

The Atlanta Orchid Society Bulletin

The Atlanta Orchid Society is affiliated with the American Orchid society, The Orchid Digest Corporation and the Mid-America Orchid Congress.



Newsletter Editor: Margie Kersey

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Mary Pat Matheson, Executive Director Atlanta Botanical Garden

Mary Pat Matheson is the Executive Director of the Atlanta Botanical Garden and directs all operations for the 30-acre urban garden in Midtown, the heart of Atlanta. The Garden showcases floral displays, plant collections, children's garden, and the Fuqua Conservatory and Orchid Center. Under her leadership the Atlanta Botanical Garden is actively expanding fund-raising, education, marketing, business administration, horticulture and the implementation of a new master plan. Additionally, she is responsible for directing Smithgall Arboretum, a 168-acre new and emerging arboretum in Gainesville, Georgia.

2008 promises to be another year of personal achievement for Matheson. The Garden was selected WSB Green Champion in March, 2008. She was named one of 14 Women of Excellence by Business to Business magazine in July 2007, and one of 25 Power Women to Watch by Atlanta Woman magazine in January 2006. In 2005 she was named 2005 Professional of the Year by the American Horticultural Society; and the Lexus Leader of the Arts by Public Broadcasting Atlanta. Also in 2005, Matheson accepted on behalf of the Garden a \$4 million gift from Turner Broadcasting System, Inc., the largest corporate gift in the Garden's history. Because of her proven leadership and administrative skills, she was asked to participate in two international advisory committees, chairing the Limbe Botanic Garden Conservation Coalition in Cameroon, and acting as delegate for the U.S China Arts Exchange southern Gaoligongshan Sustainability Initiative in China.

Matheson's visionary outlook is leading the Atlanta Botanical Garden in new directions and delivering big numbers. David Rogers' *Big Bugs & Killer Plants* opened in Summer 2007 showcasing the interaction of nature with the Garden's MARCH MEETING The Monthly Meeting: Topic: ABG Looks to the Future Speaker: Mary Pat Matheson Atlanta Botanical Garden 8:00 pm Monday, March 10



The Atlanta Botanical Garden is moving forward with its capital projects, new exhibitions and an expanded conservation program. Executive Director, Mary Pat Matheson, will present an overview of the Atlanta Botanical Garden's growing conservation program, upcoming exhibitions and transformational capital projects that will assure greater access to visitors and a dramatic new feature that will become an icon for the City – the Canopy Walk.

Inside This Issue
Page
2 AtlOS Officers
Minutes of the February AtlOS Meeting
3 Member Spotlight - Ed & AnnaLee Boyett
5-9 Table Awards
10 Article - History of Orchids, Part 3
12Events Out and About
13 What you missed in February
14 19th World of Orchid Conference photos
15 SE Flower Show photos
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Continued on page 4

THE ATLANTA ORCHID SOCIETY

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Atlanta Orchid Society Meeting Minutes February 11th, 2008

The Atlanta Orchid Society Meeting was brought to order by President Jeff Whitfield. Visitors were welcomed and introduced. The minutes from the last meeting were approved as printed in the newsletter.

2008 memberships are now due. Cost is \$30 for an individual and \$45 for a family. Only members whose dues are paid by the end of March will be included in the directory.

The treasurer reported that the society's current balance is \$10,450.94.

Cora Ramborger was recognized as one of the quarterly ribbon judging winners for 2007.

Roy Harrow thanked all volunteers for their help during the Southeastern Flower Show. Danny Lentz and David Mellard were specifically recognized for their assistance. David Mellard's plants received numerous awards at the show.

Ron McHatton, Director of Education and Regional Operations for the American Orchid Society, gave a report on the World Orchid Congress recently held in Miami. He congratulated the Atlanta Orchid Society on their tabletop display, which he said was outstanding.

This year's orchid auction will be held on Sunday, April 6th, at the American Legion Post 140 near Chastain Park. These orchids will be supplied by vendors. There will be a pot luck meal followed by the auction at 1:00. On July 26th, there will be another orchid auction at Roy Harrow's house around his pool. For this auction, which will also include a pot luck meal, members bring their own orchids, and a percentage of the sale goes to the Atlanta Orchid Society.

Fred Missbach, current president of Orchid Digest, encouraged members to subscribe. See Fred for a discount.

Ron McHatton reminded everyone that there is a currently a discount to joining or renewing memberships with the American Orchid Society through the end of March.

Continued on page 3

Join the Atlanta Orchid Society

Membership in the Atlanta Orchid Society is \$30 for individuals or \$45 for households. Yearly membership runs January 1-December 31. Anyone joining in the third quarter will get a 50% discount on the current year's membership. Anyone joining in the fourth quarter will purchase a membership for the following year. You can join at one of our monthly meetings, or contact the society's Treasurer (see page 2) for a membership application.

For directions to the Atlanta Botanical Garden, please visit their web site at <u>www.atlantabotanicalgarden.org</u> or contact one of our society's officers listed on page 2.

Jeff Whitfield asked for volunteers to coordinate the refreshments for the meetings.

Mary DeHaye invited society members to volunteer to talk to visitors at the orchid house at the Atlanta Botanical Gardens. Volunteers receive various perks. See Mary or call ABG to volunteer.

Danny Lentz informed members of scheduled speakers at upcoming meetings, and said that if anyone had specific people that they would like to suggest as a future speaker, please let him know.

The speaker was Russ Vernon of New Vision Orchids in Yorktown, Indiana. He gave a talk entitled "How Not to Grow Phalaenopsis".

Our thanks to the orchid judges: David Mellard, Liz Wyman, and AnnaLee Boyett.

Our thanks to those who donated plants to the raffle table: Reba Herzfeld, and others.

Our thanks to those who donated refreshments: Helen Weil, Sue Hampton, Ellen Brand, Jeff Whitfield, Bill White, Marianne Gilmore, and others.

The meeting was adjourned.



Respectfully submitted, Carl Quattlebaum

JOIN THE AMERICAN ORCHID SOCIETY

For \$60.00 per year, you reap the following benefits:

- 12 issues of *Orchids*, the Society's monthly full color magazine chock full of insightful articles and tempting ads for plants and supplies.
- 10% off on purchases from the Society's Bookstore and Orchid Emporium. Reduced or free admission to participating botanical gardens.

For a limited time, if you join for two years (\$108) you will also get a \$30 gift certificate (good on an order of \$100 or more) at any one of 13 commercial growers who advertise in *Orchids*. **JOIN TODAY**. For information, contact Evan Dessasau (404-241-4819)



AnnaLee and Ed Boyett



AnnaLee's love of orchids started as a child. She told her mother that she wanted to grow orchids, however her mother said orchids were difficult to grow. In 1964, Ed gave AnnaLee an orchid plant as a Mothers Day gift. This was the start of growing orchids and continues today. As the collection grew to over 200 plants in the home, they decided to build a hobby greenhouse that is 17 by 20 feet.

The greenhouse is now overflowing with over 1000 plants.

Ed and AnnaLee joined the Atlanta Orchid Society in 1973, and in 1978, AnnaLee became president, Ed became president in 1984.

When the Atlanta Judging Center was formed, Ed became their photographer, and continued for over 30 years. F L Stevenson was the chairman of the center and he encouraged AnnaLee to become an AOS Judge. In 1984, AnnaLee became the Chair of the American Orchid Society Committee of Awards.

After retiring from the insurance business, Ed started organizing tours to orchid events around the world. Ed and AnnaLee have had the opportunity to visit 27 different countries seeing orchids at orchid shows and growing in natural habits.

Today Ed and AnnaLee enjoy volunteering at the Atlanta Botanical Garden as Orchid Specialist. They show visitors through the Orchid Center and answer questions about orchids.

March 2008

carnivorous plants and Conservation program. In 2006 Niki in the Garden opened, raising the cultural arts bar in Atlanta once again. This was the largest outdoor exhibition of colorful mosaic sculptures created by Niki de Saint Phalle that were displayed throughout the Garden. In 2004 Matheson secured Chihuly in the Garden, a blockbuster exhibition integrating the begutiful glass sculpture of Dale Chihuly within the Garden's unique plant collections, putting Matheson's Garden on the map. The unique exhibition attracted record numbers of visitors from around the country, and, according to the Atlanta Convention and Visitors Bureau, yielded \$50-\$60 million for the City during its nine-month run. Garden visitation more than doubled to 425,000; Garden gift shop sales increased by 400 percent and Garden membership reached an all time high with 19,000 member households. Matheson's other blockbuster exhibitions include 2005 Locomotion in the Garden and 2003 TREEmendous TREEhouses, as well as annual, sell-out, outdoor Concerts in the Garden, wintertime OR-CHID DAZE and Scarecrows in the Garden every fall.

Prior to joining the Atlanta Botanical Garden in July 2002, Matheson was Executive Director of the Red Butte Garden and Arboretum in Salt Lake City. At Red Butte, Matheson helped to establish a cultural sales tax in Salt Lake County to support botanical institutions in the county and initiated a partnership with the U.S. Forest Service to open adjacent National Forest lands for environmental education programs. While there, she raised more than \$15 million for the design and construction of eight display gardens, a Children's garden, four miles of nature trails, an orangerie and a visitor center. During her tenure as Red Butte's director, she increased annual revenue by more than 600 percent.

Originally a horticulturist, Ms. Matheson earned a B.S. in Resource Management & Park Planning and an Executive Masters degree in Public Administration from the University of Utah. Matheson is a past president of the American Association of Public Gardens (a.k.a. the American Association of Botanical Gardens and Arboreta) and continues to serve as a member of its international steering committee focused on the development of a U.S. National Strategy for plant conservation in botanical gardens. She is a peer and panel reviewer for the Institute of Museum and Library Sciences.

Locally, she serves on the board of directors for the Midtown Alliance, on the ACVB Cultural Tourism committee, the International Woman's Forum and the Grady Health Care System Board of Visitors. She is a graduate of Leadership Atlanta and is a member of the Rotary Club of Atlanta. She served as a key volunteer member of MAACC – Metropolitan Atlanta Arts and Culture Coalition – handling the task of exploring a regular source of annual funding for the metro arts group-- and is a member of the Piedmont Park Conservancy. She resides in Brookhaven with her husband, Bri, and enjoys aolf and horseback riding. Their son, Conor, attends the Atlanta campus of Savannah College of Art and Design.



This photo Pretty much Savs it all...



Photo courtesy of David Mellard

Orchid Lover Down-Sizina Greenhouse still 7/8 full! Please help me downsize

Phaius t. alba or bebe Chien in bloom 2-3 spikes \$25 Lycastes in bloom \$15, 25 (huge) tree fern pots, logs, \$2 woodbaskets/rafts \$3 flasks, stoppers, \$10/box of a dozen+ many Onciciums, Miltonis, Brassias \$10-15 some overgrown Paphs \$25up Phrags - large nursery pots with over a dozen growths \$50 misc others \$5 up

Plus Much, Much More! Don't see what you want? Call Me!!

Linda Wish 404-252-5872 Located near 285 and 400 orchidwish@comcast.net

Table Awards

Photos courtesy of Danny Lentz

Class I – Cattleya Alliance

Blue- Cattleya lueddemanniana – Missbach

Cattleya lueddemanniana is a beautiful and important species from the coastal lowlands of Venezuela. It has had a significant influence on modern hybrids in two distinct ways. The deep, rich purple color in nearly all the best large-flowered cattleyas is derived from this species through an early hybrid, *Sc.* (formerly *Lc.*) Lustre. In fact, over 8,000 grexes can trace their ancestry back to this important parent. In addition, the near perfection achieved in pure white cattleya breeding has also been found to depend on



Cattleya lueddemanniana

this species when it was discovered that the parent of the famous *C*. Bob Betts (1950) listed as *C. mossiae* 'Snow Queen' FCC/AOS (a.k.a. *C. speciosissima* 'Snow Queen' FCC/AOS) was in reality the natural hybrid between *C. lueddemmaniana* and *C. mossiae* known as *C.* xGravesiana. All this fame aside, the special charms of *C. leuddemanniana* as an orchid in it own right are considerable, with large, full flowers showing beautiful color patterns in the lip, enchanting 'crinkled' edges to the petals, and a compact growth habit. But to cultivate this species well, you must be able to provide warm and *very* bright conditions, while maintaining good humidity and air movement. In this climate these conditions would be difficult to achieve without a greenhouse, and even then, the warmest, brightest spot you have will be required! We have a number of plants of this species and grow them on the upper shelf at the warm end of the greenhouse, under 30% shade cloth in summer and none in winter. The standard of perfection in this species is embodied in *C. lueddemanniana* 'Arthur Chadwick' AM/AOS, which has been mericloned and therefore fairly easy to obtain commercially.

Red - Sophrocattleya (formerly Sophrolaeliocattleya) Dream Catcher - Weil

White - Sophronitis (formerly Laelia) (mantiqueirae x dayana) - David Johnson



Cymbidium hybrid

Class II – Cymbidium Alliance

Blue - Cymbidium hybrid - Glass

Red – Cymbidium goeringii – Mellard/Marino

Cym. goeringii is a miniature species native to subtropical and temperate climates of Asia as far north as Japan and Korea, growing in mountain forests in its southern range and sea level in the north. Out of bloom, the plants could easily be mistaken for an ordinary clump of grass. The interesting and engaging, if not altogether showy, flowers are normally borne one to an inflorescence, though occasionally as many as four can occur. Their color and form is quite variable, though generally greenish with some red markings. In Japan, the cultivation of this species is somewhat of an obsession, with cultivars of rare color, or variegated

foliage commanding enormous prices. Within the 'heat dome' of Atlanta, the climate is marginally acceptable for growing *Cym. goeringii* out of doors in a semi-shady location with excellent drainage and ample watering.

White – Cymbidium Showgirl 'Shaffer' – Mellard/Marino



Dendrobium Gold Star 'Orange Royal'

Class III – Dendrobium Alliance

Blue – *Dendrobium* Gold Star 'Orange Royal' - Whitfield

Red – *Dendrobium* Oriental Smile 'Fantasy' AM/ AD/AOS – Whitfield

This beautiful *Dendrobium nobile* hybrid was given an Award of Distinction by the AOS in 1997 for its 'breakthrough' color pattern that is extremely eye catching, and the cultivar 'Fantasy' earned its Award of Merit only two years ago in April, 2006. If you were to examine the five other species in addition to *Den. nobile* that have made a contribution to this hybrid you might be surprised to see that there are none that possess these colors or even the overall intensity of color. However, as with most modern dendrobiums of

the 'nobile' type, the genealogy of this plant spans more than 135 years, over which time, the most desirable traits have been recombined over and over again to produce spectacular results. Although 'Fantasy' is currently the only awarded cultivar of this grex, there are some others that are perhaps even more striking in that the same peach and lavender color pattern is accented by a dark purple throat inherited from *Den. nobile*. Please refer to the show table notes in the February, 2008 newsletter for culture tips on this group or *Dendrobiums*.

White - Dendrobium Banana Royal - Gollob

Class IV - Epidendrum Alliance

Blue - Epidendrum stamfordianum - Glass

Epidendrum stamfordianum is a showy species that comes from seasonally dry forests in Mexico to Venezuela where it often covers large limbs in floral profusion each spring. The individual flowers are not much more than an inch across, but possess intricate markings that invite close inspection. They are borne on large branched panicles that arise directly from the rhizome of the plant and can be over two feet in length with 50 or more flowers per spike on mature specimens. Several color forms exist displaying an overall greenish, yellowish or pinkish hue, with markings of varied intensity on the sepals and petals, so it pays to see the plant in bloom before purchase, or at least



Epidendrum stamfordianum

know that it is from selected parents. The alba form has pure apple green sepals and petals and a white lip. This species has a reputation for being tricky to grow, but will generally perform best with mounted culture, good light and intermediate to warm temperatures. It resents disturbance once established so a basket is a good choice since it can simply be slipped down into the next larger one as needed. In nature, it receives little rainfall in winter, but is still drenched in dew nightly, so some lessening of water during this time will help promote blooming in spring. *Epi. stamfordianum* will readily hybridize with traditional cattleyas and the results are always interesting and uniquely beautiful.

Name Origin

Epidendrum - Gr.: on; tree) From the epiphytic habit of most species of this genus.

Please visit our web site at <u>http://www.atlantaorchidsociety.org</u>

The Atlanta Orchid Society web site contains recent newsletters and articles, cultural information for growing orchids in Atlanta, as well as a calendar of events and information about our annual shows.



Oncidioda Charlesworthii 'Mishima'

Class V – Oncidium Alliance

Blue – *Oncidioda* Charlesworthii 'Mishima' - Ramborger

Red – *Rodrumnia* Orchidom Tom's Fantasy – Geni Smith



Paphiopedilum Transdoll

Welcome Our Newest Members

Dana L. Scholle 1935 Bridle Ridge Trace Roswell, Ga. 30075 phone: 404 993-3262 Email: dana.scholle@mac.com



Paphiopedilum lowii

Class VI – Cypripedium Alliance

Species

Blue - Paphiopedilum Iowii - Whitfield

See the February, 2008 newsletter for information about this species and its culture.

Red – Paphiopedilum villosum – Lentz/Morgan

This *Paphiopedilum* is native to mountainous regions of Southeast Asia where it is normally found growing in pockets of humus on trees 30 to 50 feet above the ground, and sometimes in humus filled nooks on granite or gneiss. These environments make it somewhat more adaptable to acidic conditions than other species. The narrow leaves are usually yellowish green on top, with some purple spotting underneath, especially near their bases. Plants readily form large clumps and there have been a number of cultural awards for well grown examples of this species. It figures heavily into the ancestry of modern "Bulldog Paphs" with more than 15,000 hybrids having this species in their ancestry. Year round moisture and generally more cool temperatures are preferred, but this species has proven fairly adaptable to a wide range of conditions.

Hybrids

Blue – Paphiopedilum Transdoll - Kiss

White - Phragmipedium After Glow - Ramborger





Phalaenopsis Natalie

Class VII – Phalaenopsis Alliance

Blue –. Phalaenopsis Natalie – Kiss

This spectacular deep waxy red *Phalaenopsis* is a result of Tony Kiss' own breeding efforts! He pollinated *Phal.* Malibu Imp with *Phal.* Krull's Red Hot in May of 2001. The first seedling bloomed in 2005 and the blue ribbon plant exhibited is blooming for the first time right now. Tony showed me four examples of this cross in bloom, and the variation is quite pronounced, running from pale yellow with orange or red barring, to solid purple to solid deep red. When examining the descriptions of the many awards each parent has received, it becomes clear that this type of variation is the norm in these breeding lines. Sometimes the barred color patterns of *Phal. leud-demanniana* or *Phal. amboinensis*, which figure

heavily into the ancestry of these hybrids, dominate to bring out the red pattern on yellow or yellow-green background. But occasionally, the influence of *Phal. violacea* seems to spread the color across the entire surface of the flower, resulting in these spectacular deep reds that are so sought after. So make yourself a mental note then when buying unbloomed *Phalaenopsis* seedlings where red breeding is the goal, that many other outcomes are also possible due to the remixing of the genes, and red flowers are not guaranteed!

Red – Phalaenopsis Baldan's Kaleidoscope 'Golden Treasure' AM/AOS - Frank

White - Doritenopsis Leopard Prince - Frank

Class VII – Vanda Alliance

Blue – Aerangis hyaloides – Brand

Aerangis hyaloides is a wonderful tiny miniature angraecoid from shady and mossy forests of Madagascar. Though tiny, well grown plants can produce many spikes of starry white crystalline flowers. So many, in fact, that these plants have a reputation for blooming themselves to death. To avoid this fate, attention should be paid to providing plenty of water while flowers are present. High humidity, shade and mounted culture are also required to succeed with this charming species, so do not be tempted if you can't provide this well controlled environment. One of orchidom's tiny wonders!

Red – Aerangis citrata - Ramborger

White - Angraecum Crestwood - Ramborger

Quote of the Month:

- Q: How long do orchids live?
- A: Until you kill them.

- Ron McHatton



Aerangis hyaloides

Newsletter Submissions

To submit material for the newsletter, or to sign up for the email version of the newsletter, please contact Margie Kersey. The deadline for submissions is the 20th of the previous month.

MAIL TO:	Margie Kersey
	PO Box 464381
	Lawrenceville, GA 30042
EMAIL:	Margie@callkbs.com

Advertising

Advertising is now being accepted for our newsletter. The size and number of ads may be limited at the discretion of the editor. Advertising Rates per issue are: ¹/₄ page \$10, ¹/₂ page \$20, 1/8 page text only \$5.



Masdevallia ova-avis

Class IX – Miscellaneous

JC Mobley Cultural Award - Lepanthes calodictyon - Ramborger

The genus Lepanthes incorporates more than 800 species occurring primarily in cloud forest environments of Central and South America. They characteristically bear tiny and intricately beautiful flowers that bloom in succession from a small inflorescence that originates near where the single leaf attaches to the stem. This inflorescence grows tightly against the midrib, giving the appearance that the flowers are sitting in the middle of the leaf. Lepanthes calodictyon has the added bonus of fabulously beautiful foliage mottled bronze with a 'pie crust' edge that surely rivals any of the Jewel Orchids. Growing this species and most other members of this genus is a science that no one should take lightly! They need constant moisture, constant drainage, high humidity, preferably some air movement, and cool to intermediate temperatures. In other words, you must do your best to recreate the buoyant atmosphere of a real cloud forest! They are not orchids you can leave alone for a week while you take a vacation, requiring not only frequent attention, but true obsession!



Gastrophaius

Dues Are Due

Now is the time of year to renew your membership to the Atlanta Orchid Society, only \$30.00 individual and \$45.00 family. Dues are to be payable to AtlOS and sent to:

Reba Herzfeld, Treasurer 4798 Summerset Lane Dunwoody, GA 30338



Dues must be received by March 1 so you can be included in the 2008 Member Directory. This is also the time to make sure we have your current contact information - address, phone and email address.

Blue - Gastrophaius Dan Rosenberg - Frank

This stately and imposing orchid is now officially *Gastrophaius*, as one of its parents has been moved out of *Phaius* into the genus *Gastrorchis*. However, all the commercial sources I could find still call it *Phaius* Dan Rosenberg, so be aware of this when you search for a plant to purchase. Grow these large terrestrials more like a house plant than a typical orchid, giving them rich soil high in organic matter, year round water and regular feeding, intermediate to warm temperatures, and dappled light.

Blue - Jewel Orchid Collection – Mellard/ Marino

Blue - Masdevallia ova-avis - Mellard/Marino

Blue - Pterostylis erecta – Mellard/Marino

There is an article on growing *Pterostylis* in our September '06 newsletter, which is still available to view on our website.

Red - *Lycaste* John Izzy 'Mello Spirit' - Mellard/ Marino

Red - *Pterostylis* (*furcata* x *ingens*) – Mellard/ Marino

White - *Dendrochilum wenzelii* – Mellard/ Marino

White - Diuris Earwig - Mellard/Marino

Remarks on the Natural History of Orchids

Part 3 of many Billy Frye

The closest relatives of orchids, evolutionarily speaking, are the lilies, so the easiest way to understand what is distinctive about an orchid is to compare the orchid with the lily. As you examine the specimens of each type, you will see that the flower is made up of several rings or cycles of parts collectively call the carpels. In lilies and other monocotyledonous plants, these parts usually occur in multiples of three, whereas in the other major subdivision of flowering plants, the dicotyledons, they occur in multiples of four or five. Starting from the outside, it can easily be seen in the lily that there is first a ring of three sepals, followed by three almost identical petals. After the petals are two whorls of 3 stamens each, and finally in the center of the flower are the pistils, which are fused into one structure with three more or less evident lobes.

The sepals and petals collectively comprise the perianth and function to attract pollinators; the stamens and pistil of course represent the male and female reproductive parts respectively. This simple structure is very clear and transparent in the case of the lily. The orchid flower is basically the same, but with some basic and obvious changes. First, one of the petals has been transformed into the lip or labellum. Highly variable, and often fantastic in its form and colors, the lip basically functions as a landing platform and guide for the pollinator insects that visit the flower. While the presence of the lip is a universal characteristic of orchids, it shows almost as much variation in size, shape, and color as there are species of orchids. In many species it is a relatively undifferentiated structure, but in many others it may be transformed in ways that make it a guide or trap from which the bug cannot escape without virtually guaranteeing that pollination will occur.

Often the lip is tailored to exactly fit a specific pollinator species of insect. So specific is this relationship in some cases that it is believed that there has been a co-evolution of some species of orchids and the insects that pollinate them. A remarkable example of this involves Charles Darwin and a then new species of orchid, Angraecum sesquipedale, that is found on the island of Madagascar. Like other members of this genus, the flower has a spur that contains nectar at its tip that attracts the particular species of moth that pollinates a particular species of Angraecum. The length of the spur is specifically adapted to the length of the proboscis of the pollinator species. When Darwin was shown a new species of Angraecum with a spur some 12 inches or so in length – too long to be reached by any known species of moth in that area – he predicted that an entirely new species of moth would be discovered that would be capable of reaching the nectar located in the tip of the spur. Skeptical, his colleague none-the-less searched, and lo, the predicted

species with exactly the necessary dimensions was discovered some 40 years later! Charles Darwin was in fact the first person to systematically study the relationship between insects and flowers in the pollination of orchids, and in doing so he founded the new science of pollination biology.

As universal and spectacular as the labellum is, the lip per se is not a sufficient distinguishing characteristic by which to identify orchids. Why not? Because other groups of flowering plants, for example the mint and violet families, also have a lip. But there is one feature of the orchid lip that makes it distinctive and diagnostic, and that is, that during development the lip of the orchid flower forms from the rudiment of one of the dorsal petals, then in a strange twist worthy only of orchids the entire flower rotates 180 degrees to bring the lip to it usual final position on the ventral side of the flower! This rotation, known as resupination, is unique to orchids. Thus it is not the lip per se, but the resupinate lip that is distinctive of orchids. Sometimes evidence of the twisting can be seen in the mature flower by the twist of shallow grooves in the ovary that run the length of the ovary, outlining the divisions that have fused in the formation of the pistil of the orchid flower. Note, however, that not all orchids are resupinate, and some either remain in or revert to the normal primitive dorsal position of the lip.

The lip is the part of the flower that usually gives the orchid flower its exotic form, but it is a second major change in the flower structure from that presented by the basic lily prototype that is the most reliable and easily discerned diagnostic feature of orchids. That feature is the column, a finger-like structure found in the center of the flower. It is formed by the fusion of the stamens and the pistil into a single structure bearing both the pollen of the male, and the stigmatic structure of the female. During the development process all of the anthers are lost but one (or two in the case of lady slippers) with the result that in the mature flower one finds but a single anther near the tip of the column, and just behind that the sticky stigmatic depression where pollen is deposited. Both are located on the ventral side of the column, facing the upper surface of the lip. The anther is hidden under a hinged cap that covers the anther as the insect enters the flower, but swings open or falls off as the insect backs out, enabling the pollen masses, called pollinia, to be deposited on the body of the insect. This structure makes it almost inevitable that when an insect visits the flower it will first deposit on the stigma the pollen obtained from a visit to a previous flower and then, as it backs out, picks up the pollen from the flower that it is currently visiting.

You can readily demonstrate this extraordinary pollinating mechanism by substituting a toothpick, a small cotton swab or a pencil eraser for the insect, pushing it into and then retracting it from the tunnel that is formed by the column and the upward curled sides of the lip. If you take care to see

that your "insect" presses gently against the lower surface of the column as an insect of the right size would do, as you retract it the anther cap will be removed or pushed back, and almost as if by magic the pollinia adhere to the back of the insect, projecting forward or upward on their short stalks at an angle that assures that the pollen will contact and stick to the stigma of the next flower that the insect visits.

The variations upon this basic pollinating device are truly remarkable, and almost as numerous as the number of orchid species. A thorough discussion of the variations upon this theme is well beyond the scope of this paper. Variables include not only the size, shape and color of the various parts of the apparatus, but such things as the presence or absence of a nectar-bearing spur on the base of the lip, folds and ridges in the lip or the column that guide the insect toward the pollen and the stigma, the presence or absence of odor, and its composition, the number of pollen masses (pollinia) and the orientation that they assume upon becoming affixed to the back of the insect, and so on. As has often been said, God is indeed in the details, and these details exist entirely to serve the purpose of increasing the probability of successful pollination.

Two or three examples will suffice to indicate just how specific and how extraordinary these adaptations can be. In one species the pollinia are glued to the tip of the insect's proboscis at just such an angle as to assure that on the next visit to a flower the pollinia will come in direct contact with the stigma. In another, the lip is rotated back into a dorsal position and hinged in such a manner that when an insect alights, it swings down and brings the pollinator into direct contact with the stigma! In one group of South American orchids (Corvanthes) the lip forms a bucket into which a fluid is dripped. On the slippery "handle" by which the bucket is suspended intoxicating perfumes are produced which specifically mimic the pheromones of females of the species of bee that pollinate the flower. This perfume attracts small swarms of male bees which push and shove excitedly for a place on the handle from which they gather the perfume, which they use to attract females. When one of the male bees inevitably slips into the pool of fluid and can no longer fly but must crawl out or drown, its only escape brings it directly into contact with the column of the flower where it deposits any pollen it already has, and picks up a new load. (I cannot resist suggesting that this is Mother Nature's lesson on the dangers of mixing alcohol and sex!) In another remarkable example of the use of scent, it has been shown that some orchids not only have an attractive odor, but a complex and distinctive mix of odors that enable the insects to avoid visiting the same flower twice, thus reducing the chances of self fertilization. And then there is the story of Darwin's orchid which I have already told above.

Like the Arabian Nights, this tale could go on endlessly, but I will mention just one more example, in some ways the most remarkable of all. In several species the overall appearance of the flower is such as to closely mimic the appearance of the female of the pollinating insect species. This resemblance, which sometimes goes so far as to include the production of pheromones of the female, is so close that the male attempts to copulate with the flower, and in so doing pollinates the flower – a truly remarkable example of deception, and perhaps of metaphor becoming transformed into reality.

It is such details that make the orchid/insect alliance so specific and effective. Refined by generations of mutual adaptation, some groups of orchids and insects appear to have been caught up in an endless spiral of co-evolution that has not only produced a remarkable degree of efficiency in the pollinating mechanism, but has created a kind of sexual selection that seems to have driven evolution at an ever accelerating pace.

As I bring this discussion of flower structure to a close let me point out that these structural changes transform the radially symmetrical flower of the lily-like prototype into a strongly bilaterally symmetrical flower. This symmetry, together with the colors and patterns of the flower is particularly well suited to attract the attention of insects and focus them upon the business of pollinating the flower. Often orchid flowers are suspended on their pedicles in a manner that causes the flower or some parts of it to move in the wind in a life-like manner. Since the insect eye is especially well-adapted to detect motion, this further enhances the attractiveness of the flower to insects.

Other changes have occurred in the basic flower structure, and indeed in all parts of the plant, during evolution that further enhances both their alliance with insects and their adaptation to the epiphytic mode of life. Two such changes that are particularly important and that have diagnostic utility are these: first, by the elimination of all stored food and reducing the embryo to a few dozen undifferentiated cells, the seeds are reduced to dust size particles. They are produced literally by the hundred of

Continued on page 12

JOIN THE ORCHID DIGEST CORPORATION

Don't let the name fool you, the Orchid Digest is a non-profit membership-based organization dedicated to orchids. Designed to appeal to the mid-range to advanced grower nothing beats the *Orchid Digest*. For just \$32 per year you get 4 issues of full-color, in-depth articles about orchids. The magazine is large format and the fourth issue of the year is always an extra-special issue devoted to a single genus.

For membership application forms contact Fred Missbach (404-237-1694)

thousands or millions in each seed capsule and are light enough to float in the air until they become lodged on the bark of host trees high above the forest floor.

Second, as already mentioned, the pollen has been changed from loose grains to solid packets of pollen, the pollinia, each containing enough pollen to fertilize the enormous number of seeds (ovules) that are produced in every capsule. This means that only a single successful visit by a pollinator insect is required to fully fertilize each flower. As already noted, it also means that the chance of self-pollination is reduced and the maximum genetic variation assured with each successful pollinating event. (Note, however, that a few species of orchid are actually adapted to maximize self pollination, apparently as a guarantee against frequent failure of cross pollination to produce sufficient viable sees to sustain the population.)

With this information under our hats, we can now answer the question, what is an orchid? An orchid is a plant with sharply bilateral symmetry and a distinctive resupinate lip, a column formed by partial or complete fusion of the stamens and the pistil, and with exceedingly numerous small seeds that lack either endosperm or a formed embryo. The pollen is not as loose grains but as discrete packets which contain enough pollen to assure that one single successful act of fertilization under the aegis of an insect will be sufficient to pollinate the million or more seeds that the ovary commonly contains.

> Watch the April issue for Part 4 of: *The History of Orchids*

EVENTS OUT AND ABOUT

March

March 8 (Saturday) AOS Atlanta Monthly Judging

February 27-March 2 - North Carolina Piedmont Orchid Society Show, Charlotte Merchandise Mart, 2500 E. Independence Blvd., Charlotte, NC. Contact: Virginia Rappold, 10219 Rocky Ford Club Rd., Charlotte, NC 28269; (704) 912-2536; <u>vrappold@aol.com</u>

March 14-16 - Mid-America meeting and Michigan Orchid Society's Annual Palm Sunday Orchid Show in Troy, Michigan_http://midamericanorchids.org/

April 26-27 - NE Alabama Orchid Show, at the Anniston Museum of Natural History in Anniston, Alabama. For information, contact Joanne Shearer Show Chair at (256 831-1587) or at joanne_she@cableone.net

Welcome Our Newest Members

Dorothy L. Lobel 1187 Newbridge Trace Atlanta, Ga. 30319 daytime phone: 404 816-2455 dlobel15@yahoo.com

Cheryl Bruce 2349 Henderson Mill Road #4 Atlanta, Ga. 30345 770 493-4455



Rick Crawford 2984 Wilsons Crossing Court Decatur, Ga. 30033 day: 404 351-3746 evening: 404 728-1925 email: Auburn77@comcast.net

Be sure to greet our newest members and make them feel at home.



BENCH CLEANING SALE Limited quantities: complex and maudiae

Paphiopedalum, intergeneric Oncidinae, traditional Phalaenopses, and mini Cattleyas

THINGS YOU MIGHT HAVE MISSED IN FEBRUARY



Dr.Ron McHatton (AOS Director of Education) gave us a quick update on the World Orchid Conference in Miami



Tired of fighting for enough humidity? Maybe Cora Ramborger's method of growing under glass could Work for you! Sure looks healthy to me...

Fred Missbach is our club rep for Orchid Digest Magazine and reminds us all of what a valuable resource it is!





Cora Ramborger Proudly displays her Prize in the quarterly Table awards. Congrats!





Orchid lovers always rise to the challenge. If you were At the February meeting you heard President Jeff Challenge the "orchid-ness" of David Mellard's Award winning Pterostylis curta 'Mello Spirit', CCE/AOS. Above, David is showing Jeff the column With a close up on the right.



Past member, Mary DeHaye stepped up to the mic to ask for volunteers to work in the Fuqua Orchid Center answering questions for visitors. Contact her at 770-953-8312

Do you know this man? Has he taken your money yet? Roy Harrow, the Raffle Man wants you! He has great deals for cheap prices. And the money benefits the Atlanta Orchid Society!



Speaker Notes Russ Vernon, New Vision Orchids "How Not to Grow Phals"

Along with great humor and wonderful slides, Russ worked in a lot of good information about growing Phals. Some of the most notable were:

- * Lighting should be around 1500 foot candles
- * Humidity is critical, as is moving air
- * Mealy bugs love Phals, treat weekly
- * Warm growing Phals prefer 85 during the day and about 70 at night

* Analog thermostats are more dependable than digital

* To treat bacteria on the leaves, use Hydrogen Peroxide and keep the air moving



19th Annual World Orchid Conference Miami, Florida



The World Orchid Conference is held once every three years and features orchids, growers and enthusiasts from around this world. This year's conference was held in Miami, Florida, the first time the show has been in the US in over 20 years. And of course, the Atlanta Orchid Society was there!

Paul Thurner and Doug Hartong put in a 25 sq foot tabletop exhibit at the World Orchid Conference. The Atlanta Orchid Society exhibit won best society tabletop, which came with a nice medium size trophy. When considering all tabletops, which now includes commercial tabletops from nurseries all over the world, the judges also awarded the Atlanta exhibit best tabletop in the show, which got an even larger trophy. Word is that Doug and Paul are wrestling over who gets the larger trophy. The exhibit also won a silver medal for the display. Thanks guys for your great work!! **Photos courtesy of David Mellard**



Paul and Doug posing with their handiwork



Poster by Fred Carvetta



Check out <u>www.19WOC.com</u> for more details



Close up of some of the ribbons and awards in the Atlanta Orchid Society display



Some examples Of the competition At the WOC



Limited Edition Pin by CAROLEE



SE FLOWER SHOW SHOTS

Close up of Pterostylis curta 'Melo Spirit' David Mellard



One of David's Awards for this plant



This year's orchid display was much larger than last vear's and featured several genera.



Degarmoara Winter Wonderland Roy Harrow



Dendrobium spectabile Maureen Pulignano

Paph. Makuli x (ciliolare x Goultenianum) Danny Lentz



Den. lindleyi **Richard Hallberg**







Pterostylis curta 'Mello Spirit', CCE/AOS David Mellard's beautiful orchid won the Northwood Garden Club Trophy for Best in Show, the Best Species Trophy, and the National Garden Club gold medal at the 2008 Southeastern Flower Show. It also received a certificate of cultural excellence (94 pts) from the AOS. The AOS award is provisional pending approval at AOS headquarters. Congrats David!!!



David also won an Award on his Carnivorous plant Entry, Pinguicula gigantea Butterwort





Vuyl. Melissa Brianne 'Shady Lady' Dianne Morgan





Epi Rene Marques 'Flame Thrower'HCC/AOS Roy Harrow



Phrag "Charleston Sunrise" Dianne Morgan

Phrag. Les Dirouilles Roy Harrow