produced a scattergun barrage of suggestions that were in no particular order, nor aggregated by subtopic. I have attempted to do so in the following:
 - A. Containers. Clear plastic is preferred because various orchid species – phals, cattis, Oncidiums, maxillaria and others which have roots hanging down from trees, over rocks, etc. prefer this choice because their roots, like their leaves, do photosynthesis. Secondly, a major benefit is that the grower can easily discern when the roots need watering. If green, roots are OK; if not, then water.

Clay pots can be problematic. When transplanting, orchid roots tend to cling to clay pots. When these roots are disturbed, they are usually damaged.

- B. Fertilizer. The Michigan fertilizer is preferred because it is especially blended for orchids. This mix is not available commercially, at least in IN. Orchid nurseries carry it. There is one drawback to this mix. The scientists who developed it and tested it wanted to raise the magnesium content of the fertilizer from the current 2% to 6%. However, the magnesium in that high a concentration clumps and doesn't properly dissolve. Therefore, every three months or so, mix 2 tablespoons of Epsom Salts per gallon, i.e. magnesium sulfate, and water plants.

Dick fertilizes all year long, though he backs off in winter because more gray skies and shorter days reduce plant uptake of fertilizer. While this may be good general advice, there are some orchids that need to go totally dormant, e.g., *Catasetum*; others require quite a bit less, e.g., *dendrobiums*.

When feeding your plants be sure they also need watering. Plants watered a day or two before feeding will not take up the nutrients since they have already absorbed moisture.

Top dressing for some orchids, e.g. phrags and paphs, is advisable. Use calcium sulfate. You can also mix that as well as a granulated fertilizer in with the potting mixture. Phrags and Paphs are found growing on limestone. Many, but not all, paphs grow on the forest floor among humus layers. Phrags tend to be terrestrial or lithophytic, i.e., rock growing as well as epiphytic. Top dressing reduces the need for frequent fertilizing for these species which, when over fertilized yields 'brown tipping'.

- C. Temperature. In greenhouses and outdoors, this summer's heat created many problems. At temperatures above 85 F, many orchids stop growing and leaves become overheated. Misting leaves in the AM and PM cools them down. Too, the dry air around buds (especially with air conditioning) causes buds to drop because the plant cannot send enough moisture to the buds, aka bud blast. Finally, most orchids need to have a temperature range of 15 – 20 F. With very hot weather, this might not happen which prevents blooming.
Night time temperatures for warm orchids should go below 70 F; for intermediate, 60 F; for cool, 45 F.

- D. Misc. Tips. Cinnamon applied to cuttings on orchids is good; succulents do well in clear plastic containers; over use of softened water leads to salt buildup; most orchids need to be repotted every 18 months; good air movement doesn't mean the plants are fanned, but that the air around is moving.

II. Cincy Seminar, 7/7/18: Dave Bird, Bird's Botanicals, birdsbotanicals.com.

- A. Dave grows all his orchids (and his thriving succulent and carnivorous plant businesses) in At The Underground Cave, Kansas City, MO. Google Bird's Botanicals and there are videos of his plants and the cave.
- B. His biggest sellers are Phals or which the following are most popular: Phal. Firebird, Big Lip, Big Foot, Harlequin, Younghome Golden Leopard and miniatures.



Above: Phal Ox Firebird



Phal Younghome Golden Leopard

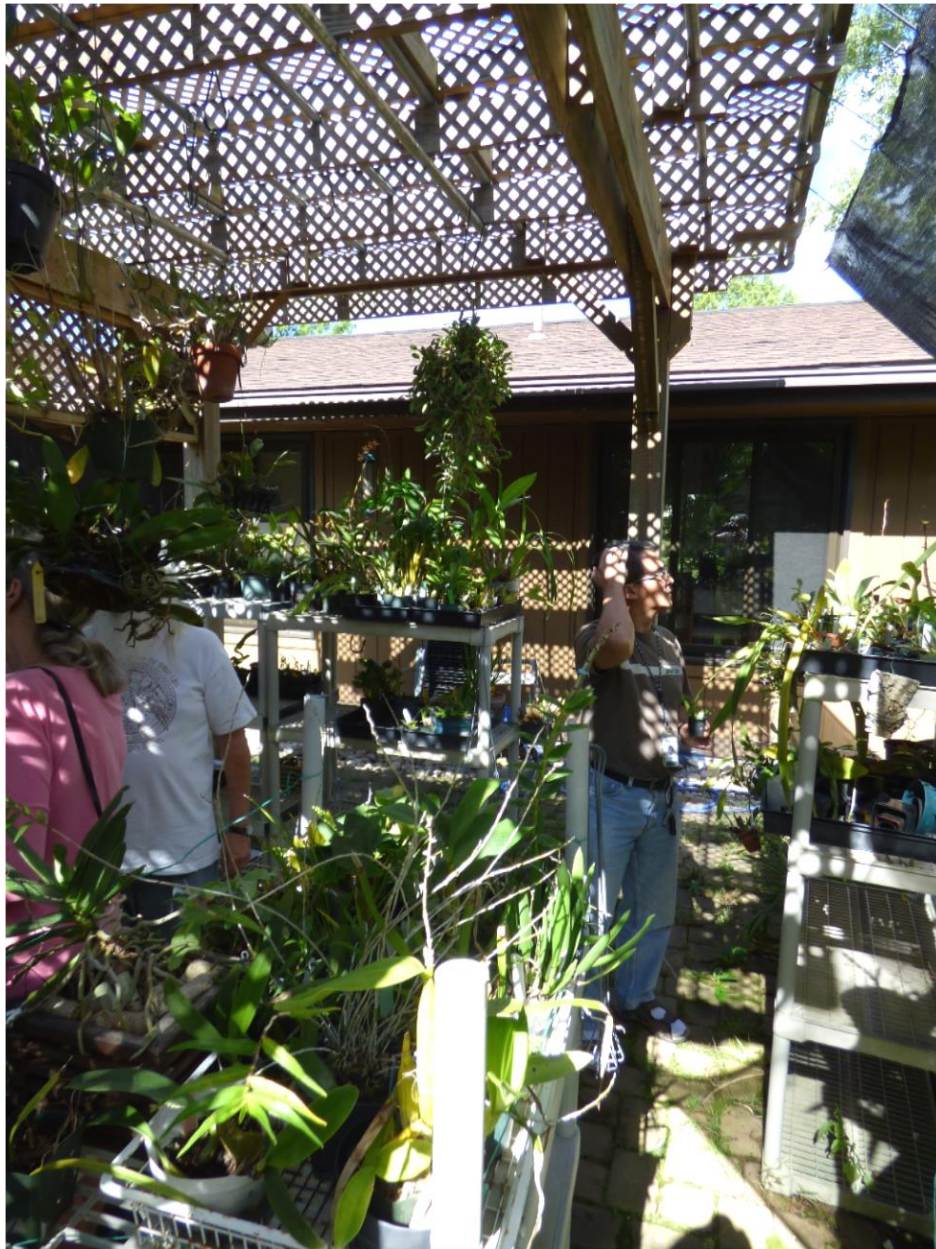
- C. Lighting & Heating. Uses high pressure sodium lights @ 1,000 watts. This provides a warm color. He is gradually replacing with LED @ 250 watts and a more neutral color. Fans work 24/7. Winter temperatures are 10 degrees cooler. Vents are provided to lower temperatures from the very warm potassium lights. Aluminum foil is on the walls to reflect light. Ceilings are painted white. Lights are 6' from Phals and Paphs, 3 – 4' from Phrags.
- D. October's Mid-America orchid show, 10/27 to 10/28, will be in Independence, MO, and will feature a visit to Burn's Botanicals.
- III. Orchid Care – from Sept 8th Garfield presentation.
- IV. Treasurers Reports and Meeting minutes unanimously approved.

- V. Send note to Chad to make sure web postings have year included with the date.
- VI. John has volunteered to set up Louisville and South Bend shows with Lowell WHO DOESN'T KNOW HE HAS VOLUNTEERED – Must be confirmed.
Kwen will take down Louisville Show.
- VII. John will send notice about September Car trip to Ohio nurseries. Will meet at 9:30 at Garfield. Visit River Orchids first, then lunch; then, second nursery.
- VIII. Ph kit shown to all; AOS publications on specific orchid genus shown; China order for orchids discussed and photos of orchids shown.
- IX. All invited to Garfield workshop on fall prep for orchids, 9/8/18 @ 10AM. \$5 is Garfield admission.
- X. Calendar for rest of year discussed

Minutes of the September 15, 2018 Meeting



Kwen, extreme left, Eric Sauer, and Vicki at River View Orchids. Erich primarily grows Maxillaria, Path and Phrags. He spoke to our club earlier this year and will speak early 2019.



At Orchid Outlet a custom built pergola serves as a space to display orchids during the summer. Hidden in deep shadow is Vickie, left, Barry [owner] and Kwen.

Three members went on the tour of the two orchid nurseries mentioned above. Both were located in Ohio: Centerville, Ohio, south east of Dayton and the other northeast of Cincinnati. Though both are commercial operations, they had an intimacy of scale as being a neighborhood greenhouse.

River View had hundreds of orchids within the greenhouse with at least 100 summering in the back yard. Erich, the owner, specializes in Maxillarias, phrags and paths. Barry, of Orchid Outlet, has a more eclectic display with unusual dendrobiums, epidendrums, habenarias, etc.

FOR THE NOVICE

Hydrogen Peroxide

Text by Sue Bottom/Photographs by Terry Bottom

MOST MEDICINE CABINETS have a brown bottle filled with hydrogen peroxide, used to help prevent cuts and scrapes from becoming infected. Hydrogen peroxide is water combined with an extra atom of oxygen, having the chemical formula H_2O_2 . The compound is unstable, ultimately converting into water and oxygen, although radical intermediates can be produced in the decomposition process. These reactive oxygen compounds are what make hydrogen peroxide useful as a disinfectant and sterilant in your battle against disease organisms. Keep a fresh bottle handy in your growing area. There are many ways to use it on your orchids.

FOLIAR DISEASES Hydrogen peroxide is a simple, cheap and amazingly effective antibacterial and antifungal agent, although it is not registered or labeled for this use. The 3% strength product sold in drug and grocery stores can be used full-strength on your plants. Search



Sue Bottom

around for the 8-ounce (237-ml) spray bottle of hydrogen peroxide and keep it handy in your growing area. It kills bacteria and fungal spores on the aerial parts of the plant without damaging the orchid. Spray sunburned leaves to prevent secondary infections, spray leaf surfaces after prolonged rainfall to prevent rots, pour into phalaenopsis crowns to stop crown rot from progressing. Use it liberally whenever you see leaf discoloration, water pooling, sunken spots, etc.

DRENCHES Sometimes adding hydrogen peroxide to irrigation water is recommended as an easy way to increase the oxygen content in the root zone. When hydrogen peroxide is added to distilled water, it converts to water and molecular oxygen, the same compound that comprises 21% of the atmosphere, and this form of oxygen is great for the roots. But in the presence of organic matter or metal ions, reactive intermediate oxygen compounds (peroxyl radicals, superoxide ions, hydroxyl radicals) may be formed and these are indiscriminate oxidizers. They will deactivate anything that is organic: microbes and fungal organisms (good and bad), plant tissue (living and dead)



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and organic matter (bark, peat or moss in your potting mixes). In fact, medical professionals no longer recommend hydrogen peroxide to sterilize wounds because it also destroys healthy tissue, although its effervescent cleansing actions are effective at debriding and removing necrotic tissue. If you choose to pour hydrogen peroxide through the root zone of your plants, you risk destroying

- [1] Look for the hydrogen peroxide sold in small spray bottles. Keep a bottle in your growing area so you can treat small problems before they become big problems.
- [2] Leaf rots are not uncommon after an extended period of rainy weather. Remove severely damaged tissue and spray with hydrogen peroxide to prevent the rot from spreading.

the microorganisms growing in the rhizosphere, whether they are beneficial, benign or pathogenic.

If you know you have a pathogen such as *Fusarium oxysporum* or *Rhizoctonia solani* infecting your roots, you may say “bombs away” and drench your potting mix with hydrogen peroxide. You are accepting the fact that you might kill the microflora, and then wait for the beneficial organisms to reestablish. If you have only one or a few plants, perhaps a better alternative is simply repotting them into a fresh potting mix, discarding the contaminated mix and infected tissue, rather than using a hydrogen peroxide drench. If you have a widespread problem, you might choose a fungicide with targeted effectiveness on the pathogen in question rather than a broad-spectrum peroxide drench.

AFTERREPOTTING Alan Koch of Gold Country Orchids has shared his technique of drenching pots with hydrogen peroxide after repotting to promote elongation and branching of the roots. There are scientific papers suggesting reactive oxygen species can increase lateral and adventitious root growth in some plant families, and there are reports promoting hydrogen peroxide applications to cuttings to prevent damping off and similar disease problems. If you spray the roots or drench your orchids with hydrogen peroxide after repotting into a fresh mix, you are probably not going to damage any rhizosphere populations except for those growing on or in your roots. Perhaps the hydrogen peroxide has the added benefit of sanitizing the wounds you inflicted on the roots during the repotting process, similar to cauterizing a wound. If you use biofungicides or probiotic products to help establish beneficial bacteria and fungi, apply them the day after hydrogen peroxide applications. If you use ProMix blends that contain mycorrhizae or biofungicides, spray the roots prior to repotting rather than drenching the potting mix.

WATER TREATMENT A disinfectant such as hydrogen peroxide can be used to treat irrigation water to remove pathogenic organisms and biofilm accumulations. Hydroponic growers that recirculate irrigation waters and others using surface waters as an irrigation source may have to treat water to prevent disease in the growing area. The literature suggests around 150 ppm hydrogen peroxide (3.8 tsp/gal or 5 ml/L of 3% product) is necessary to treat common waterborne pathogens such as *Pythium*,



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Phytophthora, *Fusarium* and *Rhizoctonia* (Fisher 2011) and perhaps 400 ppm (3.4 tbsp/gal or 13 ml/L of 3% product) for virus (Runia 1995). Hydrogen peroxide can be used as an oxidizing agent to clean an irrigation system of algae and organic buildup, after which a low dose on the order of 10 to 25 ppm can be applied

[3] This small rot spot did not spread after a few sprays of hydrogen peroxide. If only I had started spraying after the first few days of rain.

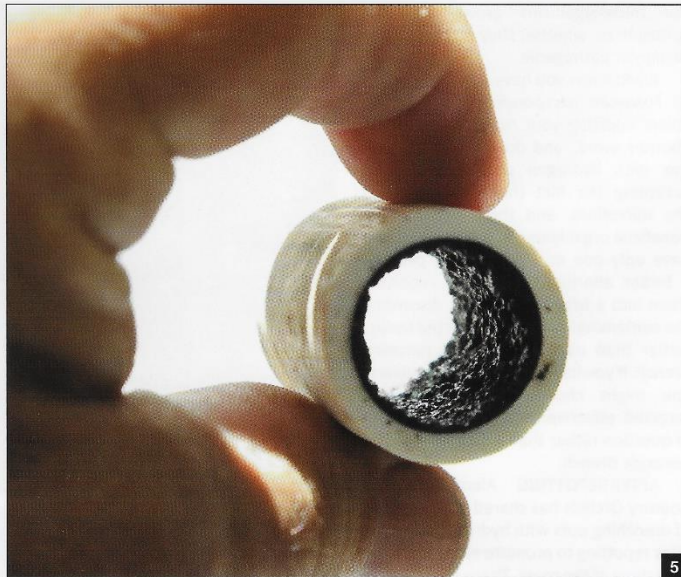
[4] Spray hydrogen peroxide any place where water can pool to kill omnipresent bacteria before they rot the plant crown or new growth.

continuously to keep the irrigation system clean (0.25–0.64 tsp/gal or 0.4–0.8 ml/L). Hydrogen peroxide is used to destroy organic contaminants present in the water or water lines and should be consumed in these reactions before reaching the roots. It is used as a sanitizer rather than as a way of supplying supplemental oxygen to your orchid roots.

SHELF LIFE An unopened brown bottle of hydrogen peroxide has a shelf life of up to three years from the date of manufacture, as indicated by the expiration date on the bottle. Once the seal is broken and the peroxide exposed to air, warmth and light, the peroxide decomposes to water and oxygen gas at an accelerated rate. Under ideal storage conditions, you might have about 30–45 days of peak effectiveness and perhaps six months of useful activity. If you pour some on a cut and it no longer fizzes, it has lost its antiseptic qualities and the brown bottle contains only water. Mark the date you opened the bottle on the label, so you will know when to replace it. If you use the small spray bottles, get into the routine of pouring out unused solution and refilling the bottle on the first of every month.

DIFFERENT FORMULATIONS Hydrogen peroxide is produced in different strengths for various industrial applications, up to 98% for rocket fuel, but highly concentrated solutions are hazardous to handle. BioSafe Systems makes activated peracid products, such as SaniDate and ZeroTol, which contain both hydrogen peroxide and acetic acid, producing a highly reactive product called peroxyacetic acid (PAA). This is more effective than hydrogen peroxide alone, but it also more dangerous to handle. These products cost well over \$100 for a 2.5 gallon (9.5 L) jug and are probably more suitable for use by the commercial grower rather than the typical hobbyist. Biosafe Disease Control, available in smaller quantities and lower concentrations (5.34% hydrogen peroxide and 1.36% PAA), may be of interest to home orchid growers.

Keep hydrogen peroxide in your growing area so it is right there when you need it. Spray it on the aerial parts of your plants the moment you notice any wounds, discolorations, sunken spots, areas where water pools, anywhere that the plant tissue just does not look right. Use it liberally; the peroxide is not going to improve with age. The high-priced fungicides have their place in your arsenal, but you cannot buy them at the Dollar Store. Hydrogen peroxide is cheap,



effective and available; what's not to like!

REFERENCES AND ADDITIONAL READING

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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).



[5] When Terry was replumbing the greenhouse water lines, he cut away an old section of pipe that containing a sticky, organic buildup on the inside of the polyvinyl chloride pipe. This deposit is a biofilm that develops inside irrigation lines, possibly exacerbated by the prior use of the pond behind the house for water.

[6] This experiment to see how long it would take for the hydrogen peroxide to lose its fizz was a failure; the balloon partially inflated after a week or two but the balloon degraded before the peroxide did.