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GLOXINIAN

The Journal for Gesneriad Growers

Vol. 52, No. 2

Second Quarter 2002



Nautilocalyx pictus 'Lightning'

American Gloxinia and Gesneriad Society, Inc.

A non-profit membership corporation chartered by the State of Missouri

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Judging - Appraisal, 3 issues, \$6. Send to Paul Susi, 6 Upper Lane, Centerport, NY 11721. (Subscribing to Appraisal is part of the responsibility of remaining an active judge.)

Gesneriad Hybridizers Association — CrossWords, 3 issues, \$8. Send to Richard Carter, 516 North 3rd Street, Spearfish, SD 57783. Newsletter Editors — Newsviews, free to editors; \$6 subscription to others. Contact Carol Ann Bonner, 3705 Tibbs Drive, Nashville, TN 37211-3413 <cadastra@mindspring.com>

FRIENDS AT LARGE

Gesneriphiles Internet Discussion Group - To join, send the following message: subscribe gesneriphiles <your name> to: listproc@lists.colorado.edu from the email address you wish to receive the postings.

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Chapters: Report changes of chapter presidents to the Chapters and Affiliates Chair and the Editor.

THE GLOXINIAN is published quarterly by the American Gloxinia and Gesneriad Society, Inc., 399 River Road, Hudson, MA 01749-2627. Copyright © 2002 American Gloxinia and Gesneriad Society, Inc. Postage paid at Providence, RI. Postmaster: Please send Form 3579 to THE GLOXINIAN, AGGS Membership Secretary, Bob Clark, 118 Byron Ave., Lawrence, MA 01841-4444.

American Gloxinia and Gesneriad Society, Inc.

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Third Quarter	April 5
Fourth Quarter	July 5

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AGGS Home Page: www.aggs.org

The Journal for Gesneriad Grower

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COVER

Nautilocalyx pictus 'Lightning' exhibited by Beth Weissman at the 1992 Convention Flower Show

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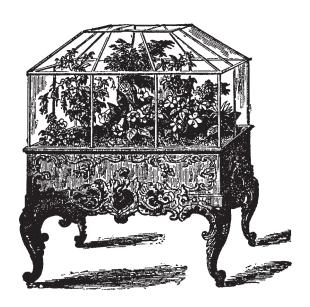
President's Message

Susan Grose <sagrose@aol.com> 4201 West 99th St., Overland Park, KS 66207

Greetings Gesneriad Friends Around the World,

I am writing this just after the shortest day of the year in the Northern Hemisphere accompanied by some very cold weather. It is such a pleasure to be able to spend warm and cozy days inside in the comfort of beloved Gesneriads growing in windows, under fluorescent lights, or for some in greenhouses. We are so lucky! Not every plant family can be enjoyed in such a wide variety of growing conditions. From the cold, snowy, winter climates of Alaska and Sweden to the extreme conditions encountered in hot, dry, more southern regions all the way to Australia and New Zealand, we who are enamored of plants in the Gesneriad family have found ways to grow and enjoy them wherever we are.

People have been known to transport entire plant collections long distances to new residences with extraordinary and imaginative efforts. We 20th and 21st century growers are not the first to go to these great lengths. Many early plants arrived from native habitats carried across oceans in protective containers called Wardian Cases which are today valued as decorative as well as practical objects. This is one of my favorite subjects and is the focus of several articles in this issue. When I first became interested in indoor gardening and scoured my local library for information on houseplants and Gesneriads, I was fascinated by the drawings of Wardian Cases and descriptions of growing plants in small enclosures. Growing small, humidity-loving plants in such spaces is the next best thing for those of us who still dream of growing in a greenhouse.



I haven't planted a large terrarium for a long time, but I do grow a few special plants in my living room in several bell jars I salvaged a number of years ago. I also have a few other small glass containers in which I grow as many as four or five miniature specimens forming a very small planting. One plant of Gesneria has been growing protected in a bell jar for over five years needing only occasional water. The plants growing in these containers hold a special fascination for me. There is something about gazing into one of these miniature environments that is very relaxing—like being carried away from current demands and escaping into another world. I remember as a young child taking care of a vacationing neighbor's lizard, which resided in a semienclosed fern- and moss-laden terrarium created from a rectangular glass aquarium. I was entranced by the isolated environment created in miniature for that animal's habitat. It's amazing the experiences that impress a young child which can also add fuel to an interest that can grow into a life-long passion. Take every opportunity to pass along your fascination with plants to a child. We were once they, and they are our future.

In spite of my love for indoor growing, I am looking forward to longer days, warmer weather, and the opportunity to try new Gesneriads outdoors in my part of the world. When you read this, it will be less than three months until our annual AGGS Convention and Flower Show to be held in Morristown, New Jersey. If you haven't already been enticed to register, you may still postmark your registration by April 30 to qualify for early admittance to the plant sale which I know from advance information will be superb with many rare and unusual Gesneriads being propagated by members of the Frelinghuysen Arboretum Chapter. You won't want to miss the flower show, lectures, field trips, and opportunity to share ideas and growing tips with other Gesneriad enthusiasts. Try to bring even a small enclosed planting to enter in the Flower Show.

I look forward to seeing you in New Jersey!

Susan

The Shopping Mall

KACHINA AFRICAN VIOLET LEAVES AND SUPPLIES. 15818 N. 52nd Street, Scottsdale, AZ 85254-1707.

KARLEEN'S ACHIMENES. Achimenes, Gloxinias, Eucodonias, Smithianthas, few Speciosa Sinningias, some seed. \$1.50 for list. NEW ADDRESS! KARLEEN'S ACHIMENES, 183 Alcovy Lane, Chula, GA 31733.



PAT'S PETS, Gesneriads and African Violets. Send \$1.50 for catalog. Pat's Pets, 4189 Jarvis Rd., Hillsboro, MO 63050. Phone (636) 789-3604. E-mail PATSPETS@JCN1.COM. Internet Home Page (catalog) HTTP://WWW.JCN1.COM/PATSPETS.

WEISS' GESNERIADS, 'Plants Grown for Distinctive Foliage' — Episcias, Begonias, Sinningias, Chiritas, plants and cuttings. Free Catalog. 2293 So. Taylor Road, Cleveland Heights, Ohio 44118.

American Gloxinia and Gesneriad Society, Inc.

46th Annual Convention — 2002 July 2 to July 7, Morristown, New Jersey

Call for 2002 Annual Membership Meeting

The Annual Meeting of the members of the American Gloxinia and Gesneriad Society will be held on Friday, July 5, at 12:00 noon for the purpose of transacting business which may properly come before the meeting.

Call for 2002 Board of Directors Meetings

The Board of Directors meeting will be held on Tuesday, July 2, 2002, at 1:00 P.M., for the purpose of transacting business that may properly come before the meeting. A special Board meeting will be held on Friday, July 5, at 2:00 P.M. A meeting of the new Board will be held on Sunday, July 7, at 9:00 A.M.

Peter Shalit Recording Secretary

Nominating Committee Report

The following members have agreed to have their names put in nomination as directors for a three-year term ending in 2004:

Helen Bortvedt Sequim, Washington Tom Bruning Council Bluffs, Iowa

Carolyn Conlin-Lane Scarborough, Ontario, Canada

JoAnne Martinez
Pat Richards
Carolyn Ripps
Vivian Scheans

Tampa, Florida
Olathe, Kansas
Scarsdale, New York
Lake Oswego, Oregon

AGGS Nominating Committee: Marlene Beam, Chair

Bill Price Connie Leifeste

The AGGS Auction

The Frances Batcheller Endowment Fund has grown over the years because of your help. Donations in the way of auction items and your bids on those items have helped grow the Fund every year. Once again, we ask for your donations of gesneriad or otherwise horticulturally related items. We are especially interested in live plant material. If you cannot personally attend Convention, you may mail your donations to Jeanne Katzenstein, 1 Hallvard Terrace, Rockaway, NJ 07866 by July 1st. When bringing (or sending) your donations to Convention, please provide a list of the items you are contributing—this will help greatly when items are accepted for the auction. If you have any questions, or concerns, you may contact Paul Susi, 6 Upper Lane, Centerport, NY 11721 <captaur@optonline.net>.

Newest Slide Programs

- · Introduction to Gesneriads (56 slides)
- · Kansas City: Convention 2001 (79 slides)
- · Tampa: Convention 2000 (79 slides)
- · Nashville: Convention 1999 (75 slides)
- · Achimenes (59 slides)
- · Chirita (60 slides)

- · The Companion Genera: *Nematanthus* and *Codonanthe* (77 slides)
- · Kohleria (72 slides)
- · Sinningia (80 slides)
- · Streptocarpus Species (75 slides)
- · Streptocarpus Hybrids (79 slides)

Programs can be reserved by mail to Dee Stewart, 1 No Name Road, Stow MA 01775-1604 or email to dee.stewart@110.net. Specify the program to be reserved and the date the program is required. Since new programs are very popular, it is helpful if you provide as much lead-time as possible, provide alternate dates, or alternate programs that would be acceptable. Please specify the address the program is to be mailed to and a contact phone number. Program rental of \$20.00 U.S. payable to AGGS must be received before the program can be shipped. Your request will be promptly acknowledged and programs will be shipped to arrive at least one week in advance of your reserved date. Older programs are shipped in slide sleeves and must be placed in a carousel or other container for viewing. Newer programs are shipped in a carousel. Programs must be returned within 5 days of your reservation date via Priority Mail with delivery confirmation in the U.S. or the equivalent postal category from outside the U.S.



Collection of pink-leaved Episcias exhibited by Jill Fischer at the 1999 Convention Flower Show (E. 'Cleopatra', E. 'Pink Dreams', E. 'Unpredictable Valley')

Seed Fund

Bob and Carol Connelly Bob_Connelly@email.msn.com 2391 Phillips Drive, Auburn Hills, MI 48326-2450

Since we have been getting more questions from people concerned about shipping and the USPS actions to ensure the safety of the mail, here's the latest information from the postal service. Please keep in mind that we are writing this in early January, so things could have changed. Please feel free to send a note to us if you need an update.

The U.S. Postal Service is using a sanitizing system, on a limited basis, to guard against anthrax and other biological agents that could be contained in the mail. Here is an update on what we currently know:

- Mail for the general population is NOT currently being irradiated.
- Currently, the Postal Service is only irradiating mail directed to federal agencies in the Washington, D.C. area, and other federal agencies that have requested irradiation.
- If the Postal Service expands the areas for irradiation, they have indicated that they would develop notification procedures to inform people of this.
- If the program is expanded nationally, mail from known shippers, or "identified mailers", will not be sanitized. If this does occur, we will take appropriate action to become an "identified shipper".

We have not had any reports of any of our seed shipments being treated or damaged and do not expect to unless the situation drastically deteriorates. We may need to add "AGGS Seed Fund" to our return address labels for domestic shipments. We are aware that certain foreign destinations will not accept/deliver any mail that indicates seed or plant material and will continue our current practices to those destinations. If anyone still has major concerns, we can ship by UPS, but at the lowest rates this will add about \$7 to \$10 for each domestic shipment.

We would like to thank the most recent contributors to the Seed Fund for their generosity: Marilyn Allen, Clay Anderson, Frances Batcheller, Marlene Beam, John Farina, Bonita Hutcheson, Richard Holzman, Jeanne Katzenstein, Carolyn Ripps and Carol Schreck.

ADDITIONS:

Cyrtandra cupulata (G,H,MT)

- Nematanthus strigillosus 'Ibitipoca' (B)
- Sinningia defoliata (D,H,LM) Sinningia douglasii (rose/purple) (D,MT) Sinningia lineata GRF9920 (LM)
- Sinningia 'Georgia Sunset' hybrid mix (F,P) Streptocarpus fasciatus/Krokodilpoort, E. Transvaal

Streptocarpus johannis/Weza, S. Natal

- Streptocarpus polyanthus ssp. polyanthus/Hammarsdale, Natal
 - · denotes LIMITED quantities

DELETIONS:

Alloplectus cristatus

Chirita fimbrisepala #3
Chirita speciosa (dark leaf)
Columnea hirta 'Dark Prince'
Gesneria citrina WEK96154
Sinningia 'Laura' × self
Sinningia 'Super Orange' × self
Sinningia 'Cherry Chips' × 'Super Orange'
Streptocarpus 'Canterbury Surprise' × self
Streptocarpus 'Midnight Flame' × self
Trichantha sp. nov. (molinae ined.)
GRF98159

Chapters and Affiliates — Past, Present and Future

Arleen Dewell <arleendewell@shaw.ca> #311-2366 Wall St., Vancouver, BC, Canada V5L 4Y1

ongratulations and continued success to a number of Chapters celebrating their Silver Anniversaries in 2002. Twenty-five years of growing with AGGS is an exciting achievement! The Frelinghuysen Arboretum Chapter will be hosting the ultimate bash for their 25th—"Gesneriads in the Garden State II"—our 2002 Convention to be held this July in Morristown, New Jersey. The Toronto Gesneriad Society will stage "A Silver Celebration" this year, undoubtedly another blockbuster show and plant sale. Two more very busy chapters turning silver are the Northern Illinois Gesneriad Society and Suncoast in Sarasota, Florida. Our venerable core chapters—Greater New York, New England, Long Island, National Capital, Delaware, Connecticut and Liberty Bell—can boast 40+ years of association with AGGS. How many Chapters can claim 30 or more years of AGGS affiliation? One of my goals as Chapters and Affiliates Chair for AGGS is to develop a record of the year in which each chapter received its Charter. Please write or e-mail me if you have documentation of the year your chapter was inaugurated, along with any anecdotal information you have relating to it.

Did you know you that can get free publicity for your chapter's annual show, plant sales and other events on the AGGS Web Site? Go to the bottom of the AGGS Home Page, click on "Events Schedule" and complete the form. While browsing, you might also want to check out the information listed for your chapter under "Local AGGS Chapter Meetings". Click on that link and scroll until you find your chapter. Does your meetings and program schedule need updating for 2002? Click "Send us the Information" at the bottom of the Chapters page and do it! Judging by the number of "hits" on our site, people are discovering and revisiting our award-winning AGGS Web Site all the time. Keeping your chapter information current could send lots of new members your way—if they know when and where to find you. At the national level, AGGS needs to do all it can to maintain its links with you—its local chapters. When you read this, your Chapter President should have received the annual Chapters and Affiliates Report from Paul Kroll, our Corresponding Secretary. Please help us stay connected by completing the information on behalf of your chapter and sending it back to Paul as soon as possible.

So what's new on the Chapters and Affiliates front? I have received enquiries from Susan Allison in Ohio, Elizabeth Meadows in Phoenix and Bob Counsell in the UK, on behalf of the British Streptocarpus Society. Deb Weinman tells me that her group in Tucson, Arizona is making good progress developing their society's new bylaws. Their well-planned monthly meetings sound like a lot of fun! No one leaves without a little more knowledge about Gesneriads and, of course, some extra plants to add to their collections. The African Violet Society of Western New York has submitted their bylaws for consideration and may soon round out AGGS' Chapter list to an even three dozen. I'm sure we won't stop there! AGGS continues to evolve through you, the local chapters and your commitment to help "turn on" people in your communities to the joys of growing Gesneriads!

A Garden State Reprise

Quentin Schlieder < QSchlieder @MorrisParks.net> PO Box 1492, Morristown, NJ 07960

The Frelinghuysen Arboretum Chapter of the American Gloxinia and Gesneriad Society is eager to reprise its hosting of the Society's Convention... but with a different twist. In 1988, "Gesneriads in the Garden State" was focused on the infamous turnpike corridor and was centered in New Brunswick, home to Rutgers University.

We've kept it a closely guarded secret—but New Jersey truly IS the Garden State! New Jersey's rich history and diversity will be evident in "Gesneriads in the Garden State II" with visits to Willowwood Arboretum and, of course, the Frelinghuysen Arboretum. Although the Morris County Park Commission operates both arboreta, they are very different in their character.

Our tour on Thursday will begin with a visit to Willowwood Arboretum and a country buffet breakfast in the beautiful two-century-old stone barn, which today is used for meetings and garden programs. Willowwood is located in the Hacklebarney Hills of north-central New Jersey, and comprises about 130 acres of rolling land in a shallow valley. The site evokes the feeling of an English country garden with its pleasant informal paths through woodlands and meadows. The residence, dating from 1792, dominates two small formal gardens, the first a cottage garden and the second a parterre based on the pattern of a Persian prayer rug. Other gardens include a small rockery, an oriental garden with pools and original Japanese sculptures brought to this country by Commodore Perry as ballast, and a romantic rosarie with a distinctive Mediterranean flavor. There is also a small conservatory which features original Moravian tiles and a small pool. About 3,500 kinds of plants are found in the collections which are used for both education and research. Magnolias, lilacs, conifers, hollies, boxwoods, cherries, maples, and dogwoods are the featured collections. Hosts will greet visitors at each garden area to describe the history, garden architecture, and plants, enabling touring participants to enjoy a visit at their own pace.

On Saturday evening, following hor d'ouevres and drinks on the *Spirit of the Hudson* cruise ship sailing from Liberty State Park, we will return to Morristown for a summer picnic supper and socializing at the Frelinghuysen Arboretum. Evocative of the estates built in Morristown by America's landed gentry in the late 19th Century, the Frelinghuysen Arboretum today serves as a regional horticultural center.

Originally known as "Whippany Farm", the manor home which today serves as the administrative headquarters for the Morris County Park Commission, was built by George Griswold Frelinghuysen in 1891 on the banks of the Whippany River. George Frelinghuysen was a successful patent attorney and son of Frederick T. Frelinghuysen who served as Secretary of State under Chester A. Arthur. The Colonial revival home was designed by the Boston architectural firm of Rotch and Tilden and today is entered on the National Register of Historic Places.

In 1969, George Frelinghuysen's daughter, Matilda, bequeathed her estate to the people of Morris County as an arboretum in memory of her father and mother. In addition to the historic mansion and carriage house, an



The manor house at the Frelinghuysen Arboretum

educational center, home demonstration gardens, and a gift shop were added, in conformance with a plan approved by Miss Frelinghuysen. Also of interest on the property are a rose garden, a Braille nature trail, a glossary garden, a fern garden, and the Pinetum.

In anticipation of our group's visit, antique botanical prints and books featuring Gesneriads will be displayed in the atrium of the Haggerty Education Center at the Frelinghuysen Arboretum. The evening will offer not only an opportunity to enjoy this exhibit, but to shop in the Cottage Gift Shop, and to socialize.

The lectures which are planned as part of the 2002 AGGS Convention also have been developed with an eye to provide something for everyone and will present the best of the New and Old Worlds. From the New World, Mauro Peixoto of Brazil will share his knowledge of the wonderful gesneriads of his native land, especially the genus *Sinningia*, certainly the "Queen" of the Gesneriad family. Mauro's travels in Brazil, often accompanied by Alain Chautems, have resulted in a wealth of new as well as reintroduced species being brought into cultivation for us to enjoy.

Dr. Laurence Skog of the Smithsonian Institution will focus on the genus *Gesneria*. Larry has had an enduring enthusiasm for *Gesneria* since the 1970s when this genus was the topic of his doctoral dissertation. This genus is not only the Gesneriad family's namesake, but is of special interest to the Frelinghuysen Arboretum Chapter—Tom Talpey, former AGGS President and noted plant explorer who introduced many species of *Gesneria* into cultivation, lived for many years near Morristown.

Paul Sorano of Lyndon Lyon Greenhouses will present an enlightening program on growing Gesneriads in hanging baskets. Paul is the third generation of growers in his family. His grandfather, Lyndon Lyon, founded the business in Dolgeville, New York, in 1954. Paul will surely reveal some of the family secrets in growing beautiful baskets of Gesneriads.

From the Old World, Leong Tuck Lock will introduce us to some of the Gesneriads from peninsular Malaysia, his homeland. There certainly is great interest in the many new plants from this frontier in plant exploration. Tuck Lock has been a member of AGGS for decades, and we have all enjoyed reading his many informative articles about these lesser-known Gesneriads in The GLOXINIAN and CrossWords.

Complementing this exciting line-up of speakers will be plant sales and a flower show that will also enrich your knowledge and your collections at a time when shipping plants can be a risky proposition due to anthrax-related protections. The location of the 2002 Convention makes it an easy drive for many AGGS members. With the combination of location, affordability, and convenient parking, what are you waiting for? Sign up and join in the fun!

We look forward to seeing you in Morristown in July!

Convention Dates to Remember

April 30 – Deadline for convention registration to enjoy early admission to opening plant sale (Thursday, July 4, at 9:30 p.m.)

June 1 — Convention registration deadline. After this date, registration for activities will be on a space-available basis and subject to a \$25 late fee.

June 15 – Hotel registration deadline to guarantee convention room rate.

- Deadline for Judging School registration. Be reminded that no registrations will be accepted at convention.
- Deadline for artistic entry niche reservations, and for commercial and educational exhibit registrations.



2002 Convention on-line Information

www.aggs.org (for details and to register online)

www.visitnj.org (for information about New Jersey)

www.morristourism.org/ (for a virtual walking tour of historic Morristown and other local information)

www.hqplazahotel.com (for Convention hotel information)

www.panynj.gov/aviation.html (for Newark Airport (EWR) information)

Robert Stewart sbewart@110.net>
1 No Name Road, Stow, MA 01775

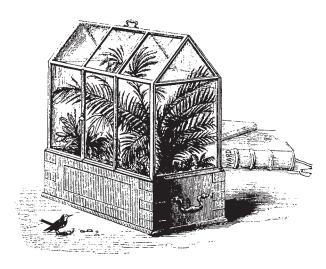
The invention of the Wardian Case is an example of the way a valuable new discovery can be made almost by accident, if one observes unexpected events and is awake to their possibilities.

The use of transparent containers for growing plants was apparently practiced in ancient Greece, but the modern invention of the terrarium occurred in Victorian times.

In 1829 a British naturalist and surgeon, Dr. Nathaniel Bagshaw Ward of London, built an experimental setup for observing the emergence of an adult sphinx moth from its cocoon. He selected a wide-mouthed glass bottle with a lid, put leaf-mould in the bottom, and added a cocoon buried appropriately.

At night, moisture would condense on the inside of the glass and run back down into the soil. Eventually, grass sprouted and a fern appeared. The fern turned out to be a type that Dr. Ward had been unable to grow in his garden, so he took out the moth and kept the system going. It was still growing after almost four years with no added water.

This observation prompted Dr. Ward to build many more and larger glass cases enclosing an increasing variety of plants. Eventually he covered his house and yard with cases. The largest case included a stained glass window. In 1833 he displayed a case at a scientific meeting and began writing articles. In 1842 he published a book called "On the Growth of Plants in Closely Glazed Cases". Dr. Ward was named a Fellow of the Royal Society in 1852. A genus of African moss was named in his honor.



1842 illustration of a Wardian Case from Dr. Ward's book On the Growth of Plants in Closely Glazed Cases

Large enclosed containers for growing delicate plants in the home or transporting precious plants over long distances came to be called "Wardian Cases". The cases came into use for transporting plants between continents beginning in 1833 with a trip to Australia carrying plants in cases supplied by Dr. Ward. Prior to Dr. Ward's discovery, moving plants by sea had not enjoyed a high success rate. Plants were exposed to salt water and spray, with very limited supplies of fresh water, and given only rudimentary care for months at a time on long sea voyages under sail. The new system allowed plants to be sealed into cases and largely ignored for the entire voyage, and still be alive and thriving when they arrived at their new homes. Plant survival rates increased from 5% to 95%. The invention of the Wardian Case began the great age of plant transportation. Many important economic crops (and not a few pests) were transported around the globe. In one example, the British moved 20,000 tea plants from China to India. The use of Wardian cases for plant transport continued for a century until plastic bags came into use.

The Wardian Case also became a fixture in many Victorian homes. Unusual tropical plants could be sheltered from the unpredictable indoor climate of the time. Plants were exhibited in the parlor for the enjoyment of the household members and to impress visitors with the family's cultural attainments. Wardian Cases were made in decorative and ornamented forms, including fanciful conservatory and church shapes. Miniature plants and landscapes were popular.

Today we use "terrariums" or "prop boxes", but the principle is the same as the original Wardian Case. Moisture is contained to keep humidity high, and the system is arranged so that condensation runs back down the sides and re-waters the soil. Plants can be left without care for months.

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James B. McKinney <gesneriads@aol.com> 5720 Sullivan Rd., Wichita, KS 67204-1942

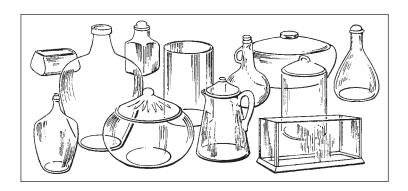
You needn't be Gulliver from Swift's famous tale to enter the exciting world of Lilliput. You can explore this diminutive and thrilling world right in your own home window, light garden, sun porch or greenhouse. Here under your watchful eye, rare and exotic Lilliputian plant delights and wonders will thrive for you just as they did for our Victorian ancestors over a hundred years ago in their fabulous Wardian cases.

WHAT A TERRARIUM IS...

First of all, a terrarium is a mini-greenhouse. It's a complete environment... an easy and satisfactory way to propagate and/or grow and maintain plants indoors. Choice plants that otherwise might give the grower headaches find terrarium conditions almost perfect. Terrariums bottle up a near-perfect climate, providing a humid, dust-free space where plants prosper. This environment does away with problems of drafts or gases; living things flourish even when temporarily ignored. These are the showpieces of your indoor garden. A well cared for terrarium is something that always brings admiring comments and questions from all that view it. You can look through the glass to an experience of wonders... something memorable happens when you create a stage for dwarf plants. You bring them close, not unlike a well-designed and maintained aquarium full of beautiful tropical fish. Terrariums are a simple pleasure sure to please all who work with them. Almost like magic one can grow to perfection a Gasteranthus or Venus fly trap; propagation is a breeze; rare seeds that others envy, sprout and thrive before your very eyes! Terrariums are a near magical experience and add a dimension that doesn't come from just working with plants otherwise.

TERRARIUMS ARE ANY SHAPE...

Terrariums can be most any shape as long as they are clear and do not obstruct light. They can be small or tall; square or round; glass or plastic. Glass or plastic that is rough, ridged or rippled, or that has coloring in it, should be avoided. Choosing the terrarium first simplifies finding the right size plants, the most pleasant leaf and color combinations and arrangements





Terrarium exhibited by Bill Westbrook at the AVSC 2000 Convention Flower Show in Ottawa (photo by Jeanne Katzenstein)

for the available space. Your terrarium can be a clear plastic sweater box, one of many sizes of clear plastic corsage boxes from the florist, an aquarium, bubble bowl, brandy snifter, clear cider jug, candy dish or store- or catalog-bought terrarium. At garage, estate and tag sales, one can still find antique domes, elegant punch bowls and even chemists' flasks. Local glass cutters can easily cut lids for most any shape the hobbyist needs.

WHAT TO PLANT...

Today's houseplants and certainly our Gesneriads, can be unlimited in choice and many will even perform more luxuriantly in the environment of the terrarium. Since most Gesneriads thrive with high humidity, the choice is quite great. Some plant suggestions are as follows: miniature rhizomatous begonias, small-growing Episcias ('Toy Silver', 'Annette', and 'Silver Skies' as well as others), little ivies, dwarf ferns (Nephrolepis exaltata 'Elzevir' is one), Oxalis alstonii (O. hedysaroides 'Rubra' [Firefern]), miniature African violets, dwarf pothos, baby tears (Helxine soleirolii, both green and gold), Peperomia rotundifolia, micro-miniature and other small-growing Sinningias, assorted selaginellas, both creeping and upright, selections of ficus, small growing Achimenes, Alsobia dianthiflora, small-growing Chiritas, tiny-leaved Columneas, Fittonia verschaffeltii var. argyroneura 'Minima', and Saxifraga stolonifera 'Tricolor'. And, of course, we remember that the variegated leaf Episcias easily reach their ultimate beauty in an enclosed, high-humidity environment even though these are not miniature. Size, color and texture need to be considered and decided upon as the choice of plants and the landscaping plan is finalized. Selecting plants with similar light and moisture requirements can be desirable.



Display of enclosed containers featured by Jim McKinney at his lecture in Kansas City (photo by Molly Schneider)

PLANTING YOUR TERRARIUM...

Keeping the size and shape of your terrarium in mind, group your chosen plants for easy access. Decide where you want specific plants. Think about and decide on your design before you start planting. Although many gardening catalogs offer "terrarium tools" for sale, most often we find old flatware from the kitchen cutlery drawer to be the most effective: knives, forks, teaspoons and tablespoons. Thoroughly wash and rinse the terrarium (drying if desired), before you begin.

Since terrariums are an "enclosed environment", having some drainage medium in the bottom is a good idea. This can be similar to the kind of drainage you might think of as you pot up a plant. It can be sterile pebbles (river gravel), broken pot shards, or even horticultural perlite as one would use in Texas potting for African violets. I like to use a scattering of charcoal over this drainage material to help keep the soil from souring in case of overwatering later. In the greenhouse we use the same mix for our terrariums that we use for our Gesneriads and begonias. That is a commercially bought mix such as Fafard or Metro Mix available at gardening centers or nurseries. This can be further "loosened" if you desire, with perlite or long-fiber sphagnum moss depending on what your plant selection is. Slightly moist mix works best as you plant. We blend in a small amount of a timed-release fertilizer such as Osmocote.

Create any variation in topography before you plant. You may want some hills, valleys, dells or ridges. You might want to add a piece or two of sterile rock such as lava rock. These can be drilled and hollowed out to accommodate a plant or cutting. (Micro-miniature Sinningias do fantastic in such a rock!) Your plants can be planted right in your mix, or left in their small pots and placed inside a pre-arranged same-size pot buried in the mix. This permits you to instantly take out and change your landscape with no effort at all. Plants and pots should be inserted at the same level that they have been growing in. Space your plants in what you determine is the most pleasing arrangement. Your mix can be covered with fresh florist's green

sheet moss should you wish or just left bare. I like to keep the landscape rather simple with few decorations. I've always subscribed to the philosophy that in terrarium design, less is more. Space should be left for growth. Little creepers such as ficus may be most effective around the edges and back sides of the terrarium as they are most charming as they climb up and around your design. Remember that since you are planting in a high humidity environment with near perfect conditions, not all plant material needs to start out as potted specimens. Little cuttings root quickly and can provide you with "more" plants inside your new terrarium in no time at all.

CARE...

Regular, light, even moisture is a prerequisite to good terrarium care. After your initial planting, you should water enough that the soil is moist throughout but not so much that any "stands" in the bottom of your container. At each watering or misting we use tepid or room-temperature water with quarter-strength fertilizer in it. Often we alternate between a chemical fertilizer such as Peters 20-20-20 and an organic one like fish emulsion. Old fashioned "Mother's clothes sprinklers" were always the best watering utensils. Now, sadly, they have disappeared with the advent of hand-held misters. Some gardening catalogs have similar sprayers for watering and dusting. RESTRAINT is the name of the game. Be certain that things have dried to the point that watering/misting is called for before you add water. More terrariums are killed by too much water than by any other means. Water with softener should never be used. Most softened water contains sodium. Heavily chlorinated water is not good. Allow it to stand overnight in an open container before using. When moisture is properly balanced, the glass will mist up during cooler parts of the day. If the glass is foggy all day long, the terrarium is too moist. If this condition develops, adjust the lid and leave it open to the air until the glass becomes clear, then replace the lid. Check the fogging condition; if too much moisture persists, continue airing out the terrarium until moisture is properly adjusted. If no moisture forms on the glass in one day, the terrarium is too dry. Spray inside a few times and replace the lid. Check the balance later. It may take a few days to get the proper balance once the terrarium is in the place you have chosen for its final location.

LIGHT...

Terrariums do well with both fluorescent and natural light. If using natural light, care should be given to choose a brightly lit location but not one in direct sunlight. Remember how hot a car gets when closed up in sunshine. Rotate every so often to encourage even growth. Avoid placing the terrarium directly on a heat source. Use the same formula for light distance in placing your terrariums that you would with your plants. We have some small terrariums six to eight inches from the tubes and others that are ten, twelve and even fifteen inches away. You will need to carefully watch your growth patterns to determine what is best in your situation. Plant tubes such as Gro-Lux and Wide Spectrum are fine but so are a mix of warm and cool white tubes.

FURTHER THOUGHTS...

A well-cared-for terrarium is a highlight of your plant area. It will often draw viewers faster than your most beautiful blooming plant on a bench. Always groom and remove fading leaves and flowers on a regular basis. You want your effort to have a cared-for look even if it is minimal. Long pointed scissors will prune most plants. If the plants show signs of outgrowing their location, don't be afraid to remove them. Some aggressive plants can easily

take over a terrarium if not cut back and ruthlessly exiled. Pests can make their presence known in a terrarium. Use the same care you would for the other plants in your collection. Systemic granular applications of Marathon, following all directions, works well. Even the old alcohol on a Q-Tip can be considered for mealybugs. Ladybugs love aphids—add a couple and watch! Spray for white flies. (Slip a piece of paper between the plant and the glass; it will keep the spray off the glass.) Leave the terrarium uncovered until the fumes have fled. Be certain to wear a mask and follow all other directions when using any chemicals.

FINALLY...

We've come a long way from Grandmother's rose propagation under the Ball quart fruit jar in the garden, but our enjoyment and pride can be just as great as hers. As the Victorian collectors carried and maintained their ferns and orchids and tea plants long ago, we have rediscovered and, with great vigor and excitement, taken terrariums into the 20th and 21st centuries. It would be hard to image today's passionate and serious gardeners not making use of terrarium propagating boxes of some kind or featuring their most choice and rare plant in a beautifully planted terrarium. An old English gardener with whom I studied and so admired used to say to me, "Watch the leaves and blooms. Feel, look at and smell the soil. Plants like attention and like to be loved." He showed me a Wall Street Journal story indicating research regarding growth rates and leaf sizes and how they are affected by responses to human action, mental and physical! Whether you go along with this theory or not, it's common sense to recognize that a neglected plant or terrarium, like a person, does not continue vigorously unless you devote attention on a regular and on-going basis. Stop and notice it every day. "It's a Good Thing." (Who said that?)



Terrarium exhibited by Paul Kroll at the 1998 Convention Flower Show



Gesneria cuneifolia 'Quebradillas' exhibited by Jean Miller at the 1997 Convention Flower Show (photo by Dale Martens)



Sinningia concinna exhibited by Marlene Buck at the 1996 Convention Flower Show (photo by Jeanne Katzenstein)

Slow Growing in Contained Environments

Dr. Miriam Denham <denham@spot.Colorado.edu> 10353 N. 65th St., Longmont, CO 80503-9018

If you have ever had a terrarium (a glass or plastic container for growing plants), you may have noticed that the plants in that environment grew slowly. Sometimes slow growth is highly desirable. If there is adequate light, plants with differing rates of growth can be maintained in good proportions for an extended period of time. However, slowness of growth will usually delay desired flowering. What are the factors contributing to this slow rate of growth?

One lack inside a closed container is not immediately obvious. There often is less carbon dioxide (CO_2) available for photosynthesis. Carbon dioxide is often the limiting factor in plant growth in general. (Limiting factor: something in short supply that the plant needs before it can grow further.) If your terrarium does not have animals, bacteria, or fungi, little carbon dioxide is available for the plant. I have been known to open some of my closed containers (often a zippered-type plastic bag) and breathe a couple of breaths in to enhance the available carbon dioxide for the growth of the plant inside. It has been suggested that the reported (not experimental) benefit of talking to plants comes from the addition of carbon dioxide to the plants' environment.

When we look at the requirements of plants, what is the most obvious difference between care for plants grown in the open and those in closed containers? The most obvious is that the plants require *less water*. This means that less water is available for the plant.

What does the plant do with water? The first thing we learned about plants' use of water is that it is taken in by the roots and transported with dissolved minerals through the xylem of the veins and ultimately is lost from the plant in transpiration from the stomata (pores).

Plants need air (oxygen) to create the energy necessary for the roots to take in minerals. Water follows by osmosis, entering the xylem along with the dissolved minerals and is distributed to the rest of the plant. Plant cells are filled with water. All the chemical reactions needed for life take place in watery solutions. Water uptake by young cells creates the turgor that stiffens the young plant parts. Water is used in the process of photosynthesis. Water covers the surfaces of plant cells. Water vapor fills the "air spaces" inside the leaf, facilitating the exchange of carbon dioxide and oxygen through the stomates of the plant and cooling the leaf. Ultimately the water vapor is lost through the stomates by transpiration, the last link in the column of water throughout the plant, pulling water up through the tallest tree.

In plant physiology, we rooted cuttings of pea plants. After they were established, we cut off the tops to see the sap welling up on the cut surface. This is the result of root pressure, created by osmotic pressure. (The same can be seen when making cuttings in a well-watered coleus plant.) While this root pressure is enough to produce guttation droplets on the edges of some leaves, it obviously is not enough pressure to raise water high enough for trees. (Some leaves have tiny openings at the tips of the xylem in the teeth on the margins of the leaves. When these plants are well watered and in conditions of high humidity, droplets of water are forced out by root pressure and can be seen along the margins of the leaf. This is guttation.)

Other characteristics of water relate to its ability to stick (adhere, as in adhesives) to certain substances such as cellulose (a major component of most plant cell walls), and its ability climb the insides of very narrow tubes—capillarity.

However, it appears that the major factor involved in getting water to the tops of the tallest trees is the remarkable ability of the water molecules to stick to each other (cohesion: co- = with, and is used here to refer to the ability of like substances to stick to each other, as opposed to adhesion which is the ability of molecules to stick to other substances). The last factor in pulling the water upward is the evaporation from the stomates that we call transpiration.

Without the pull of transpiration, fewer minerals are taken into the plant, metabolism is slowed, and the plant grows more slowly.



Terrarium exhibited by Michael Riley at the 1979 Convention Flower Show (photo by Alan Baker)

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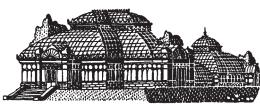
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Streptocarpus wendlandii 1895 illustration from Curtis Botanical Magazine. This plant was grown at Kew Gardens from seed that unexpectedly sprouted in a Wardian Case containing ferns transported from South Africa.

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The Unifoliate Timetable

Alan LaVergne <Alan_LaVergne@iacnet.com> 2369 Saint Francis Dr., Palo Alto, CA 94303

Thanks to the AGGS Seed Fund and its donors, I have taken thirteen different unifoliate *Streptocarpus* species from seed to bloom. Some have been mildly disappointing, some have been pleasing, and a special few have been unforgettable. The flowers of *S. cooksonii* and *S. cooperi*, for instance, are well worth the effort.

Some of the species (most notably *S. porphyrostachys* and *S. trabeculatus*) have leaves that reward even during the wait for flowers. But with others, the flowers are the payoff.

Somebody contemplating the seed-to-flowering project for a unifoliate will naturally want to know how long the wait for flowers will be. The table below shows how long I had to wait. The number of months to bloom ranged from 14, for *S. cooksonii*, to (groan) 41, for *S. dunnii*. Note that the "months to bloom" number is the minimum I have gotten. Not all plants from the sowing bloomed in that period. Also, remember that these results are under my growing conditions; your mileage may vary.

A couple of conclusions can be drawn from the numbers below:

- 1) Some species are just slow;
- 2) Sow seeds in winter.

The second point could use a little explanation. These species tend to bloom during spring or summer. If the plant reaches maturity in, say, August, it will usually wait until the next year to bloom. This means that giving it an early start one year will be the best strategy for getting it to bloom the next year. Except for Mister Molasses (*S. dunnii*), all species sown in January and February bloomed the second year.

Enough talk. Here are the numbers:

Species	Month Sown	Months to Bloom
S. bolusii	January	16
S. cooksonii	March	14
S. cooperi	January	19
S. cooperi (repeat)	February	16
S. denticulatus	September	18
S. dunnii	January	41
S. haygarthii	March	24
S. michelmorei	March	28
S. porphyrostachys	January	15
S. prolixus	January	15
S. saundersii	July	21
S. trabeculatus	July	35
S. wendlandii	August	34
S. wittei	March	19

Coming Events

April 27 — Massachusetts — Annual combined Plant Societies' the University Massachusetts Eastern Extension Center, 240 Beaver St., Waltham. Saturday 10:00 am to 3:00 pm. Free. Wheelchair accessible. Participating societies: Gloxinia and Gesneriad, African Violet, Begonia, and Master Gardeners. Choice houseplants and perennials. Contact Dee Stewart <dee.stewart@110.net> (978-897-6822).

May 4-5 — California — AVS of South Bay show and sale at the Westgate Mall, 1600 Saratoga Ave., San Jose. Show Saturday 2:00 pm to 7:00 pm; Sunday 11:00 am to 5:00 pm. Sale Saturday 9:00 am to 7:00 pm; Sunday 9:00 am to 4:00 pm. Contact Irene Thomas (650-369-3452).

May 18-19 Illinois Glenview/North Shore African Violet Society show and sale at the Chicago Botanic Garden, Lake Cook Road and Edens Expressway. Parking \$6 for non-garden members. Saturday 1:00 pm to 5:00 pm; Sunday 10:00 am to 4:00 pm.

Contact Barbara Goodsell (847-729-

1690).

May 19 — New York — Long Island Chapter exhibit and plant sale at Clark Botanic Garden, 193 I.U. Willets Road, Albertson. Sunday 10:00 am to 4:00 pm. Free admission to the garden and the exhibit. Contact Paul Susi (631-262-9193)



<captaur@optonline.net>.

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THE GLOXINIAN

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Compiled by Judy Becker

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Modern terrarium culture first became popular in the 1970's during the period now known as "The Houseplant Craze"—a period of fast paced growth in the indoor plant industry as plant stores opened up all over the U.S. and other countries. Greenhouses switched from cut flowers to potted plants and manufacturers started a frenzy of production of all sorts of growing containers. Soon a variety of enclosures became available for plants. These ranged from free-standing modern furniture, to small leaded-glass terrariums. People would make little scenes with pseudo-naturalistic plantings of tropical plants with miniature objects. There were also large domed plastic containers that were perfect for growing and displaying show plants. Those containers are no longer being manufactured but are still highly prized by gesneriad growers. In the 1970's and 1980's there was also popularity for "fruit ripening bowls" which worked well for their stated use but also made great terrariums. Sadly these containers are also no longer manufactured, but are still often seen in Gesneriad shows.

It's hard to say why the terrarium craze died out—probably for the same reasons that the "houseplant craze" subsided. But, terrariums also became less popular as these containers became overgrown and unmanageable. This mirrors my experiences with terrariums. My initial interest in using them to grow individual high-humidity-loving plants was rewarded with excellent results. But I soon discovered that such plants cannot maintain themselves forever in closed containers. The rapid growth as they reacted to the ideal conditions was replaced by equally rapid deterioration as they outgrew their situation, used up their soil fertility, or suffered other setbacks.

Now, however, I have regained my enthusiasm as I have come to grips with some of the issues that initially discouraged me. It is important to accept the fact that terrariums are temporary homes for long-lived plants. They must be continually maintained in their own special way, different from growing plants in the open. Overall, terrariums are a much easier situation as long as their limitations are accepted. The principal value of containers is the ability to maintain very high humidity and even moisture at the roots for plants that require these conditions. They also isolate plants susceptible to infestations. In our indoor environments terrariums allow plants to be maintained in a consistent manner as humidity plummets with winter heating. Containers are as important for maintenance of even humidity as fluorescent light stands are for even lighting. But the small size of containers limits their longevity in maintenance of these conditions so we must compensate by regularly reworking their situations. I have several strategies for this.

For plants that grow too large, I cut back and restart crowns, often moving the crown to a new container while using the original plant for propagation. Plants that grow too tall can be cut back and planted around the base for a multi-crowned or groundcover effect. I also move plants up to larger containers as they grow to maturity. But I find that plants regularly moved to larger situations can grow to very large sizes which eventually are too large to contain without a very large enclosure. I find that by restarting plants as crowns, however, I can achieve a fully mature plant with an overall

smaller size. In fact, I feel that almost all high-humidity-loving Gesneriads have potential as terrarium subjects, though the largest species may not be easy to bloom. The principal problem with growing naturally large-growing varieties is their need for frequent restarting in order to be maintained within the confines of a given container.

My cultural methods are fairly simple. I like to use a very porous open medium. With high soil moisture simple to maintain, I find that plant roots grow almost as well in air and in media. Consequently I like my medium to be as aerated as possible. For this reason, I have lately gone from using pottingsoil-based media in favor of long-fiber sphagnum moss which I plant premoistened and set as loosely as possible. When planting from soil, I try to remove as much soil as possible or restart from cuttings in the moss. After planting an established plant, I thoroughly water the terrarium with very lightly fertilized water. In the process of getting the moss fully saturated, I am left with standing water at the base of the container which I promptly remove with a turkey baster. In fact, I find I cannot water terrariums without using a baster to achieve the proper level of moisture. Using this technique I find I can feed plants despite the fact that they are growing in continuously saturated media. In fully enclosed containers being so maintained, permanent mist on the inner surfaces becomes a problem. The moisture can lead to a build-up of deposits which destroy the clarity and attractiveness of the container. Overly high humidity can also lead to excessive unattractive air roots from plants. Some sort of venting is necessary for achieving the healthiest plants.

When terrariums became less popular, I noticed a corresponding decline in the popularity of terrarium subjects. Gesneriads that require very high humidity have never been among the most popular because of their limitations. But with fewer growers using containers, they often become endangered as cultivated plants. Checking mail-order sources I have noticed very few varieties of such plants being offered, with the lone exception of the variegated Episcias. *Nautilocalyx*, a fairly large genus, has suffered particularly from a decline in interest. Yet this genus is one of the easiest to vegetatively propagate. Some of the old-time favorites in this genus have become very hard to find, but they are my favorites for terrarium culture. Other Gesneriads that work well for terrariums include some varieties of Episcias (particularly the lesser grown species), Parakohlerias, Pearceas, Phinaeas, Paradrymonias, Drymonias, Gasteranthus, Boeas, Gesnerias, Sinningias and Saintpaulias.

With Nautilocalyx, I find the most popular varieties are those that are naturally small growing, which by coincidence are all very attractive in foliage, flowers or both. The larger species, many of which are also the oldest in cultivation, are the ones most in danger of being lost. But many of the larger plants can be grown into spectacular plants. *N. picturatus* is one of the most compact and also one of the most beautiful. It grows well from leaves, and makes attractive, Episcia-like, textured, multicolored foliage as well as white flowers. Similar in name but very different is *N. pictus* which was known for many years by several cultivars. I grow *N. pictus* 'Lightning' and do not know if the other clones are still in cultivation. This plant is larger growing than the former but can easily be kept small by cutting back. It also has white flowers. Leaves are deep green with light green centers. Another popular species is *N. pemphidius*, first introduced to AGGS at the 1990 Convention. It has narrow, chocolate, bubbly leaves in rosettes that grow into a stemmed sub-shrub. It can produce its small white flowers in such great



Nautilocalyx picturatus exhibited by Carol Ann Bonner at the 2000 Convention Flower Show



Parakohleria baezana grown by Jon Dixon (photo by Michael Riley)

abundance that grooming can become a problem. Like all members of this genus, it propagates very easily and prolifically from leaves. A bit larger growing is the rosette species *N. cordatus*. Nevertheless, it stays quite low and has one of the largest and most attractive flowers in the genus, white with a broad lavender-blue edging to the corolla. It can be maintained as a fairly small rosette, though a healthy plant can make a large flat rosette of two-tone oval green leaves. Another species with a beautiful flower is *N. porphyrotrichus*, also with two-tone green leaves. But this species differs in the more shrub-like growth pattern, smaller and more pointed leaves. Its flowers are red, much like an Episcia, but with a longer tube.

Among large-growing Nautilocalyx, one stands out—*N. aeneus* 'Roezl's Bronze'—a beautiful species which I have not seen in about ten years. It makes an attractive rosette of very dark leaves with some white farina or hairs on the petiole and stem. It will also grow a stem, but can easily be restarted. I hope this one is still around. Another beauty is *N. glandulifer* which also has very dark leaves with purple undersides and hairs. Reminiscent of this species is the newer *N. ecuadorensis* which has green leaves covered with bright purple hairs. These all have white flowers. The last of the large growing species I am giving terrarium culture to is *N. bullatus*, one of the tallest in the genus, but with beautiful, dark, bubbly leaves. It needs to be cut down and restarted more frequently, and for this reason is usually grown without cover. *N. adenosiphon* is such a fast grower that it usually is not given terrarium culture, but like the others can thrive if kept small by maintenance. Its white flowers have long tubes. Other large growing species which I have grown uncovered are *N. forgetii, lynchii, panamensis*, and *colonensis*.

A plant with very similar cultural needs to Nautilocalyx is the sometimes very fast and rampant growing *Pearcea hypocyrtiflora*. Yet it can also grow very slowly. But given ample root room in a large container such as an aquarium, it will send out runners that at first seem weedy but then slow down and develop into many very attractive crowns of dark green leaves with silver veins. If kept under-fed and tightly grown, it will bloom with short pedicels. When very happy it will send up tall pedicels, which will necessitate a tall container such as a 20-gallon tank. Each flower is a glowing orange ball with a minute opening, complete with tiny pastel lavender lobes. Individual flowers will last up to three weeks. Other species now reclassified as Pearceas but better known as Parakohlerias also make excellent terrarium plants, both for their adaptation to such conditions and for their beautiful foliage and flowers. They all tend to be upright plants that need a vertical container or to be restarted. One that I am especially fond of is P. baezana with two-tone green to bronzy leaves and small spotted Kohleria-like orange flowers. This and its sister species, many unnamed, are among the jewels of the Gesneriad family but are little grown. They deserve more popularity.

Because Episcias are generally fast growing and adaptable to lower humidity, they often aren't thought of as terrarium subjects. Although *E*. 'Cleopatra' and the other variegates are usually grown enclosed, they can be well grown in the open. However, some of the lesser-known species really do not tolerate the same levels of dryness as the popular *E. cupreata* cultivars. Two that make excellent enclosed plants are *E. xantha*, with yellow flowers, and *E. sphalera*, with white flowers. *E. sphalera* can sulk when grown in the open, even in the higher humidity of summer conditions. But enclosed it quickly takes off, making robust small rosettes and many stolons. Its flowers are reminiscent of *Alsobia dianthiflora* though not so well

fringed. *E. fimbriata* can also be grown enclosed to great effect. This species, like many Nautilocalyx, has diminished in popularity to the point where it seems to be only known from one cultivar, 'Blue Heaven', with plain green leaves and blue-fringed white flowers. 'Dudley's Silver' had two-tone leaves and white flowers. There was also a third cultivar which I have never seen. *E. reptans* is another species which has a long history in cultivation but which seems to have been nearly lost. It seems to need more humidity than *E. cupreata*, to which it is very similar. It makes long stolons though, and has pretty red flowers. *E. lilacina* has the largest flowers in the genus but will not bloom unless given ample light and high humidity. Here in dry California, I have only succeeded in this respect when I have grown it enclosed. When grown this way, however, its stolons and vigorous growth require frequent restarting and pruning. *E. lilacina* would make a good candidate for a large terrarium such as an aquarium, but needs the bright, even lighting of a light stand in order to stay compact and in flower.

Among rhizomatous Gesneriads, Phinaeas are the most adaptable to enclosure for they not only are tiny plants but also seem to more readily achieve perennial growth when enclosed. *P. ecuadorana* is one of the larger species, though still quite small. It also has larger white flowers than the other species and really appreciates a bit of root run in order to form a large colony, growing about 6" high. Diastemas are other small-growing rhizomatous plants that can be grown enclosed though they like cooler conditions. One Gloxinia also stands out as a terrarium species—the Ecuadorian endemic *G. dodsonii*. It makes crinkly textured leaves with white veins but matures to plainer leaves. It also makes large lavender flowers, though I have yet to bloom it.

Paradrymonias and Drymonias are not generally considered terrarium subjects. Paradrymonias have a variety of growth forms but are most commonly seen as fountain-like rosettes of large, long, narrow leaves with flowers closely set at the base. The various species love low light and warm, even conditions which makes them suitable for enclosure, but because of their large rosette form need fairly large containers. *P. campostyla* is a vining plant with dark, hairy purple-backed leaves, very different from the others and suitable for terrariums. Drymonias include many equatorial species of varying sizes from moderate to huge. But they need warmth and humidity to



Phinaea ecuadorana



Diastema maculatum



Gasteranthus atratus grown and photographed by Michael Riley



Nautilocalyx pemphidius exhibited by Alice Courage at the 1992 Convention Flower Show (photo by Stan Schwartz)



Episcia xantha grown at Longwood Gardens in 1988 (photo by Stan Schwartz)



Nautilocalyx porphyrotrichus 'El Blanco' (photo by Hans Wiehler)

thrive. Some of the smaller ones are not well known because they don't persist under normal houseplant conditions but could be maintained in terrariums. One that comes to mind is the very beautiful foliage plant, *D. variegata*.

Similarly, Dalbergarias and other members of the Columnea group are also not considered terrarium plants. But many of the high-humidity-loving Ecuadorian species can be maintained and bloomed under enclosures whereas they frequently die out when grown in the open. One of my favorites for this is the otherwise large-growing *Trichantha purpureovittata* which not only makes spectacular glossy, hairy, bubbly, leaves, but also blooms with yellow, black-striped flowers and easily sets berries which turn a shocking bright pink when ripe. Even as a juvenile seedling, this species makes a beautiful plant. Other Columneas I have grown enclosed include *Trichantha dodsonii*, with its huge red flowers, and the compact-growing *C. verecunda* with its small red flowers.

Unlike the other genera and species mentioned, Gasteranthus plants really require terrarium conditions not only to thrive but to survive. Coming from very humid and low light conditions of the forest floor, they exemplify the perfect subjects for enclosure. Being equatorial, they require even temperatures, neither too warm nor cool. They also require fairly low light levels. Bright fluorescent light, which heats up containers, will usually cause these plants to suffer a slow death. Grown in lower light, however, they can not only thrive but bloom for months on end. The greatest danger to growing Gasteranthus enclosed is accidentally leaving the cover off for long periods. The plants will wilt, often within minutes, defoliate, and sometimes die if left unnoticed. For these reasons, the many species of Gasteranthus are little grown and rarely available, but all are relatively easy to grow following my methods. The most spectacular is G. atratus with very dark, glossy, bubbly leaves and large lemon-scented and lemon-colored slipper flowers. I was happy to discover it was available at last year's convention. All other Gasteranthus deserve to be more widely grown and, above all, kept in cultivation.

Because terrariums are so easy to maintain for long periods, they can also be easily overlooked. Eventually just about any container will dry out. Simple maintenance takes very little time and results in beautiful long-lived plants. Almost all the plants discussed are very easy to propagate. I always encourage growers to continually put down leaves and small cuttings in separate containers to ensure their survival, not only in our own collections, but also to ensure that they remain in general cultivation.

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Gesneriad Register

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The following registrations should be added to the Registered Gesneriads List found in Appendix C of the 1990 Gesneriad Register.

01762	Streptocarpus 'Franken Border Line'	S. unnamed hybrid F3 \times self	Davies/Jones
01763	Streptocarpus 'Franken Brimstone'	S. 'Gillian' × S. unnamed hybrid K21	Davies/Jones
01764	Streptocarpus 'Franken Copper Knob'	S. unnamed hybrid J10 \times self	Davies/Jones
01765	Streptocarpus 'Franken Doreen'	S. ('Helen' \times Lisa') \times S. ('Helen' \times 'Kim	') Davies/Jones
01766	Streptocarpus 'Gower Daybreak'	S. 'Elsi' × unknown	S. Long
01767	Streptocarpus 'Gower Garnet'	S. 'Elsi' × unknown	S. Long
01768	Streptocarpus 'Gower Midnight'	S. 'Elsi' × unknown	S. Long

Streptocarpus 'Franken Border Line', 2001, IR01762, Frank Davies/Ken Jones, UK. (S. unnamed hybrid F3 × self). Cross made 1996, planted 1996 and first flowered 1997. Fertile but reproducible only vegetatively. Compact rosette. Leaves dark green, 10" long × 4" wide, elliptic with undulate margin, acute tip and cuneate base. Pedicel 2" long with 6 flowers per peduncle. Corolla salverform, 2-1/2" long × 2-1/2" wide, heavily netted deep purple on white base color, white edging to flowers. Available from the grower and British Streptocarpus Society.

Streptocarpus 'Franken Brimstone', 2001, IR01763, Frank Davies/Ken Jones, UK. (S. 'Gillian' \times S. unnamed hybrid K21). Cross made and planted 1997, first flowered 1998. Fertile but reproducible only vegetatively. Medium rosette. Leaves medium green, 12-1/2" long \times 6" wide, elliptic with undulate margin, acute tip and cuneate base. Pedicel 2" long, 8 flowers per peduncle. Corolla salverform, 3" long \times 2-1/2" wide, bright pink, darker pink toward center, yellow in throat. Available from the grower and British Streptocarpus Society.

Streptocarpus 'Franken Copper Knob', 2001, IR01764, Frank Davies/Ken Jones, UK. (S. unnamed hybrid J10 × self). Cross made and planted 1997, first flowered 1998. Fertile but reproducible only vegetatively. Rosette. Leaves medium green, 9" long × 3-1/2" wide, elliptic with undulate margin, acute tip and cuneate base. 5 flowers per peduncle. Corolla salverform, 3" long × 2" wide, deep brownish pink, darker in center giving a copper color to the flower. Available from the grower and British Streptocarpus Society.

Streptocarpus 'Franken Doreen', 2001, IR01765, Frank Davies/Ken Jones, UK. $\{S. ('Helen' \times Lisa') \times ('Helen' \times 'Kim')\}$. Cross made and planted 1996 and first flowered 1997. Fertile but reproducible only vegetatively. Rosette. Leaves dark green, 13" long \times 5-1/2" wide, linear with entire margin, acute tip and cuneate base. 7 flowers per peduncle. Corolla salverform, 2-1/2" long \times 2" wide, pale violet with wide, darker veins, slight yellow in throat. Available from the grower and British Streptocarpus Society.

Streptocarpus 'Gower Daybreak', 2001, IR01766, Sue Long, UK. (S. 'Elsi' × unknown). Cross made and planted 1997, first flowered 1998. Fertile but reproducible only vegetatively. Rosette. Leaves dark green, 13" long × 5-1/2" wide, elliptic with crenate margin, acute tip and cuneate base. Corolla salverform, 3" long × 2" wide, pale blue with white centre and a yellow spot above. Available from the grower and British Streptocarpus Society.

Streptocarpus 'Gower Garnet', 2001, IR01767, Sue Long, UK. (S. 'Elsi' × unknown). Cross made and planted 1998, first flowered 1999. Fertile but reproducible only vegetatively. Rosette. Leaves dark green, 13" long × 5-1/2" wide, elliptic with crenate margin, acute tip and cuneate base. 9 flowers per peduncle. Corolla salverform, 3" long \times 2" wide, dark reddish brown. Available from the grower and British Streptocarpus Society.

Streptocarpus 'Gower Midnight', 2001, IR01768, Sue Long, UK. (S. 'Elsi' × unknown). Cross made and planted 1997, first flowered 1998. Fertile but reproducible only vegetatively. Rosette. Leaves dark green, 13" long × 5-1/2" wide, elliptic with crenate margin, acute tip and cuneate base. 9 flowers per peduncle. Corolla salverform, 3" long × 2" wide, dark velvety purple. Available from the grower and British Streptocarpus Society.



Streptocarpus 'Franken Border Line'



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The Basics — Pests

Monte Watler <monte.watler@sympatico.ca> 240 Burnhamthorpe Rd., Etobicoke, Ontario, Canada M9B 125

Like all house plants, Gesneriads are subject to various infestations of unwelcome "friends" which attack and feed on our plants. Pests can be more of a problem in the artificial environments we create for our plants than is the case in more natural environments. In our homes and greenhouses, beneficial predatory organisms are often not present so pests can multiply relatively unimpeded.

White flies are aptly named. They are white, they do fly, and they increase very rapidly. White flies are probably the most common of indoor pests and can be brought in by the introduction of new plants or cut flowers, or may find their way in through open doors and windows. Because they are so mobile, the isolation of a plant with an infestation of white flies is not the answer to controlling these pests.

Once settled in, white flies proliferate very rapidly and soon spread themselves throughout the entire plant room. They attack the plant by sucking the sap from the underside of the leaves. Leaves turning yellow and falling off are sometimes the evidence of their presence. However, quite often they are not discovered until they have multiplied, rising as clouds of white whenever you approach or disturb a plant.

White flies are the "gourmets" of the common pests as they possess very specific taste. They will invade one plant while ignoring another adjacent to it. I have found that they have an avid appetite for *Sinningia* 'Cindy' while avoiding others of the same genus. A new batch of white flies is produced every four to five weeks, but each female may live as long as two months and produce up to 400 eggs.

If caught in time, and this is very rare, white flies can be eliminated by crushing them against the leaves under which they have settled, spraying with an insecticide, washing the plant with a mild detergent, or placing it under a very fine and gentle shower. To shower a plant, aluminum foil should be placed around the base of the plant in order to cover the soil surface. Regulate the water to a tepid temperature and turn the shower to the finest spray possible. To ensure that the pressure of the shower does not destroy the plant, you can regulate it by opening and closing the taps until an acceptable pressure is achieved. Place the plants in the bathtub and shower for a few minutes. Carefully turn the plants on their sides while holding them in your hands, enabling the spray to reach the underside of the leaves.

If the infestation is severe, a spraying of an insecticide should rid you of the pests. White flies do become immune to some insecticides, and with this in mind you may have to experiment until you find one that does the job. I have used 'Ambush' for years and still find it effective, but I have read where some strains have become immune to it. If available, systemic granules are excellent for controlling the eggs that may have been missed.

Nematodes are a knotty problem. They are not easily detected and are difficult to exterminate. They are minute worms which attack and live on the main root system of the plants. As they feed, the roots become distorted and form knots. The plants begin to lack vigor and will soon wilt and eventually die.

As in most cases of pests, prevention is your best defense against nematodes. Whenever you acquire a new plant, isolate it for at least six weeks. At the end of this period, you will have assured yourself that it is not infected with any visible pests, and the plant should now be checked for nematodes. Unpot the plant and remove as much soil as possible. If it has a strong root system, the balance of the soil may be removed by placing it under warm running water and gently washing it clean. Examine for nematodes (bulging knotty abnormalities) and if healthy, repot in new soil.

Should the root system be weak, the same result may be obtained by placing the plant in a container of lukewarm water and washing the soil from the roots with a gentle movement of the fingers. If infested, the plant should be destroyed. If you unfortunately discover an infestation in your plant room, I would suggest that you dump the entire collection and start over again.

Before you begin to reestablish your collection, make certain that you sterilize your entire growing area, including light stands, trays, pots, and tools. Dump any unused soil that may be in the area.

Springtails are "little kangaroos". They dart around the soil and the growing area of the plants, and are usually detected after watering. They exist on decomposed organic matter (mostly unsterilized soil). While they are not considered harmful, they can be most annoying to anyone who hates "creepy-crawlies" or in this case "jumpies".

As a prevention, use only sterilized soil. If you should get an infestation of springtails, you can rid yourself of them by using any one of the granular insecticides that have been formulated for soil.

Symphilids are cousins to the springtails, but they are less annoying as they do not jump or bound. Their requirements are the same: unsterilized, decomposed organic matter. They can be eliminated by the same process as that used for springtails.

Fungus Gnats or Black Flies are tiny black flies, somewhat like fruit flies, that invade the growing area. They are harmless, but can become a nuisance to anyone who hates having unwanted inhabitants in the plant room. They live on decaying organic matter and breed in the soil. Sphagnum and peat moss are their favorite breeding grounds. To control them, you may spray with any insecticide. I normally use Raid (pyrethrin) for this purpose, but at no time have I been entirely free of them. As with springtails, a granular insecticide or a soil drench may be helpful.

Blossom or Flower Thrips, or "dusters", are noticed when pollen is being spilled or dusted over the blossoms and on the underlying leaves, and some of the pollen sacs show damage. Thrips attack the center of the bloom, and this is especially visible in Saintpaulias.

Thrips are often detected in motion when the blossom is disturbed. This may be done by gently rubbing your finger along the pollen sac. Tiny dark insects, which can be seen quite readily with the naked eye, scurry in the flower.

Like other pests, thrips can be introduced by various means, but mostly by infected plants that have been placed among your own without having been isolated or examined. They spread rapidly and are very difficult to eradicate. A proven method for the eradication of these pests is to starve them to death. This can be done by disbudding all your plants for as long as it will take you to get rid of them. Six to eight weeks should be sufficient. By doing

this, you are depriving them of a source of food as they feed on pollen.

Added precautions may be taken by creating a "gas chamber". This can be accomplished by completely enclosing your plant stands or growing area with clear plastic sheeting and hanging one or two Vapona strips in the enclosure. Plastic sheeting can be obtained from most paint or hardware stores. Do this for a period of 24 to 48 hours. This process will get rid of the parents but will have no effect on the eggs.

Spraying is not effective against thrips unless direct contact is made. Systemic granules are quite effective, but they are not easily available in some areas. Yellow and blue sticky cards are somewhat effective in trapping some of the pests, and help in monitoring and identifying the type of infestation. Blue are used for thrips and the yellow for all other flying insects (gnats, white flies). Three cards per 1000 square feet is considered effective coverage, but placement is important. Remember, the cards are a means of control and monitoring, not elimination.

Thrips are also the vectors of **Impatiens Necrotic Spot Virus** (INSV) which can wipe out an entire collection. The only known treatment is complete elimination of all infected plant material. Infected plants cannot be cured. Do not attempt to propagate plants from what may seem to be a healthy leaf or branch of an infected plant. If Western Flower Thrips are absent, then vegetative propagation is the only other way of spreading INSV.

Cyclamen Mites manifest as distortion of the center or crown of new leaves. The leaves become greyish in color, hairy, and rather brittle. The center leaves will eventually die and the plant, in desperation, will produce multiple crowns. Mites are not visible to the naked eye and feed on young leaves from which they extract the juices. Infestations are caused by introduction of infected plants. The best advice is to destroy all plants and start a new collection. Cyclamen mites can be eliminated by spraying with Kelthane EC two or three times and seven days apart. Insects develop an immunity to insecticides and miticides, so you may have to experiment with some others for effective eradication. Again some systemic granules may also be effective.

Broad mites are similar to cyclamen mites and suck the juices from the more mature leaves, causing the leaves to droop or curl downwards.

Red spider mites are visible and are a reddish brown color. They leave silky webs around the plant. Broad mites are challenged with the same treatment as cyclamen mites, while red spider mites can be eliminated by using a pyrethrin-containing garden spray such as Raid.

Foliar Mealy bugs, also known as woolly aphids, are very visible and look like little bits of cotton. They are sucking insects and can suck a plant dry in a short time. They are covered in a protective waxy coating. Each individual is approximately 3 mm (1/8 inch) long. Mealy bugs multiply rapidly and usually lay their eggs in leaf axils and around the blossoms. They produce an abundant amount of sticky wet honeydew which in turn will develop into a mold.

Mealy bugs are difficult to eradicate because of the cottony mass that surrounds them and which seems impenetrable to insecticides. Isolation of new plant material, and destruction of infected specimens, is the safest strategy. Alcohol seems to be the most deadly enemy of mealy bugs. Rubbing (isopropyl) alcohol dabbed directly on them will penetrate the waxy mass. If the

infestation is severe, alcohol can be used as a spray by diluting with water at a rate of 50:50. Systemic pesticides or insecticides are very effective against them, and at the moment Marathon is being used with great success.

Soil mealy bugs are more difficult to detect and are usually discovered when the plant has started to wilt despite being watered. Batches of soil mealy bugs resemble perlite, and for this reason are often unnoticed. Discarding of the infected plants is your best bet, and again a leaching of the soil with alcohol, or granular systemics added to the soil, are your best weapons.

Crown rot causes the young leaves in the center of the plant to turn a greyish brown and somewhat resemble an attack of cyclamen mite. Overwatering is usually the culprit, but crown rot can also be caused by pouring water into the center of the plant, by heavy soil with poor porosity and drainage, or by deep potting of plants which will cause moisture to seep into the crown. Soil mealy bugs or root nematodes may also cause crown rot. Ensure that your soil is light and well-drained, and do not overwater. As previously discussed, bottom watering is a safeguard against this problem. Crown rot is most common with Saintpaulias, but other gesneriads such as Streptocarpus, Sinningias, and Episcias are also susceptible.

Mildew can be deadly, and all steps should be taken to eliminate it as quickly as possible. You will discover a white-grey powdery substance on flower stems, blossoms, leaves, and sometimes even the soil surface. Mildew is one of the many fungi that exist in our environment, and is not only detrimental to plants, but to clothing and other items. It is airborne and develops when there is high humidity, poor air circulation, and when night temperatures drop to a "too cool" temperature in your growing area.

To treat this fungus, remove the infected plants immediately. Otherwise, the spores being airborne, they may waft to other areas of the plant room and proliferate. Once the plants have been isolated, it is best to do a complete cleanup of the area. Wash your growing area (light stands, trays, etc.) with a mild solution of bleach. Then spray the entire area, including walls, floors, and ceiling, with Lysol deodorizer and disinfectant spray. I have found this to be excellent for the control of mildew, and I use it to spray my growing areas at least once a month. Avoid having the spray fall on your plants by spraying it away from the plant stands. If ventilation is your problem, you should consider installing a fan. This will provide good air circulation for your plants, but be careful not to place the fan in such a way that it blows directly on your plants, or you will have created another problem.

For treatment of infected plants, do not try to brush or blow the mildew from the plant, as this will only release the spores into the air, and they will find some new place to settle. Many brand names of fungicides have been suggested as cures for mildew, but my mainstay is Flowers of Sulfur which can be procured very easily from your pharmacy. Dust your infected plant lightly with the powder. Within a short time, provided your conditions are normal, the mildew will have disappeared and you can move the plants back to their original places. For anyone who may have conditions that foster mildew, you should keep small saucers or open containers of sulfur around your growing area. It inhibits and retards the growth of mildew.

Mildew may also be controlled by using Fermate in your soil mix. Those of you who are familiar with the late Ernie Fisher's formula for soil will know that Fermate is one of its ingredients.

Botrytis or Grey Mold is similar to mildew. It is a grey substance which may form around the crown of the plant, destroying the young leaves and ultimately killing the plant. It is also airborne and is caused by rapid changes in temperature. I understand that a dusting of Zineb powder will clear up this condition. Luckily I have never experienced this problem, so my knowledge on handling it is limited.

Editor's Note: This is the final article in our series "The Basics" – special thanks to Monte Watler for the original material published in the newsletter of the Toronto Gesneriad Society and to Peter Shalit for the editing and compilation for reprinting in TG.

J.K.



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Gesneriad Crafts

Dale Martens <martens@wt.net> 2728 Masters Dr., League City, TX 77573-4403

was in the show room struggling with my last design entry when I took a break and watched the horticulture entries being placed on tables. The Episcia 'Cleopatra' I entered was in a large stemmed bowl, and it was on the table among the Episcias. I walked over to it and saw someone had put plastic wrap on top of the bowl. I picked up the entry and walked over to a couple of women who appeared to be in charge. That was in 1989 at my first AGGS Convention, so I didn't recognize many people at that time. "This is mine and it was placed with the Episcias—it doesn't need the plastic wrap", I announced. They looked at the entry and one of them said, "I put the plastic on it to keep it from drying out". I replied, "Thanks, but it's a craft, so it doesn't need the wrap. Touch it. It's made from white bread and glue! I painted it with water color while it was wet so that the colors would blend making it look real." Both ladies looked at me like I was from Mars, but they took turns touching my "plant". It was rock hard, so they knew I wasn't kidding! Had I been a Gesneriad judge, I would have known instantly from the reaction of the two ladies that my craft entry was about to get the full 40 points for "Portraying the Essential Quality of a Gesneriad".

Trust me, I can't draw a stick figure! I do love to make crafts, though, and I've made four Gesneriad-oriented crafts for past AGGS conventions. How in the world does a person come up with a creative idea? Well, I think you can adapt just about anything into representing a Gesneriad. If you decorate shirts, blouses or vests, you can easily put Gesneriads on those items.





Two of Dale's craft entries from 1989 and 1998 Convention Flower Shows: Her episcia "plant" created from bread dough and her pouting gesneriad doll

Decorate the cloth with thread, beads, rhinestones or special paints. If you can't draw, then take an issue of THE GLOXINIAN and trace around the shapes of the flowers you find on the pages.

I happened to be interested in learning how to make jeweled eggs one year. Once I learned how to cut real eggs with a tiny diamond saw, I began to think how I could turn an egg into an AGGS convention entry. For the 1995 California convention I entered a Fabergé egg made from an emu egg. I cut an oval shape to expose the interior of the egg. Then I took photographs of Gesneriads and decoupaged them, three dimensionally inside the egg. The outside was decorated in jewels and with Streptocarpus "plants" that I found on a greeting card.

When the "pouting baby" dolls were popular in the mid-90's, I thought very hard as to how I could transform one of those into a Gesneriad entry. For the 1998 Chicago convention I made "Frances, the Gesneriad Doll". I used silk ribbon to embroider a variety of Gesneriads on her dress and headband. There was a cross-stitch African violet on the patch on her knee. I needed a reason for the doll to be pouting with her head in her hands. I thought to myself, I'd be unhappy if I stepped on my Gesneriads. So, I pressed a Smithiantha and then glued the dried flower to the bottom of Frances' shoe to make it look like she stepped on it.

Three years before the Fiftieth Anniversary Convention in 2001, I began to think what I'd do for that craft entry. I happened to go visit a friend in California who loves bakery pastries. While at a bakery I saw all those beautiful wedding cakes. After asking questions, I discovered they were "display cakes" that had styrofoam in their centers, but real icing decorations. I was so excited! I decided then and there, that's what I'd make! I took cake decorating lessons at a craft store and went through all three levels. They don't teach how to make Gesneriads, so I had to figure that out myself. First I covered the styrofoam with Royal icing. Then each Gesneriad leaf was made of fondant icing and pressed on the back of a real leaf so that the cake's leaves were appropriate for the genera represented. The flowers were all made by hand. The cake displayed entire plants which consisted of a Smithiantha, two Streptocarpus, one medium Sinningia, one Episcia, and one micro-miniature Sinningia 'Snowflake'. I put a dish of "leaves" next to the cake for everyone to taste. Luckily it wasn't judged on that because fondant isn't very tasty!

Craft entries are judged on four criteria:

- Portraying the Essential Quality of a Gesneriad (recognizable as a Gesneriad)
- Composition (color or texture used enhances design)
- Technical Skill and Presentation (attention holding presentation)
- Distinction (an original concept)

Creatively figure out how to turn almost anything into a craft entry. If your entry is unusual, make an educational card to describe how you produced it. I'd love to see more craft entries at our conventions and am hoping this article will inspire you to enter one!

Editor's Note: We are pleased to have featured photographs in this special issue of a variety of entries in the Horticulture, Artistic, and Arts Divisions from many exhibitors at past AGGS Convention Flower Shows.



Dale's jeweled emu egg with decoupaged Gesneriads exhibited at the 1995 Convention Flower Show (photo by Dale Martens)

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Botanical Review Committee — Report #24

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Fang Ding, Qin De-Hai & Wei Yi-Gang, 1999. New plants of Gesneriaceae from Guangxi of China (III). Acta Phytotaxonomica Sinica 37: 591-594. Illustrated.

Two new rosulate species of *Chirita, C. varicolor* and *C. mollifolia*, are described from the Chinese province of Guangxi. Both are members of section *Gibbosaccus*. These species were published too late to be included in the Flora of China (see below).

Hilliard, O.M. & B.L. Burtt, 1999. Towards a revision of *Agalmyla* (Gesneriaceae). *Blumea* 44: 381-389.

In preparation for a revision of *Agalmyla*, a brief summary of the taxonomy of the genus is given. Six new species are described, bringing the total number in the genus to approximately 60. The type species of *Dichrotrichum*, *D. ternateum*, is placed in synonymy under *Agalmyla elongata*.

Mendum, M., 1999. Three new species of *Aeschynanthus* (Gesneriaceae). *Edinburgh Journal of Botany* 56: 265-272. Illustrated.

There are approximately 150 species in the genus *Aeschynanthus*. About 30 species occur on the island of Borneo, and about 30 species on the Philippines islands. Two new species of *Aeschynanthus* from Borneo, *A. argentii* and *A. pseudohybridus* (both in section Haplotrichium), and one from Palawan, Philippines, *A. batakiorum* (sect. Polytrichium), are described.

Wang Wentsai, Pan Kaiyu, Li Zhenyu, A.L. Weitzman, & L.E. Skog, 1998. Gesneriaceae. Pp. 244-401 in: Wu Zheng-yi & P.H. Raven (eds.), Flora of China, vol. 18. Scrophulariaceae through Gesneriaceae. Beijing, China: Science Press and St. Louis, Missouri, U.S.A.: Missouri Botanical Garden Press.

The family Gesneriaceae is very well represented in China, with many endemic genera and species. A total of 56 genera and 442 species are known from China. Of these, 25 genera and 354 species are endemic (found only in China). Detailed descriptions of, and keys to, all the genera and species are provided, with their Chinese names, synonyms, distribution within (and if applicable, outside) China, and brief habitat information. The largest genus by far is *Chirita* (99 spp., 86 endemic). Among the other large genera are *Aeschynanthus* (34 spp.), *Didymocarpus* (31 spp.), *Oreocharis* (27 spp.), *Petrocosmea* (24 spp.), *Hemiboea* (23 spp.), and *Lysionotus* (23 spp.). In addition to Gesneriaceae, this volume treats the closely related families Scrophulariaceae, Bignoniaceae, Pedaliaceae, Martyniaceae, and Orobanchaceae. This volume contains text only and illustrations are published in a separate volume (see below). The entire published text (in PDF format) can be found on the Flora of China website at http://hua.huh.harvard.edu/china>.

Wu Zhengyi & P.H. Raven (eds.), 2000. Gesneriaceae. Pp. 269-398 in: Flora of China Illustrations, vol. 18. Scrophulariaceae through Gesneriaceae. Beijing, China: Science Press and St. Louis, Missouri, U.S.A.: Missouri Botanical Garden Press.

This volume of illustrations accompanies the text volume of the Flora of China. Beautiful, high-quality line drawings illustrate all the genera and 281 of the 442 species of Gesneriaceae in the Flora of China, and are arranged in the same order. Besides Gesneriaceae, this volume illustrates 495 species of several closely related plant families covered in the same volume. Chinese names with their pinyin transliterations are provided for all taxa.

Note: Both volumes (text and illustrations) of the Flora of China can be ordered from Missouri Botanical Gardens Press. For ordering information: http://ridgwaydb.mobot.org/mbgpress

Wong, K.M., J.T. Pereira, J.B. Sugau, & S.P. Lim, 1999. A new species of *Paraboea* (Gesneriaceae) from the volcanic islands off Semporna, Sabah. Sandakania 13: 23-29. Illustrated.

Paraboea leopoldii is a newly described species from the volcanic islands of Bodgaya and Boheydulong off Semporna in Sabah, Borneo. Its closest relatives appear to be *P. minahassae* from Sulawesi and *P. schefferi* from Kalimantan (Indonesian Borneo).



Calcareoboea coccinea drawing from "The Flora of China Illustrations", Vol. 18, 2000

American Gloxinia & Gesneriad Society, Inc.

Financial Statement — January 1, 2001 to December 31, 2001

• /	1 to December 31, 2	001
GENERAL FUND — Combined Receipts, Checking an	nd Savings	
Membership		23,193
Promotions		1,929
Ads in The GLOXINIAN		563
Education & Slide Programs		620
Sales of Literature & Supplies, incl PO		1,996
Seed Fund Sales		6,321
Judging Publications & Supplies Donations		1,237
Fund for Progress		4,521
Color Photo Sponsorships		2,407
Miscellaneous Receipts		1,734
ı		
Total — Combined Balances		\$44,521
(Checking \$24,525 / Savings \$19,996)		
GENERAL FUND		
Checking Account — Beginning Balance, December	31, 2000	19,860
Add from Combined Balances Above		24,525
Other Revenue, Misc.		1,652
Misc Held for Expenses		22,500
Misc Held for Convention Expenses		36,619
Total Receipts — Checking		\$105,156
DISBURSEMENTS		
Publication of THE GLOXINIAN		(33,127)
Other Publications		(1,231)
Membership Processing		(1,032)
Promotions		(1,526)
Operating Expenses		(46,036)
Chair Expenses	(824)	
Stipends	(3,200)	
Liability Insurance	(3,578)	
[2000 Paid 2001 – 1,229]		
[2001 - 2,349]		
Convention Advances	(500)	
Convention Expenses	(37,034)	
Miscellaneous Remits		(3,476)
Total Disbursements		(86,428)
Total on Hand, Checking — December 31, 2001		\$18,728
GENERAL FUND — Savings		
Beginning Balance – December 31, 2000		28,547
From Combined Balances		19,996
Interest		1,121
Convention Receipts, Gross		45,407
Total Receipts		95,071
Less Credit Card Fees	(1,130)	
Less Credit Card Refunds and Supplies	(215)	
Less Convention Expenses	(34,432)	
Miscellaneous	(10,462)	
Transfer to Checking for Remits	(22,500)	
Bank Fee, Supplies	(40)	(60.770)
Total Disbursements		(68,779)
Savings Balance, December 31, 2001		\$26,292

GENERAL FUND Checking Account Savings Account Mutual Funds: Safeco Intermediate Term Treas 7,818 Safeco Intermediate Term Muni 8,038 Total – General Fund – December 31, 2001		18,728 26,293 15,856	
		φου,στ	
ELVIN McDONALD RESEARCH ENDOWMENT FUND Balance – December 31, 2000 Donations Interest – Savings CD #1 @ 7% APY CD #2 @ 6.15% APY		13,756 765 44 737 147	
Savings Balance Balance, Cert of Deposit #1 Balance, Cert of Deposit #2 Total	1,981 11,262 2,206 15,449		
Ending Balance, December 31, 2001		\$15,449	
INTERNATIONAL GESNERIAD REGISTER FUND			
Balance – December 31, 2000		11,645	
Sale of Registers		1,553	
Savings Interest		126	
Interest on CD @ 6.50% APY		461	
Savings Balance	5,439		
Balance on Certificate of Deposit	8,346		
Total	13,785		
Ending Balance December 31, 2001		\$13,785	
FRANCES BATCHELLER ENDOWMENT FUND			
Balances — Combined, December 31, 2000		143,395	
Change in Value – Mutual Funds as of December 31, 2001		113,373	
Fidelity – Asset Manager @15.50		(1,901)	
Safeco – Intermed Term Treas, and Municipals (2 funds)		1,571	
Life Memberships		1,500	
Donations		680	
Convention Auctions		5,037	
Miscellaneous		376	
Interest Earned to December 31, 2001:		3,452	
Savings	269		
Key Bank NA, Cert of Deposit, #1 @ 5.75 % APY	1,863		
Wa Fed, Certificate of Deposit #2 @ 6.00 % APY	248		
Wa Fed, Certificate of Deposit #3 @ 6.00 % APY	944 128		
Wa Fed, Certificate of Deposit #4 @ 5.00 % APY Balances, December 31, 2001	128		
Savings	6,332		
Certificate #1	40,192		
Certificate #2	4,373		
Certificate #3	16,855		
Certificate #4	10,128		
Fidelity MF	46,493		
Safeco MF	29,737		
I.T. Treas. 20,837 I.T. Muni 8,900			
•	15/ 110		
Totals 154,110 Combined Balances, Frances Batcheller Endowment Fund			
Comonica Dalances, Frances Dalchener Endowment Fund		\$154,110	

Special Contributions

Frances Batcheller Endowment Fund — \$345

Susan Grose, in memory of Jessie Crisafulli

Frances Batcheller

New England Chapter

Josi Stefaniak

Elizabeth Behnke

Frances Batcheller, in memory of Stan Schwartz

Leon Leopoldo

Virginie Elbert, in memory of George Elbert

ELVIN McDonald Research Fund — \$310

Tampa Bay Chapter

Michael Riley, in lieu of convention speaker's fee

Donna Kirkland

Dora Parla

Fund for Progress/Color Photo Fund — \$1,956

Connie Leifeste

Greater New York Chapter

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2002 Convention Chair

Susan Dixon

Keith Jacobson, in honor of Maryjane Evans

Dr. Penny L. Smith-Kerker, in honor of Carroll A. M. Smith

Carol Ann Bonner, in lieu of convention plant sales proceeds

Marilyn Allen, in lieu of convention plant sales proceeds

Liz Day, in lieu of convention plant sales proceeds

Anonymous, in lieu of convention plant sales proceeds

Maryjane Evans, in memory of Stan Schwartz

Quentin Schlieder, in lieu of speaker's fee from the Long Island Chapter

Carol Ann Bonner, in lieu of speaker's fees from the Greater New York Chapter and Frelinghuysen Arboretum Chapter, and in memory of Stan Schwartz

American Gesneriad Society of San Francisco

Molly Schneider, in memory of Stan Schwartz

Jeanne Katzenstein, in memory of Stan Schwartz

Berkshire Chapter, balance of treasury funds

R. David Harley

Maryjane Evans, in lieu of flower show award monies

Harley family members

Cynthia Chancy

Carolyn Ripps, in lieu of speaker's fee from the Greater New York Chapter

Toronto Gesneriad Society

Leona Mendes

Marguerite Henson

Twin Cities Chapter

Ben Paternoster, in lieu of judges expenses in Sweden

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The new 2002 AGGS lapel pin features Nematanthus in red and green on a black background, and, like all AGGS pins, is \$5.00. Shirts embroidered with a cluster of brilliant Aeschynanthus are now available in new colors and sizes. To order, send check made out to AGGS (U.S. funds) to:



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