



# GREATER LAS VEGAS ORCHID SOCIETY

SUNDAY, DECEMBER 5, 2004 12:30 PM

IT'S PARTY TIME AT MY HOUSE 8601 ROBINSON RIDGE DRIVE IN  
CANYON GATE COUNTRY CLUB 254-4168

Carol Siegel, Newsletter Editor

CAROL SIEGEL- PRESIDENT  
CLARICE DEAN -VICE-PRESIDENT  
EILEEN MCKYTON- SECRETARY  
DIANA SMITH- TREASURER

AND...

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Eileen McKyton and Dan Hawley- Welcome Desk  
Lillian Patterson- Photographer and Historian  
Dan Mumau and Tony Billitere- Raffle Chairmen  
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Jeri Lee and Tony Billitere- Community Liaison  
Alex McKyton -Building Chairmen and Webmaster  
Tex Severance and Mike Levin- Show and Tell Gurus  
Tex and Gidget Severance- Judging Chairmen  
Scotty Nogaim- Election Chairman, Raffle Lady  
Steve Ninemire Library Chairman Clarice Dean, Assistant Librarian  
Clarice Dean- Trip Chairman  
John Haydukavitch-Video Chief  
Shelly North-Classy Club Apparel Chairlady

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December 5, 2004 Fifth International Food Fest/Holiday Party

12:30 pm AN HOUR AND A HALF EARLIER THAN USUAL

January 9, 2005 Mike Glikbarg, Orchids of Los Osos

"Odontoglossum & Oncidinae" SECOND  
SUNDAY

February 6, 2005 Alan Koch, Gold Country Orchids, "Orchid  
Growing For Dummies"

March 6, 2005 Jerry Fischer, "The Orchids of Borneo"

April 3, 2005 Charles Rowden, "Orchid Photography"

May 1, 2005 Dr. Joseph Arditti "Techniques Orchids  
Use to Survive in the Wild"

June 5, 2005 Sue Fordyce, owner Fordyce Orchids "Sophronitis and Her Sisters"/"Orchid Sign Language"  
 July 10, 2005 SECOND SUNDAY Sheldon Takahashi, Carmela's Orchids, "Cattleyas"  
 August 7, 2005 Barbecue  
 September 11, 2005 Virtual Greenhouse Tour  
 November 6, 2005 The Adventures of Dennis D'Allesandro in Bolivia"  
 December 4, 2005 Sixth Annual International Food Fest and Holiday Party

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It rained the first Sunday in November, and we celebrated the end of the drought in our usual antic way with fun, food, friendship and flowers. Our member numbers swelled to 109, a record, as we welcomed Ruth Theile and Karin Serra to our club. We were happy to meet guests Reed Merrell and Jeff Kawaguchi, too, and to welcome back Scotty Nogaim and Jean Gordon after their recent illnesses. Our hearts go out to Clarice and Dennis Dean on the tragic loss of their nephew. We are so sorry.

Bill Bergstrom of Bergstrom Orchids entertained us with fascinating slides of all the weird orchids that don't make it to a corsage at the prom. It was so much fun and so interesting to see all the bizarre bulbophyllum, gongora, coryanthes and the like with all their strong smells and even more weird hairs, spots, lips and moving parts. Bill sold out of his unusual plants, which he provided for the raffle table, too. I was thrilled that my *Coryanthes speciosa* opened the day of the meeting and was dripping liquid into its bucket. The flower only lasted two days, so it was great luck for it to be there in time for a weird orchid talk! We are especially grateful to Eileen and Alex Mckyton for arranging for and housing Bill, an old friend from Hawaii.

After the talk, Jean Gordon, Christiana De La Cruz, Marguerite Janes, and Nita Bragg prepared a Chinese feast for us. It was just incredible! Thanks, ladies. Thanks, too, to Shelly North for donating orchids from Simply Hawaii and to me for donating 20 bags of various potting materials to the raffle.

The club sold 29 bags of Aussie Gold and made \$200 to help defray the cost of our Hawaiian speaker. Everyone loves this potting mix from Australia, which never breaks down and can be used over and over. When repotting, just take the mix from the same plant, put it in a larger pot and add some more, and voila. This stuff never seems to break down, cannot be over-watered, and is fabulous!! I bought ten bags, and I am looking for more! It pours into the pot like sugar. Sweet! We will sell some more at the next meeting to meet demand.

Clarice Dean prepared culture sheets on our Species of the Month, *Epidendrum pseudoepidendrum*, an easy-growing epiphyte from Panama and Costa Rica that loves high light. Clarice donated the plants and the money from their sale to the club. How very thoughtful of her!

The club held elections, and Scotty Nogaim was the chairlady. I was re-elected president, which makes me very happy, Clarice Dean was re-elected vice-president, Eileen McKyton was re-elected secretary, and Diana Smith was re-elected treasurer. We all humbly hope we can live up to your expectations and provide a fun and educational experience that you will really enjoy.

Next month, we will have our Fifth Annual International Food Fest and holiday party at my home, 8601 Robinson Ridge Drive, in Canyon Gate Country Club, across the street from the Lakes. The entrance to Canyon Gate is on Sahara just west of Durango and before Ft. Apache. To get there, starting at the strip, go west on Sahara, past

Decatur, Jones, Rainbow, Buffalo, Durango. Make a right at the light after Durango which is Canyon Gate Drive and go through the guard gate. You can ask the guard for directions. Make the first right and continue around the semicircle to my house. I will put balloons on the mailbox. I have stained glass shell doors and a peculiar grass driveway. My phone number, if you get lost, is 254-4168.

I will provide duck, roast pork, fried rice, bok choy salad, tiramasu, bread pudding, drinks, wine, tequila, and paper goods. I will also provide a masseuse who will be doing chair massages and two musicians who also sing who will play the guitar, keyboard and violin!! Katie and Mark Cravenn, our members, will provide a margarita machine, bless their hearts. Mark has a business renting these machines (256-2121) Leslie Doyle will be bringing a roast turkey, Phyllis Bond will bring a ham, and Dan Mumau and Mike Lawless will provide a roast beef.

We ask everyone else to bring a DISH for 10-12 people, dessert, side dish, casserole, or the like WITH SERVING SPOONS, please. If your dish needs cutting, heating, arranging, try to do it all at home, since it will be easier that way. I have some limited room to do re-heating, but it will be best if nothing needs carving or cooking there. For the rare person who can't think of anything to make or buy, bring a bottle of wine which we can sell at the White Elephant Sale.

We also kindly ask that you bring some CANNED GOODS for us to donate to the Salvation Army. We do this every year and donate many cartons of food for the unfortunate, our way of showing gratitude for our good fortune.

Dan Vong, our angel, has agreed to provide the 100 raffle plants for our Holiday Party. Raffle tickets at the party are \$6, and all members receive a blooming orchid worth \$25 with the club

subsidizing the rest of the purchase price, our gift to you. Thanks, Daniel! We hope to see everyone at the party. It is always great fun.

In January, we will be having our Fifth Annual White Elephant Sale, a fun fundraiser which raised \$700 last year. Because we are a very high-class club, our junk is of the very best quality. I got a great brass lamp for my office last year and sold two nice bikes. Make sure you bring in things to sell for the club- movies, CD's, books, kitchen stuff, nick-nacks, lamps, gifts you don't want, sporting equipment, or the like. If you don't have anything you want to part with, consider buying a bottle of wine or an orchid or donating an orchid or something orchid-themed. It's fun and for the best cause, US. We probably won't have the spring plant sale this year, so we want to make sure we are on a firm financial foundation to start the year.

I am working on the article, "Let There Be Light", but I did not get enough responses from members yet so I will have it for next month. For those who don't have e-mail, I ask that you answer the following question so I can share the input in an article on light as we did with water. If you don't have email, you can hand it to me at the party or mail it to me, pretty please. Everyone loved the format with the water information, but only YOU can make it happen.

How do you provide light for your orchids? What kind of light do you provide? Do different orchids get different amounts of light and how do you do that? If you grow in a greenhouse, how do you provide shade for your collection? If you grow indoors, do you provide extra light for your plants? Do you use a light meter? Do you vary the amount of light with the seasons? If you use growlights, what kind of lights do you use, how much do they cost, and how often do you change them? If you grow in a window, tell us about that. If you have a greenhouse, tell us how light was a factor in its construction. **LIKE TELL ME ANYTHING ABOUT LIGHT IN YOUR OWN WORDS...** Thanks a bunch

Following the newsletter are two articles, one on what makes an orchid an orchid and one on cloning See you at 12:30 on December 5<sup>th</sup> at my house! Love ya, Carol

## Is That An Orchid?

By Carol Siegel

My daughter received lots of flowers after the birth of her second child. My four-year-old granddaughter loves flowers just like Grandma. She stood on tiptoes and smelled a Casablanca lily. "Granma, look!" she said. "Mommy got an orchid."

"That's not an orchid," I told her. "That's a lily."

"It looks like an orchid. It smells like an orchid. How do you know it's not an orchid?" the munchkin demanded.

Hmmmm. Good question. Why wasn't the lily an orchid? How DO you know when something is an orchid or NOT an orchid. So I looked it up... Next time, YOUR grandchild or anyone else for that matter asks you, you will know.

Lilies and orchids have lots in common. They are both monocots so they are built on threes. They both have three sepals and three petals. They both have a female part, the pistil, with three parts. They both have colorful and often spectacular flowers. They both often are very fragrant. They both have their ovaries underneath their flowers. MacKenzie Black thinks they both descended from the same order, Liliales, so they have the sort of similarity you find in distant relatives.

But they ARE different. Let's find out some of their differences.

### ORCHIDS ARE BILATERALLY SYMMETRICAL.

Lilies look the same in all directions. Orchids do not. Orchids are like us. We are different on the top half of our bodies from the bottom half. We are, however, the same on the left side as on the right side. We are bilaterally symmetrical. If you cut an orchid across the middle, the top half will be different from the bottom half. One of the petals of an orchid, the lip or labellum, is just spectacular, extra-fancy with spots and perfumes to attract pollinators. It is usually located on the bottom, not the top of the flower. If you cut an orchid

down the middle, it is the same on the left as on the right. It is NOT the same in ALL directions. It is bilaterally symmetrical.

However, if you cut a lily in half across the middle, the top half will be just like, the bottom half, and if you cut in down the middle, the left side will be just like the right side just like a daisy. It has radial symmetry. It is the same in all directions. That is one important difference. Lilies are like daisies. Orchids are like us.

### ORCHIDS OFTEN GROW ON TREES

Lilies always grow in soil in the ground. Although orchids do grow in the ground the majority grow suspended in air on the branches of trees. They are "epiphytes", air plants, with many specialized structures to help them endure drought. Some orchids have swollen stems, pseudobulbs, like a camel's hump, to store extra water. Many have succulent leaves to conserve moisture. Several orchids have thick aerial roots covered with an absorbent material called "velamen" which helps them absorb moisture from mists and clouds—rather like blotting paper. Many epiphytic orchids have chloroplasts in their roots and can produce food. Some orchids like *Chilochistra* and *Microcoelia* have lost their leaves completely and rely only on their roots only for photosynthesis! Many orchids are adapted to living on a tree, something a lily cannot do.

### ORCHIDS HAVE MICROSCOPIC SEEDS

Orchids have huge quantities of microscopic seeds. Ruschi in 1986 estimated that a single fruit of *Cyrtopodium punctatum* produces over 7 ½ million seeds!! The smallest number of orchid seeds is in a fruit of *Barbosella australia* with only 25,000 seeds—still a huge number when compared with the countable big seeds of a lily. Orchid seeds are so numerous that Charles Darwin once estimated that if all the seed in a single plant of *Dactylorhiza maculata* grew into mature plants, the great-grandchildren of a single plant would cover the entire surface of the land throughout the earth!!

Orchid seeds, designed to float on air, are super-light, six to eight cells covered with a transparent coat, one-cell thick!! The seed is so small that there is no room to pack in a sack lunch for the growing embryo. There is no endosperm such as lilies provide for their babies. The little orchid seed is on its own and has to

land on a mycorrhizal fungus that will be its nanny until the orchid can grow leaves and roots of its own.

Orchids go through a transitional phase early in the development of the little orchid where the little ball of cells becomes a little, green amorphous mass, just 1mm long, called a "protocorm" . Still an embryo, the protocorm has rudimentary roots and leaves, which will produce chlorophyll in a few months. During the protocorm stage, the orchid is like a child , living off its fungus. The protocorm will develop into an orchid, but the protocorm stage is a special characteristic of orchids.

### ORCHIDS HAVE VERY UNIQUE SEX ORGANS

Lilies have separate male and female parts in the flower and lots of powdery pollen. Their six pollen-carrying stamen face in all directions in the middle of the flower. Orchids have very special sex organs. The last of the flowering plants to evolve over 120 million years ago, they have a very complex sexual apparatus. Their male and female parts are fused into a structure called the column about the size of the top joint of a kid's pinky. Sometimes it looks like a doll, a bird, an insect, the neck of a swan, or a little face. It is usually white, green, or pink. Almost all orchids are hermaphrodites!! (Cattas are one exception.) At one end of the column is the male part, the stamen and balls of pollen and at the other end two or three stigmas fused into a single sticky female cavity. Orchids are different from lilies in that they have one or two—not six—stamen which all face in only one direction. Male and female parts are separated by a rostellum, designed to prevent self pollination.

If you brush up against a lily, you will probably get orange pollen all over your shirt. Unlike lilies, there isn't any loose pollen in the majority of orchids. The pollen is shrink-wrapped into little rice-size, egg-yolk colored sticky balls called "pollinia" designed to be picked up and deposited by a specific insect, bird, or bat. Orchids seduce their pollinators into transporting their genetic materials with a series of lies, lures, and tricks. The pollinia lie in depressions covered by a hinged cap, where they look like a pair of eyes, according to Rebecca Northern! Pollinia come in sets of two—phals have two, cattas have four, laelias have eight, brassavola twelve.



With at least 25,000 species, orchids have tremendous variation from the tiny platystele ornata, a bouquet of which can fit into your wedding ring, to the gigantic *Grammatophyllum speciosa* which can grow bigger than a bull elephant. For everything you say about an orchid, there is always an exception. We say orchids have three petals, but in *Stelis* and *Masdevallia*, the petals are so tiny that they are barely visible. We say that orchids have three sepals, but in papahs that bottom two are fused so it looks like there are only two. We say there are separate sepals and a lip petal, but in most dendrobium, the sepals and the lip are fused together. In *Coryanthes*, the lip is modified into a swimming pool and in some *Dracula* into a mushroom. In 20% of orchids, the pollen is not formed tightly into a ball but is more granular. However, bilateral symmetry, the column, microscopic seeds, stamens facing in one direction will help you tell an orchid from anything else. So, if your grandchild asks YOU, I hope this helps!!

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I am grateful for the information in the following books that helped me in the preparation of this little article.

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## Dolly the Orchid

by Carol Siegel

When scientists made the stunning announcement that a sheep had reportedly been cloned, the whole world was abuzz with talk of Dolly the Sheep. What would become of us? The novel and frightening idea that there could be 100 Saddam Husseins walking the world overwhelmed our imaginations. People worried that it was an affront to God, an anathema to nature, and a danger to us all.

What is big news in the animal world is old hat in the botanical world. Plants have been cloning themselves for eons. The creosotes, the *Larrea tridentata*, of our desert, send out runners and make clones of themselves that have been cloning the same plant for 10,000 years, since the last ice age, right here in Las Vegas. Orchids in nature clone, too. In addition to propagating from seed, some orchids like *Cypripedium californicum*, propagate asexually by sending out multiple new growths from their rhizomes, in essence, creating clones of themselves, multiple little DollyThe Orchid plants.<sup>1</sup>

Although natural orchid cloning is old news, the discovery of mericlone in the laboratory in the 1960's rocked the orchid world, revolutionizing commercial orchid growing and bringing award-winning plants to an eager market at a tiny price. George Morel and Donald Wimber discovered that less than 1/12" of embryonic tissue from the growing tip of an orchid stem could be cultivated to produce more than a MILLION mirror-image copies or clones of the mother plant. A plant coveted at \$500 or \$1000 could produce identical clones that could be sold for only \$10 or \$20. This change led to a hurricane of demand and made the American Orchid Society the largest organization in the world devoted to a single plant family.<sup>2</sup>

What's the big deal? Well, let's say you saw a beautiful yellow orchid with a peach throat. You REALLY want that orchid. When you check the tag, the name is followed by a cultivar name in single quotes. In order to get EXACTLY that plant, you have to buy a division of that plant, a piece of the plant that is broken off that specific plant and repotted. Of course, growing divisions is a very slow process and would keep that plant rare and expensive. You could, of course, buy a seedling with that plant as one of the parents. However, orchid

hybrids are extremely variable and even with excellent parents, the number of high quality offspring is extremely low. Your seedling might not look like his parent after all.<sup>3</sup>

However, if you bought a mericlone, you would get a fairly exact plant, (there is still a touch of variation possible), and thousands of other people could get one, too, which makes the plant less rare, less expensive, but still desirable. If a plant receives an award, all mericlones of that plant will also carry the award, since they are all the same plant. You would get your fairly EXACT plant, you would pay much less, and you would still get an awarded plant. Neat! Quite a few of the most popular orchids are easily mericloned such as cattleyas, cymbidium and phalaenopsis while paphiopedilum and masdevalias can only be propagated by division or seed. Paphs and masdevalias are consequently more expensive, in general, to buy.<sup>4</sup> Today, meristemming or mericloneing is used more than seed raising.

How do you propagate this quality in quantity? A small cluster of cells at the center of the meristem tip or embryonic tissue of a new growth is removed using a microscope. (This is the sort of new growth that we see in our cattleya plants at the base of the pseudobulb.) The removed tissue is placed in a nutritious liquid solution and agitated to encourage growth. Little clumps of green tissue, the protocorms, begin to enlarge and are then cut into smaller pieces. The process is repeated until the desired number of protocorms is produced. George Morel said in 1964, "If each protocorm gives only four new ones per month, it is possible to obtain more than 4,000,000 plants in a year from a single bud."<sup>5</sup>

The little protocorms look exactly like the ones that are produced from seed. They are placed into agar base in sterile jars and grow just the same way as little seedlings. Each of the protocorms is an individual plant. They are chlorophyll-filled containers from which leaves and roots are produced in a few more weeks.

The seedling leave the jar when they are about 2 inches and have their own roots, usually in the spring. A little tepid water with a little fungicide added is swilled around the now-opened jar to dislodge the seedling. The seedling is rinsed and put on absorbent toweling. The biggest and smallest plants are discarded and the remainder are planted in a community pot or tray, six seedling

to a tray. In 6-9 months, they are potted up.<sup>6</sup> The plant produced is an exact copy of the mother plant.

The discovery of meristemming occurred almost by chance. In 1956, George Morel, director of the National Institute of Agricultural Research in Versailles, France, was looking for a way to eradicate plant viruses with his student Claude Martin. Some years before, Cormuet and Limasset at the same institute, noticed that the growing tips of the shoots of potatoes infested with potato virus, were unaffected by the disease. They found they could grow the undamaged apices of the potato plants, and the new plants would not have the disease.

In 1958, Morel tried the same experiment with the growing tips of cymbidium infected with a virus. The pieces of growing tips also were free of the virus and could grow virus-free plants. He published his work on clonal propagation of orchids by multiplication of the apical meristem to free cymbidium of virus in the AOS Bulletin in July 1960. The orchid world little noticed the implications.<sup>7</sup> At about the same time, Donald Wimber of Brookhaven National Laboratories in Bethesda, Md was doing similar experiments and his published results were similarly overlooked.

In 1960, Mme. Missionnier, one of Morel's assistants, remarked to him that an accidental division of the tuber-shaped protocorms produced as many plantlets as there were fragments. Morel realized that this was a way of obtaining thousands of identical specimens from a mother plant without recourse to seed. He discussed it with Professor Walter Bertsch in Paris who enlisted his orchid-growing friends Maurice Lecoufle and Michel Vacherot to begin the first program of propagation of orchids by the dissection and cultivation of embryonic orchid tissue. They were so successful that in 1964, the results were published for the first time. Of course, this is a difficult method that requires a good deal of equipment and a laboratory and is not for the home grower, but it revolutionized the commercial world

So we see the cloning extremely important in orchid growing. Of course, many orchid plants are still produced by the sexual reproduction of pollination and many orchids are still grown from seed. The *Larrea tridentata* or creosote that clones itself in our desert also uses pollen and seed as another backup reproductive strategy. Sexual reproduction is favored by nature because it

offers many benefits. For one thing, in the wild a plant and its pests are continually coevolving, in a dance of resistance and conquest that can have no victor. Sexual reproduction may produce a plant that is one step ahead of a bug or disease.<sup>9</sup>

Sex is nature's way of producing fresh genetic combinations, combinations that may be better suited to the jungle, garden, or desert where the orchid finds itself. Sex produces a biodiversity that helps plants adapt and adjust to changing conditions.

Sexual reproduction also prevents bad traits from spreading to all the offspring of a plant. In cloning, all the bad traits are passed down. In sexual reproduction, only some of the offspring will get the bad traits. If a male or female with one harmful DNA mutation produces eight gametes, four will have the flaw—but four will be free of error. When the male and female, both of which have one bad or error flaw, are combined and there are eight new organisms, four offspring will have one harmful mutation, two will have two, but the remaining two will have NO error or flaw. Sex is a benefit if you are not perfect.<sup>10</sup>

So there's the choice- a perfect yet static cloned replica by meristemming or a variable, evolving replica by sex and seed- Dolly The Orchid or Dolly- Charley the Orchid. Both have advantages!

## FOOTNOTES

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