



GREATER LAS VEGAS ORCHID SOCIETY

SUNDAY, FEBRUARY 6, 2005 2 PM

THE MEETING WILL BE HELD IN THE USUAL PLACE, THE NEVADGARDEN CLUB BUILDING, WASHINGTON AND TWIN LAKES.
THE BUILDING WILL BE OPEN AT 1PM.

Carol Siegel, Newsletter Editor

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

AND...

Dan Mumau, Michael Lawless, Marsha Hawley - Membership Hospitality Chairmen
Eileen McKyton and Dan Hawley- Welcome Desk
Lillian Patterson- Photographer and Historian
Dan Mumau and Tony Billitere- Raffle Chairmen
Phyllis Bond, Leslie Doyle, Shelly North and Eileen McKyton- Special Events Chairmen
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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

602-438-1566 x
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February 6, 2005 Alan Koch, Gold Country Orchids, "Orchid

Growing For Dummies"

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

March 25-27, 2005 Easter Show at the Cal

April 2, 2005 Spring Flower Show

Rose Kane

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- April 3, 2005 Mike Glikbarg, Orchids of Los Osos,
"Odontoglossum & Oncidinae"
- May 1, 2005 Dr. Joseph Arditti "Techniques Orchids
Use to Survive in the Wild"
- June 5, 2005 Sue Fordyce, "Sophronitis and Her
Sisters/Orchid Sign Language"
- July 10, 2005 SECOND SUNDAY Sheldon Takasaki,
Carmela's Orchids, "Cattleyas"
- August 7, 2005 Barbecue
- September 11, 2005 Doug Conkin, "Planning and Developing An
Orchid Collection"
- October 2, 2005 Virtual Greenhouse Tour
- November 6, 2005 "The Adventures of Dennis D'Allesandro in
Bolivia"
- December 4, 2005 Sixth Annual Holiday Party
- March 5, 2006 Doug Conkin, "Integrated Pest Management"
- November 5, 2006 Bill Bergstrom, "The Orchids of Mexico"

 Time to pay 2005 DUES- \$25 for an individual, \$35 for a couple. Pay at the February meeting, or mail your check made out to GLVOS to: Carol Siegel, 8601 Robinson Ridge Drive, Las Vegas, NV 89117. Don't know if you paid? Look at your address label-05 after your name means you're paid, 04 means you are not paid yet, and an * means you have never paid and were a guest. Many thanks to LESLIE DOYLE for designing and providing very beautiful 2005 membership cards.

 It may have been raining outside but it was sunny, funny and warm inside as our wonderful club met in January. What fun it was to start our meeting with the talented Carol Mendocino's medley of RAIN songs. Surely nobody sings in the rain (or the sun for that matter) as well as she does!

OUR WHITE ELEPHANT SALE

Our White Elephant Sale was a stupendous success with members outdoing themselves to cart in their precious- though unwanted- stuff and carting out even more. We have, by now, run out of junk, having given all that away in years past, and now we are giving really good stuff away. We had wine, steaks, HID orchid lights, cashmere blankets, purses, framed art and photos, books, movies, potting material, orchids galore- you name it!

We thank Diana Smith for contributing 35 orchids to the sale. She is focusing exclusively on species and gave away her great hybrids. We thank our speaker for his donation of two framed orchid photos and Mike Levin and Dan Vong for their donations of orchids. We thank Alex and Eileen McKyton for ordering, picking up, uncrating and bringing in forty blooming orchids from Carmela's for the club to sell in the sale. Generously, Tony Billitere donated \$88 from his sale of Entertainment Books, and Shelly North donated \$40. We thank EVERYONE for the effort.

The club netted \$1500 on the sale after expenses, more than double last year's take. As we discussed at the meeting, we have donated 10 per cent of our profits or \$150 to the Red Cross to aid the tsunami victims in Asia. Diana and I discussed how being generous seems to influence the universe to be generous back. Even after giving away our money, we had more than we expected! Good karma...

SPHAGNUM MOSS

For anyone who bought sphagnum moss at the meeting, it is important to remember to wear rubber gloves when handling this potting material. There have been rare instances of a serious disease called

"sporotrichosis" from handling moss. Rubber gloves will protect you and should be used. By the way, it is always a good idea to wear rubber gloves when handling your plants potted in any medium since you never know what chemicals or pesticides have been used on your plants.

CHARLES ROWDEN- GREAT PHOTOGRAPHER

It was our pleasure to have Charlie Rowden, orchid photographer, as our speaker (www.orchid-photographer.com). Not only was he an informative and interesting lecturer with great slides, but he also netted us \$100! Charlie will be sending us a portfolio of small photos and order sheets so you can order photos at the meeting.

Charlie's talk was full of information on taking great pictures. As a reminder, I have summarized some of his tips for making prize-winning photos:

TIPS FOR GREAT PHOTOS:

1. Use a 35mm single lens reflex (SLR) camera with a macro lens, focal length 50-105mm. He likes a 55mm macro lens.
2. Use a sturdy tripod with an adjustable head.
3. Use Fuji Daylight 100F slide film outdoors and Ektachrome 64T Tungsten slide film for artificial light.
4. Use a dark colored background (black cloth) for light flowers and a neutral background (photo gray poster board) for dark flowers.
5. Don't light flowers head-on or they will look flat. Use four soft boxes (available from Smith-Victor) with quartz halogen light bulbs, two on the side and two in front at 45-degree angles.
6. Sometimes, light from behind or above to show details like hairs on the flowers.
7. Have light soft and diffused.
8. Pay great attention to composition. Eliminate "foreign objects" like sticks and plant ties. Feature one flower and then possibly show the others as an example of a side view or growth habit.

9. Sometimes, use the plant itself as the backdrop.
10. Pay attention to the depth of field. Getting more depth of field means having more of the picture in focus. A smaller aperture or opening in the iris of the camera means more depth of field. It is indicated by a higher number. "Stop down" from F16 to F22 will give you a smaller opening and more depth of field. You must then give a longer exposure, perhaps one to one-and-a-half seconds and keep the camera really still.
11. When you make the opening smaller, the additional area in focus will be 1/3 in front of the place you focused on and 2/3 in back of the place you focused on.
12. Scan the slides on a Minolta D'Image 5400 scanner. Adjust the scanned image with Photoshop software.
13. Print the pictures with an Epson 2200 printer which has pigment instead of ink. Pictures should last over 80 years.

FOOD ANGELS

The food at the meeting was delicious thanks to the kindness of Dan Mumau, Jeri Lee, Mike Lawless, Steve Ninemire and Terry Wilsey. We thank Becky Biondi, Pat Holland, Eldine Stevens, and Jackie Braverman in advance for preparing food for our February meeting.

SPECIES OF THE MONTH

Clarice Dean presented *Maxillaria tenuifolia* as our Species of the Month. A Mexican epiphyte (grows on trees), this easy-growing orchid has thin, grass-like leaves that taper to a sharp point. Commonly known as the "coconut orchid," it has a delightful fragrance that resembles fresh coconut. Clarice distributed cultural sheets and sold plants. Thanks, Clarice. Take a look at our book in the library that has all our Species of the Month for the last few years.

OUR LIBRARY

Speaking of library, we thank Steve Ninemire for cataloguing all our magazines. He will be buying a new book for the library every month and presenting a brief review of it at the meeting. Our library is fabulous, and it is free!! Every time you buy an orchid, read a book! The contents of our library is online at our website, www.glvos.com. Take a look. Our Species of the Month are also online. We thank you, O Webmaster, Alex McKyton.

FEBRUARY SPEAKER: ALAN KOCH

Our February speaker will be the lively and entertaining Alan Koch, owner of Gold Country Orchids, who will be speaking on "Orchid Growing for Dummies." I heard this talk at the Orchid Digest Speakers' Day this summer and thought it was full of interesting information. I know we are all really interested in learning to be better growers, and I think this talk will present outstanding cultural information, some of it a little controversial, but hey... That's the fun of it. He will also be bringing his great plants to sell, our favorite thing.

ORCHID SHOWS

There are some really good shows coming up. We will be participating in the Easter Show at the Cal, March 25-27 with the Torrance Cymbidium Society, our wonderful sister society, at the California Hotel. We will be having a display and AOS judging. We hope you will participate. We won three AOS awards last year, and you can, too, by bringing your plants down. We will also be putting in a display at the Spring Flower Show at the Garden Club Building on Saturday, April 2.

The Fascination of Orchids Show will be held in Costa Mesa February 10-13. It is my favorite show, and my husband takes me there for my birthday every year, lucky me (www.fascinationforchids.com). The Santa Barbara Orchid Show will be held March 4-6 and is also a

wonderful event (www.sborchidshow.com). Shows are great places to hear lectures, buy orchids, see displays, and have a lot of fun.

INTEGRATED PEST MANAGEMENT

In March of 2006, Doug Conkin will be coming to speak to us on "Integrated Pest Management," a sane way to eliminate and control insects and pests on our plants. This intelligent way to kill bugs without killing US is a thoughtful, environmentally-friendly compromise between letting the bugs take over and poisoning ourselves and the world. We are all aware of the dangers to ourselves, the environment, and to our plants of "nuking" our plants with potent pesticides, rather than rinsing them with water, every time we see an aphid. Doug wrote an excellent series of articles in ORCHID DIGEST in 1997, and he has been kind enough to let me reprint them. (Bev Tall has also written an excellent article on this subject in the ORCHID DIGEST in January of 2004, and it is reprinted here with permission. If you do not get ORCHID DIGEST, get a subscription immediately. It is a wonderful magazine full of gorgeous pictures and wonderful articles. You can sign up online www.orchiddigest.com for just \$32 a year—and well worth it.

In addition, The latest issue of ORCHIDS magazine has an excellent article on home remedies for dealing with bugs and pests.

This excellent article (Susan Jones, "Home Remedies", ORCHIDS, January 2005, pp.16-18) makes several good suggestions that I have summarized here for those who do not receive that magazine.

BUG HOME REMEDIES

1. Pick off bugs, slugs, and snails, and the like with your fingers and squash them if the plant is not heavily infested. No one has developed immunity to squashing.

2. Raise the humidity in your growing area since mites thrive in low humidity.
3. Wash off bugs with a jet of water. Wash plants regularly with soapy water, wipe each leaf, and rinse with a sink sprayer.
4. Soak afflicted plants in water overnight to evict ants, roaches, sow bugs, and pill bugs. (I did this with ants for thirty minutes and they all drowned.)
5. Use a cotton swab dipped in 70% alcohol to kill scale, mealybugs, mites and aphids. Repeat every 7-10 days.
6. Spray alcohol mixed with a few drops of mild liquid soap from misting bottle. You can also mix alcohol with insecticidal soap. Bugs have no resistance to alcohol.
7. Use horticultural, neem and minerals oil in frequent applications to smother insects and eggs. These oils can be mixed with water and a touch of plant-safe detergent to enhance sticking and used to coat the insects. This is good for controlling mites, scale, aphids, mealy bugs, sow and pill bugs.
8. Use growth regulator and chitin inhibitors like Enstar which kills eggs and prevents scale, mealybugs, aphids and whitefly from maturing.
9. Repel and kill ants and roaches with Orange Guard, an insecticide made from orange peel extract which is safe around humans, animals, and food. (For your information, you can order it toll-free at 888-659-3217 or www.orangeguard.com .)
10. Deal with ants by putting out an ant bait which the ants will take back to the queen.
11. Repot plants that are infested. Inspect the roots to make sure no insects are sticking.
12. If using an insecticide, test it on one plant first to make sure it won't kill orchids and always spray outdoors. Wear gloves.
13. Make a homemade insecticide by mixing one pint of 409 household cleaner and a pint of rubbin alcohol to make a gallon of spray. It is

good as a preventive and to control light infestation of mites, mealybugs, and aphids.

14. Use pyrethrum especially to combat ants.

15. Be sure to read the label if using strong pesticides like Sevin or malathion and spray away from pets and people.

16. Quarantine all new plants for at least two weeks in case they have bugs.

17. Keep your growing area very clean and discard all dead or decaying leaves, flowers and sheaths.

18. Avoid overcrowding your plants to prevent the spread of disease and pests.

19. Inspect your plants at least once a week to catch disease early.

20. Escort very infested plants to the trash.

**FOLLOWING ARE THE TWO ARTICLES
REPRINTED WITH KIND PERMISSION OF THE
AUTHORS.**

Stay safe, happy, and well. Keep blooming! Love, Carol
254-4168 growlove@cox.net

Thanks for permission to reprint to:

Conkin, Douglas E., "Integrated Pest Management for the Orchid House Part I," ORCHID DIGEST, April, May, June 1997, pp. 77-81.

Tall, Bev, "Controlling Pests in Your Greenhouse Without Poisons," ORCHID DIGEST, Jan, Feb, March 2004, pp.24-25.

CONTROLLING PESTS IN YOUR GREENHOUSE WITHOUT POISONS

BEV TALL

Bev Tall is an accredited AOS judge in the Pacific South Judging Center and lives in the Phoenix area.

WOULDN'T IT BE NICE to use no poisons and have few pests on your orchids? It is possible, if you attack the problem from several different angles. You can take several steps that keep working passively all the time. For example, diatomaceous earth (DE), available in some garden stores and all pool stores, (used in pool filters) helps to stop crawling insects and slugs. Put some in a sock and apply to the perimeter of your greenhouse inside and out by hitting the wall near the floor; a dusting will fall out of the sock and create a barrier which insects have to crawl through to get into your greenhouse. They ingest the DE when they clean themselves, and it damages their digestive track. This is best done three to four times a year, since watering washes away the barrier. Boric acid is also useful as a dust on the ground for roaches, ants and silverfish. Ants are a concern because they can spread aphids from plant to plant when they "milk" the aphids (eating the sugary residue they leave behind). Spraying with isopropyl alcohol will eliminate them.

When you see aphids, mealy bugs or scale on your plants, try wiping the insects with a cotton swab dipped in alcohol. This works well if your collection is small. However, if you have many plants, this can be too time consuming. In that case, make a contact spray by mixing 16 oz of water, 1 teaspoon of neem oil, 2 teaspoons of Formula 409® cleaner and 2 teaspoons of Listerine® and apply it on your affected plants. Garden centers often carry neem oil in the form of rose spray. Rose Defense is 90% neem oil and 10% inert materials. Hydroponic stores also carry neem oil. Listerine® works as an anti-fungal and anti-bacterial agent. Whenever I am in my greenhouse, I carry this bottle so I can spray aphids, scale or mealy bugs whenever I see them. It is best to catch these early, before a major infestation occurs, since they can cause extensive damage if left alone. They are especially destructive on buds since they stunt the growth of the flower. To prevent this damage, I move a treated plant to a special area where I can inspect it daily to make sure pests are staying away. This mix does not seem to harm buds or open flowers, so a quick spritz keeps the bugs at bay. If you find a plant that has been missed and is thoroughly infested, spray it completely, including under all the leaves, and keep it in an area where you can inspect it every few days until no pests remain, then put it in its

normal place. Soft scale often burrows underneath the dry sheath on pseudobulbs; I suggest removing the papery sheath, and spray thoroughly. Aphids seem to like the new growth also, so look for infestation there. This spray is potent for several days, after which the neem oil loses its effect. Neem oil also seems to have a residual effect after it has been sprayed on the plant for a period of time. Another oil which can be used is Ecopco, a combination of clove, cinnamon, and oregano oils. These oils kill aphids, scale, mealy bugs, wasps, plus numerous other pests. It is best to use both of these oils early or late in the day when there is less light so as not to burn your plant or flower.

Another approach is to use beneficial insects to rid your greenhouse of the pests. These do a marvelous job, carry no scent or residue, and can be applied any time of day. Lady bugs (*Hippodamia convergens*), lacewings (*Chrysoperla*), and praying mantis (*Tenodera aridifolia sinensis*) can be released in your greenhouse to prey on harmful insects. Be sure to screen your vents so the beneficial insects do not escape before they do their job. All of these insects eat aphids, mealy bugs, and soft scale. They do not touch hard scale, and don't do a very effective job on thrips or mites. However, these predators are very effective at finding pests you didn't see to spray. If you have a large collection and don't inspect each plant weekly, these beneficial insects can do a wonderful job for you. Introduce these beneficial insects on a regular basis (once a month) and rely on the insects to do the majority of the work for you; then you need to spray only the few infested plants with the oil mixture. Lady bugs eat up to 5000 aphids a day and munch away for a week to ten days. In another week you will see small black insects with orange spots crawling around your plants. These are lady bug nymphs which also are voracious eaters. You can purchase lacewing nymphs or eggs. The nymphs go to work immediately; eggs should hatch in a week and remain in the nymph stage for two weeks. They are very small and are easy to miss, but you will notice a reduction in mealy bugs and especially aphids. Adult lacewings consume nectar; you'll need to provide this if you want successive generations. Praying mantis stay around for weeks as they develop from small (half an inch) to adult size (3 inches), so they have a longer period when they are 'working'. Good Bug Power Meal provides proteins, calcium, phosphorous, fiber and 14 amino acids for lady bugs, lacewings and praying mantis when there are not enough pests; they will eat this and stay alive until needed.

Beneficial nematodes (*Steinernema*) are another good option for natural pest treatment. These are minute worms-like creatures which burrow into mealy bugs, aphids, etc and kill them, usually within 12 hours. These beneficial nematodes usually are sold for use in soil, but they can also be used as a spray on plants. Distributed in a coarse corn meal-like clay, they can be put in a watering can, spray bottle or pump sprayer. Nematodes will kill aphids, mealy bugs, thrips, mites, hard and soft scale, roaches and sow bugs, so this all purpose spray is useful for many pests in your greenhouse and yard. They can be kept in the refrigerator for several weeks. I suggest applying them late in the day, as they are light sensitive and seek darkness. Aphids and mealy bugs killed by nematodes don't fall off the plant; you will see the shells on your plants and may not realize they are dead until you touch them, at which point they then fall off.

Anoles (little lizards which can be purchased at pet stores) are another good natural predator of crickets and roaches. They scamper over your benches and plants and eat the pests. They do not eat plants however, so your orchids are safe. The fire-bellied toad also eats insect pests; these toads remain on the ground and require some cover, such as plants growing under the benches, which help maintain a good humidity level. You won't see the toad often, but it is there helping reduce your cricket population. Yellow sticky bug paper helps trap gnats. If you see bacterial or fungal rot on the leaves of your orchids, cut the rot away and sprinkle with cinnamon; it stops the progression of the rot. Cinnamon also seems to "jump start" the plants which are not growing at their normal pace. Another substance effective against rot is hydrogen peroxide. Use an undiluted 3% solution directly on the plant.

As chemical pesticides disappear from your growing area, you will notice spiders setting up webs that also rid your greenhouse of insect pests. Other beneficial insects will set up territories to keep the balance. If you let nature work—it will!*

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INTEGRATED PEST MANAGEMENT FOR THE ORCHID HOUSE

DOUGLAS E. CONKIN

Doug Conkin was raised in southeastern New Mexico. The son of a floral designer and descendant on both sides from a long line of farmers, Mr. Conkin comes by his interest in orchids naturally. He began growing orchids at the age of twelve and has been avidly involved in the hobby ever since. He currently maintains a mixed collection of approximately 1,000 plants. Mr. Conkin admits a weakness for the species and hybrids of the Cattleya alliance with a strong side interest in lycastes, angraecoids and the Oncidianaes. Mr. Conkin is the current president of The Southland Orchid Show Committee and Ribbon Judging Chairperson of the Orchid Society of Southern California. This article is the first of a series.

IN THE THIRTY YEARS since the publication in 1962 of Rachel Carson's landmark book, *Silent Spring* which led to the eventual ban of DDT in 1969, in the U. S. (but not worldwide), we have seen a very great change in the attitude of gardeners, farmers, and the general public towards pesticides. The 1950s attitude of "better living through chemistry" has given way to an attitude of "the less chemicals the better." This change of attitude and a demand on the part of consumers for "natural" or "organic" products has led to a burgeoning industry producing a bewildering array of products, methods and claims which leaves many gardeners longing for the "good old days" of DDT and Chlordane. At this point, I think I should clarify that I do not mean to place any blame in this article and it is in no way meant as an attack on the previous generation of growers or on growers who may not share my views about the use of chemical pesticides. It should be obvious to all that no one began using these chemicals with the intent of poisoning our environment. We must look at these developments in the light of recent history. We must remember that insects and diseases took a large toll on crops, generally around 10 to 15 percent every year (ironically, even with the use of chemical pesticides the average loss of crops to pests and diseases is still around 10 to 15 percent). The development of chemical pesticides, fungicides and herbicides seemed to be a godsend at the time. We cannot blame farmers and commercial growers for wanting and using a method that seemed better at the time. Only by trying new ideas can we ascertain their eventual worth. We did not know at the time that, over the years, pesticides would build up in the water table or that birds would begin to lay eggs with no shells or that our own children would have traces of these chemicals in their bodies. Remember that chemical pesticides have only been in use for a little over fifty years. When we look at the damage they have already caused, we should be glad that we were able to step back and see the damage and begin

to take steps to stop it. The organic approach I advocate does work very well and historically has worked for generations. It is somewhat more labor-intensive and requires a little more work to succeed.

Integrated pest management (or IPM for short) is by no means a new idea. IPM was used by our ancestors to produce all their crops and by our orchid-growing ancestors in the earlier days of orchid culture. It seems hard to believe now but, for the greatest part of history, man had to rely on a relatively small group of plant extracts, minerals, and predators to protect his crops from the ravages of destruction by pests and disease. These practices were effective then and are equally effective today. IPM is a *system* of pest control made of three essential parts. An IPM program which will lead to the control of pests in the greenhouse and the surrounding area will consist of prevention, eradication, and maintenance and control. Modern techniques have tended to focus mainly on eradication efforts and spent little time on prevention and maintenance. This is their undoing. Repeated attempts at eradication by the use of chemical pesticides quickly leads to insects resistant to that particular pesticide, which in turn results in the use of a stronger pesticide and so on until a race of "super bugs" is produced that can be stopped by nothing short of the pesticide equivalent of an atom bomb. IPM by contrast places an emphasis first on prevention, then on eradication and control by less toxic substances, traps, barriers, and predatory organisms. Maintenance is the final step whereby we try to maintain the equilibrium we have established.

I hope that in this article on integrated pest management, I will be able to shed some light on the subject, and thereby clarify exactly how the amateur orchid grower can easily and effectively control pests in his/her orchid house by 'organic' means.



Patterns in Prevention
Platycerium diversifolium (top) and
Aralia umbonata 'Variegata' (bottom)
in the author's greenhouse act as
indicator plants, providing a quick
and easy way to look for and find
potential pest problems.

Douglas E. Conkin

An Ounce of Prevention is Worth a Pound of Cure

Someone once said that the problem with truisms is that they are true. When it comes to the saying above, "an ounce of prevention is worth a pound of cure," in its application to pest management in the orchid house, truer words were never spoken. It is by far easier to prevent infestation by insects and diseases than to eradicate or cure them once they have gotten a foothold. I will present several ideas and methods by which the initial infestation may be prevented. These methods may seem obvious, but failing to practice them may lead to disaster. By using a little common sense and a few tricks, we can save ourselves and our orchids a lot of grief. To begin with, let's look at some of the most obvious ways to see and prevent problems before they begin.

Culture

This may seem obvious, but if you cannot provide adequate culture for the genera of orchids you wish to grow, you will not have much success. If the plants are not provided with the necessities of life, they cannot grow strongly and therefore are much more susceptible to any pest or pathogen that comes their way.

For example, if you want to grow phalaenopsis but cannot provide 60°F to 65°F night temperatures, you will not have much luck. The plants will grow slowly, won't bloom well, and will be constantly plagued with fungus and insect problems. The plants will be weak and unable to resist infections they might be able to handle if they were grown under proper conditions. No amount of fungicides and insecticides will effect a permanent solution.

This is especially a problem for beginners. We all know what a powerful addiction orchids are, particularly at first. "I must have that plant," or "I have to grow vandas," etc., are words with which we are all familiar when we are new to the hobby. All too often, beginners acquire many more plants in many diverse genera before they can adequately care for them, or before they know the correct culture for each group. We all have seen people make the tragic mistake of placing cattleyas and miltoniopsis (or other strange combinations) on the same bench, side by side, only to lose one or the other.

The rule here is to make haste slowly. Be sure you know the cultural requirements and that you are able to provide for them before making a major purchase. Buy carefully and ask plenty of questions from the dealer. When you get a plant from the raffle table, ask about its requirements if you're not sure about it. Consider a plant's requirements carefully. If you are doubtful, you may want to ask another winner to trade with you if you can't meet the plant's needs. Always try to match the types of plants you wish to grow with the types of conditions you can easily provide. By following these suggestions, you will avoid many problems and

disappointments. You will also have much greater success and get much more enjoyment from your plants.

Observation

Hand in hand with culture goes observation. You cannot be sure of your cultural practices if you do not observe their results. You may buy that great new heater and thermostat, install and set them, but if you do not go into the greenhouse for several days afterward, how will you know if they work? By careful observation, you will be able to catch potential problems before they get out of hand. You should plan to spend thirty minutes a day in the greenhouse. Fifteen minutes in the morning and fifteen minutes in the evening will suffice for a modest-size collection. In our day of cramped schedules, this may sound like a lot of time but it will repay you with interest. If you have a large collection, you may want to include various traps to ease your labors, but the thirty minute (or more) rule still stands.

The best times for observations for pest are the early morning and mid-evenings. In the early morning while it is still cool in the greenhouse, insects are less active. This is the perfect time to look for them. Insects move slowly and do not tend to be flying from plant to plant. Aphids will be crawling slowly along inflorescences and new growths. Mealy bugs will be just emerging from leaf crevices and will be easily seen. You should examine the undersides of leaves, the joints of flower spikes, the area around the base of the plant at this time for intruders.

In the mid-evening, go into the greenhouse with a flashlight. Do not turn on the overhead lights. Examine the base of the plants for snails and slugs. Look carefully at emerging buds and flower spikes for snails and slugs or their slime trails. These trails will show up very well in the beam of a flashlight. Look for running roaches and other vermin that flee from the light. When you see signs of trouble, you can take proper action. Check the air movement. Is it sufficient to prevent water from accumulating in the crowns of phalaenopsis and paphiopedilums? Following these concepts will prevent a lot of trouble.

Another excellent way to enhance your observation efforts is to grow some "indicator plants" along with your orchids. Indicator plants are plants which are somewhat more appetizing to pests in general or to a specific pest. As we know, most orchids do not seem to be very appetizing to insects. They generally have tough leaves and stems with a thick cuticle to prevent moisture loss. Given a choice, most insects will pick a plant that is a little easier to attack. This works to our advantage. By placing a few indicator plants in the growing area, we can keep an eye on them and see pests before they infest the orchids. For example, I grow two types of indicator plants to alert me to the presence of pests. I grow two large *Schefflera* (now known

as *Aralia umbonata* at either end of my greenhouse. These plants are attractive to mealy bugs, scale and mites. When I see any of these insects on the indicator plants, I spot spray the plants and go on the look-out for them on the orchids. Most of the time the infestations will be limited to the indicator plants. I will suggest that you grow a couple of *Platynerium* (staghorn) ferns as indicator plants. I grow several species of *Platynerium* along with the orchids. I love these magnificent ferns for their own sake. I discovered their use as indicator plants by accident. The ferns seem to be very attractive to scale. The scale goes to the ferns before anything else. They must taste good. As the ferns are grown mounted on large plaques placed on the main supports of the greenhouse, it is very simple to look up into fronds and see the scale on them. Any time I see scale on the ferns, I spot spray the ferns and very carefully examine as many of the orchids as I can. I have even found a practical purpose for the lowly *Oxalis*. We all fight *Oxalis* in the pots. While I certainly do not suggest you encourage *Oxalis* in the orchid pots, you might leave a few plants under the bench or grow a pot or two on the bench amongst the orchids. Just be careful to remove the seed pods before they pop. *Oxalis* seems to be attractive to mites and the thin, clear green leaves make it easy to see the typical stippling and silvery sheen caused by mites. Based on the amount of damage to the *Oxalis*, you can either spray or simply throw out the infected *Oxalis*.

Cleanliness

A clean growing area is essential to maintaining a healthy atmosphere for any plant. Remove all dead and dying foliage from the plants immediately. Old flowers should be removed as soon as they begin to fade. The floor of the growing area should be kept clear of any dead leaves, etc. Leaves left on the benches and floor promote fungal and bacterial infections as they decay and provide a home and food for snails and slugs. Twice a year the entire growing area should be given a thorough cleaning. It is a good idea to spray the floor and the side walls of the greenhouse under the benches with a 10 percent solution of chlorine bleach or Physan as indicated on the label if you prefer. Also the reservoir of the swamp cooler should be drained and thoroughly cleaned. When you refill it, you should add a little chlorine bleach or Physan to kill any pathogens in the reservoir and the pads.

Having made mention of fungal and bacterial diseases, I should bring up a little habit I have that we should all develop. Actually, Bob Gordon got me into the habit: when you are preparing to water your plants, you should let the water run through the hose for a minute or two to allow the water standing in the hose to be flushed out. A number of fungi and bacteria will grow in the hose between uses. By not flushing the hose before use you are spraying the bacteria and fungi directly upon the plants.

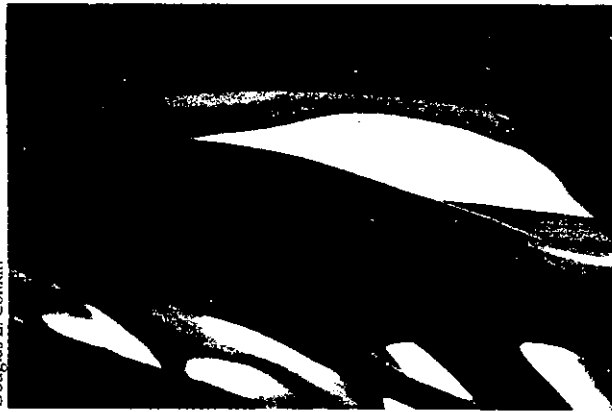
Barriers

Physical barriers can be very useful in preventing slug and snail damage. There are also a couple of spray-type barriers for insects that are getting a lot of attention recently.

First, let's look at a physical barrier for slugs and snails. Copper flashing, a strip of copper about one-inch wide, is an old trick that is getting a new lease on life recently. It is now available in a double-sided tape roll from many nurseries and mail-order supply houses. Please note that the strip must be at least one-inch wide. Better results are obtained from a two-inch strip. Install copper flashing around the legs of the benches. You simply wrap the flashing around the leg of the bench at the base and fasten it in place. Snails and slugs are extremely sensitive to copper and will not crawl over it. When they come into contact with copper, their slime reacts with the copper to produce an electric shock. As you can imagine, the slug finds this very offensive. You can also spray under the benches with copper spray. As I noted above, copper is repulsive to slugs and snails. It is also deadly poison to them in very minute quantities. There are several liquid copper sprays on the market. Spray under the benches per the directions on the label. **DO NOT USE COPPER AS A DRENCH ON THE PLANTS!** Unfortunately, this is not a treatment for bush snails in the pot. You may use copper as a treatment for various bacterial infections, but the dosage is different and it is never applied to the root system of the plant.

There are a couple of new products on the market that deserve mention. Both are sprays that act as a barrier to insects and both have been proven in exhaustive tests to be effective. The first is a garlic spray sold under the brand name of Garlic Barrier Insect Repellent. This is an old trick borrowed from organic gardeners. As some of you probably know, garlic is often interplanted between rows of vegetable crops to fend off many pests. Many organic gardeners swear by home-made garlic extracts to ward off various insects. While I have not yet had any direct experience with it, the reports I have received from others indicate that the garlic barrier does indeed work very well. The product also reportedly has the ability to suppress fungal and bacterial infections. This is not surprising as garlic has been shown to have these properties in humans and other animals. I will be working with it through the fall and winter of 1996 and spring of 1997. It also supposedly has some nutritional value to the plant.

The second product is Wilder's Hot Pepper Wax. This product has received outstanding reviews from a number of orchid growers around the country. It has not yet been registered for sale in some states, but is available by mail order from a number of sources. Again, this is a rethinking of an old organic gardening practice. Hot pepper sprays of various concoctions have been used for years both as a preventative and as a pesticide. Please note that you need to be very careful



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The ferns earn their keep. Note the mealybug on the frond.

with any products containing pepper oils. You should always wear rubber gloves, goggles, longsleeved shirt and long pants. For goodness sake, don't rub your eyes, nose or mouth or go to the bathroom while wearing the gloves. You will be in for a most unpleasant surprise. If this product works as well as I have heard, it should prove to be a real boon to all gardeners.

Quarantine

You've just come from your favorite orchid nursery with all kinds of prizes and you can hardly wait to get your new plants settled in their new home. You rush right out to your greenhouse, start shifting plants and snuggle your purchases into their new places. All well and good, everyone right at home and comfortable in their new surroundings, **INCLUDING ALL THE MITES AND BUSH SNAILS RIDING PIGGYBACK ON YOUR NEW FRIENDS!**

This scenario is extremely common, and all of us are guilty of it, but it must never be done. All new plants must be strictly quarantined regardless of their source. I don't care whom or where you got the plant from. It doesn't matter if their greenhouse and nursery are so clean you could eat off the benches. Quarantine those plants for at least a week or ten days before you place them in your greenhouse with the rest of your collection.

By quarantine, I mean the new plants should be kept in a separate enclosure, not merely in an isolated area of your greenhouse. When I receive new plants, I keep them in the laundry room of my house for at least a week, and, more often, two weeks until I am sure they are carrying no pests or diseases.

During this time, the plants are checked daily for any sign of insects. You should remove all dead sheathing leaves from the older growths, checking carefully for any signs of scale or mealy bugs that may be in the old bracts. Examine the undersides of leaves with a magnifying glass for mites or signs of mite damage, often seen as small pits or discoloration of the leaf surfaces.

If the plant is actively growing and making roots, repot it at this time regardless of the condition of the media. Carefully examine the roots for signs of slug or bush-snail damage. Clean the rhizome carefully, again looking for scale or mealy bugs. Carefully look at flower buds or inflorescences for aphids, thrips, whitefly or other pests that are drawn to the sugar that orchids tend to exude at rapidly growing points such as these.

Finally, treat the plants with an insecticide. My favorite product to use in the initial quarantine period is Sun Spray Ultra-fine Horticultural Oil. This is a super-refined paraffinic oil with only 2 percent sulfur residue. I use this because it works by suffocating the insects, including their eggs. All things must breathe, and the use of this type of insecticide will circumvent problems that you might encounter with pesticide resistance on the part of the bug in question. I dilute the proper amount according to the instructions in a pitcher of warm water. I do not spray with it, rather I bathe all the leaves and stems with a soft cloth dipped in the dilution of water and oil. I repeat this bath every three or four days for a total of three or four applications.

I made mention above of bush snails. These small snails (about the size of a pin or nail head) will wreak havoc on the emerging root system of a plant. Their damage is easily recognized. They eat only the green, actively growing root tips. The removal of the green tips seems almost surgical in its accuracy. It often appears as though the root tip has been cut off with a very sharp razor. This, of course, stops the root from growing altogether. In extreme infestations, bush snails can and will kill a plant.

It is very important to detect their presence as soon as possible. Fortunately there is a very easy way to do this even if no damage is visible. Early in the afternoon or evening, while your new plants are in the quarantine area, slice an apple and place a slice or two on the surface of each pot. Leave them undisturbed for that night and the next day. About mid-evening of the next day, or after it has been dark in the quarantine area for about two or three hours, go out, turn on the lights and pick up the apple slices. Examine them carefully. If bush snails are present, you will probably find them on the undersides of the apple slices having a midnight snack, or you may see only small crater-like indentations on the apple slices. These are the "teeth marks" of the snail. These vermin are very hard to eradicate from the potting media once they have a foothold. It is best to repot the plant into a new, sterilized pot and fresh media. Media that have a good deal of rough additives such as charcoal and/or coarse perlite make it hard on the snails. These additives are sharp and will cut the body of the snail as it moves across them. If the plant cannot be repotted for some reason, diatomaceous earth can be sprinkled across the top of the media (about one-half to one teaspoon

to a six-inch pot). Diatomaceous earth is made up of the skeletons of small, almost microscopic, aquatic plants and animals called diatoms. When viewed under a microscope, these skeletons are revealed to have very rough, spiny surfaces. When snails and slugs crawl across these particles, it is, for them, like crawling across ground and jaggedly broken glass. The diatomaceous earth cuts them badly and the snails die. The applications will have to be repeated frequently but this should keep the population limited to the infested pot until the plant can be safely repotted.

I want to stress again the importance of placing all new plants in quarantine. This is an extremely important aspect of any type of pest management program. Remember some of the most serious pests facing modern agriculture and horticulture are the result of improper quarantine procedures. Poinsettia whitefly and the Mediterranean fruit fly, which have cost millions of dollars in lost crops and eradication efforts, were both introduced to this country by people attempting to bypass existing quarantine regulations.

If you are visiting a foreign country and wish to bring back orchids with you, please, please, **DO NOT ATTEMPT TO SMUGGLE THEM BACK INTO THE COUNTRY!** Not only do you run the risk of being caught and of facing severe penalties, including, in some cases and some countries, imprisonment, you may bring the next medfly or whitefly with you and cost us all a great deal. Have the proper permits ready before you travel and present them to the nursery where you intend to make your purchases so that they may make the proper arrangements with the proper authorities. If you are planning on collecting plants, contact the proper government officials and make all arrangements before you remove even one plant from its habitat. I once heard a speaker go on and on about his collecting exploits in a certain Central American country. He told about all the wonderful plants he found and removed, etc. However, he did not make arrangements with the government in advance. He tried to do it after the fact, a few days before he left. All his pleading, bargaining and threats fell on deaf ears. It didn't matter to the government of this country that he was a big, important American. He was in violation of the law. All his plants were confiscated. He was lucky to have been allowed to leave a free man. He deserved exactly what he got. Be sure what you are doing is legal before you do it. If you are unsure of the law, don't do it! Not only will it help to remove the stigma of "The Ugly American," but it may save you some very unpleasant experiences and your country many millions of dollars.❖

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