

Atlantic Coast Camellias

JOURNAL OF THE ATLANTIC COAST CAMELLIA SOCIETY



SHIRO CHAN

Photo by
Jim Darden

ATLANTIC COAST CAMELLIA SOCIETY

OFFICERS

PRESIDENT Leslie P. Cawthon, Jr.
2405 Howell Mill Road, NW
Atlanta, Georgia 30318
(404) 355-4478

1st VICE PRESIDENT Marion Edwards
5603 Darlow Avenue
Jacksonville, Florida 32211
(904) 744-2690

2nd VICE PRESIDENT Fred G. Hahn, Jr.
4437 McKee Road
Charlotte, North Carolina 28105
(704) 846-2245

SECRETARY & TREASURER J. L. McClintock, Jr.
1325 E. Barden Road
Charlotte, North Carolina 28226
(704) 366-0207

HISTORIANS Mr. and Mrs. W. T. Shepherd
4724 Park Place E.
North Charleston, South Carolina 29406
(803) 744-4841

EDITOR Jim Darden
Route 6, Box 504
Clinton, North Carolina 28328
(919) 592-3725

.....
COVER GRAPHIC
.....

Our cover Camellia this summer is *SHIRO CHAN*. This bloom is large to very large, and is a sport of C.M. Wilson, which was a sport of Elegans (Chandler). The presence of Elegans in the genealogy of Shiro Chan is evident when we study its anemone form bloom and many petaloid stamens. Shiro Chan is white, often with a shading of light pink at the base of the petals, and occasionally with a pink stripe. It was introduced in the U.S. by TOICHI DOMOTO in Hayward, California, in 1953.

IN THIS ISSUE

Page

Propagation of Camellias	2
by Peter Howarth, Windermere, Cumbria, Australia	
A Message From Our President	4
by Buddie Cawthon, Atlanta, Georgia	
Nematodes and Their Control in Woody Ornamentals	6
by Dr. Ron K. Jones, N. C. State University, Raleigh, N. C.	
Mid-Carolina Camellia Show Results	8
Columbia, South Carolina	
Smithfield Camellia Show Results	9
Smithfield, N. C.	
Editor's Column	10
by Jim Darden, Clinton, N. C.	
The Kohler's Grow Camellias at Ravenscall	11
by Jim Darden, Clinton, N. C.	
Julia, Julie	17
by Ed L. Atkins, Shalimar, Florida	
The Use of Insecticidal Oils	18
by Dr. James Jarratt, Mississippi Cooperative Extension Service	
Coastal Carolina Camellia Show Results	20
Charleston, S. C.	
Calendar Dates as Indicators of Woody Stem Cutting Rootability	22
by Dr. Frank A. Blazich, N. C. State University, Raleigh, N. C.	
Jacksonville Camellia Show Results	24
Jacksonville, Florida	
Watch Your Conductivity	26
by Dr. Ted Bilderback, N. C. State University, Raleigh, N. C.	
Leaf Gall on Camellias	28
by Dr. Luther Baxter, Clemson University, Clemson, S. C.	

PROPAGATION OF CAMELLIAS

By Peter Howarth

*Wimster Select Nursery Stock,
Windermere, Cumbria*

We have been attempting to propagate and produce about 5,000 finished camellias for garden centre sales each year. Initially we purchased stock plants from various nurseries on the Continent and in the U. K. Variability in this stock was obvious, therefore the selection of the best plants was made to form the basis of our "mother stock." This material was potted and grown on, some of which was planted outside on a hedgerow system, the remainder grown on in 10" containers in a shaded cold house. In the meantime good specimen plants were located in an area to which we have access and this season it is hoped that up to 5,000 Williamsii hybrids will be produced.

Regrettably in the 1978-1979 winter we lost many of these hybrids growing outdoors the amazing thing being that many of the Japanese hybrids came through better than say, 'J.C. Williams' or 'Donation'.

Under the Rokolene net tunnels a similar situation occurred when the newer Williamsii hybrids stood up to the severe weather whereas 'Donation', etc. died.

Propagation. Shoots are taken from the parent plants using secateurs and placed into polythene bags; these are then placed into a domestic refrigerator overnight or until preparation takes place. We have found that refrigerated cuttings seem to perform extremely well, and this is now a standard practice.

Due to the limited amount of cutting material available and the system we have set up, we always take leaf-bud cuttings in October and November. It

could be argued that multi-nodal stem cuttings make big plants quicker than leaf bud cuttings; we would not disagree with this, but the number of stock plants required would be large.

The leaf-bud cuttings have a single leaf and bud, the stem being about 1¼" to 1½" in length. Each cutting is wounded up to half its length. The prepared material is dipped into either a solution of captan or Benlate before dipping into Seradix No. 3. Excess powder is removed, leaving only a minute amount of Seradix on the wounded surfaces. This is very important in order to prevent decay.

A few years ago we used to stick these cuttings into Jiffy 7s, but later changed to 50 cuttings to the normal plastic seed tray. These are just pushed in with the bud almost on the surface and watered well. By this method we are getting a high percentage take. We intend to try the direct rooting cellular system in order to speed up the operation and to reduce root damage when potting on.

The compost used is 3 parts medium grade sphagnum peat with 1 part pink Shap granite chip (neutral pH) $\frac{3}{16}$ grist. Rooting is completed in about 6 to 10 weeks according to the cultivar, using a modified Macpenny mist system with a bottom heat of 24°C (75°F) at 15 watts per square foot loading.

After weaning, the rooted cuttings are placed in a cold house and remain there for one year in the trays before potting on into 3½" pots. These, in turn, are grown on for up to one year in a cold structure, then finally potted into 6" pots.

Stopping normally takes place during these periods to stimulate side shoot growth. The compost used throughout consists of 3 parts medium grade sphagnum peat with 1 part pink Shap granite chips. Added to this is half rate Osmocote + frit, half rate ground magnesium limestone, and 4½ lbs of superphosphate, per cubic yard of mixture.

An occasional liquid feed of 26%N and 26%K₂O plus chelated trace elements is given, particularly early in the year.

Our greatest asset for the propagation and growing on of camellias is our natural water supply with a pH of 3.8.

In the early years we used 0.5% Cyclocel (CCC) at 2 fl. ozs per 6" container, but later it has been discontinued since we got yellowing and crinkling of the foliage with little improvement in budding.

Over the years we have grown Williamsii hybrids, e.g. *'J.C. Williams'*, *'Donation'*, *'Mary Christian'*, and *'Bow*

Bells' along with Japonica types, e.g. *'Adolphe Audusson'*, *'Chandleri Elegans'*, *'Lady Clare'*, *'Rose Emery'* (*'Fire Ball'*), *'Sauterelli'* and *'Comte du Gomes'*.

These cultivars have proved very successful both at the propagation stage and during subsequent growing on.

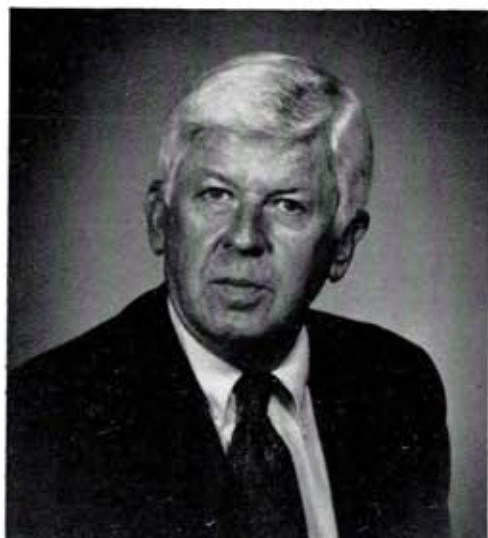
In the last two years we introduced the newer Williamsii hybrids *'Anticipation'*, *'Debbie'*, *'E.G. Waterhouse'*, *'Elsie Jury'*, *'Grand Jury'*, *'Inspiration'*, and *'Sayonara'*, with the cultivar *'Tomorrow'* in the C. japonica groups. We find that these cultivars are fairly hardy and strong growing. The good solid blooms and color are advantages in the garden centre. But initiation appeared to be better and easier to achieve than in the older cultivars.

It is hoped that we shall continue working on direct rooting into various types of modules and as stock becomes more plentiful, then stem cuttings will be used in order to cut one year in our production system.

Cheryl and Warren Thompson enjoy the Myrtle Beach Camellia Meeting in 1987.

(Photo by Shepherd)





A MESSAGE FROM OUR PRESIDENT

BUDDY CAWTHON
ATLANTA, GEORGIA

Greetings!

With this message being written at the end of February, I'm sure most of you have had weather similar to Atlanta's — that is, a beautiful but scary spring season in January and February after a very wintry Christmas. Bulbs up everywhere and flowering trees in their glorious colors. Then, winter — again! Plants must think Mother Nature is fickle to play such tricks. Even our finches have begun to get yellow, thinking it is spring. One thing for sure, nature continues to bring us lots of surprises!

I hope you've all had great camellia shows. John and I have seen many of you at the ones we've attended and we've enjoyed having some of you at ours. After talking with Dr. Hubert Racoff of the ACS Awards Committee, we tried using the newly-approved "weighted averages" system of counting votes for head table blooms. I urge you to give it a try! We did, and only had one run-off so it really speeds up judging — which we all know, can certainly drag

on. There's a benefit too to those of you who don't judge. Shows get opened sooner and you get to see whose flowers did what — and how the old and new varieties fared. We saw some oldies get on the head tables — and isn't it fun to see that! We also saw some huge new varieties — "John Heeret" for one. Either it's a very promising variety, or else June Suiherton has some methods we all need to learn.

By now, pruning is past and feeding is under way. My only caution is to remember "less is better" when it comes to fertilizer. That is not true of new members! Plan now to have a good booth at your next years show and promote your local group, the ACCS and the ACS. We had "invitations to join" for all three groups and were very successful. It works - if you work it!

Get out your calendars and make your plans for October! The first weekend, October 5th-6th, is our tenth anniversary convention — held of course, on our eleventh birthday. Hugo

was one of those "mother nature" surprises that changed ACCS plans last October, not to mention what he did to lots of our Carolina members. All reports we get are that things are on the mend. Bonnie and Geary Serpas are planning a grove of Japanese maples for their yard. They figure they'll never grow up and do the damage the pines did to them!

Sure hope that you grafted or rooted an extra plant or two to bring to Myrtle

Beach for our plant auction. I am hereby asking our usual, capable auctioneers — Bill Robertson, Buck Mizzell and helpers Gary Serpas and Fred Hahn to put on another all-star performance. And remember, telling prospective members about our fun-filled conventions is quite a selling point.

Grow and go in health —

Buddy

Buddy Cawthon

* * * * *



Marion Edwards, Ed Atkins, and Bill Robertson enjoy the festivities at the ACS Headquarters of Massee Lane.

Photo by Shepherd

Nematodes and Their Control in Woody Ornamentals in the Landscape

Dr. Ron K. Jones, Extension Plant Pathologist
N. C. State University

Nematodes are one of the most destructive groups of pests causing decline of established ornamental plants in North Carolina. These microscopic roundworms feed on plant roots, causing various types of damage. For example, root-knot nematodes cause swellings or galls on roots of susceptible plants. Other types of nematodes cause plant roots to be stubby and branch abnormally. Nematode-damaged roots often are further destroyed by fungi and bacteria.

Several plant-parasitic nematodes such as root-knot, stunt, ring, sting, lance, lesion, stubby root, dagger and spiral have been associated with decline of ornamentals in North Carolina. Examples of plants which are severely affected are species of boxwood, Japanese holly, azalea, gardenia, rose, rhododendron, and other shrubs.

Damage to plants from these root-feeding nematodes is progressive and often results in poor growth, low vigor, yellowing or bronzing of the foliage, loss of leaves, stem die-back, failure to respond to fertilizer because of root damage and eventually death. Symptoms of nematode damage usually are most apparent during late summer and fall or during extended dry periods. Affected plants usually decline and die over a period of several years but occasionally plants may die suddenly.

Other problems such as root rot or too much fertilizer can cause symptoms similar to those produced by nematodes. To determine the cause of plant decline, laboratory examination may be necessary. For laboratory examination, one should collect at least 1 pint of soil, plus some small fibrous roots, from several spots beneath affected plants and place in a plastic bag. Be sure to collect this sample from declining but still living plants. The soil plus roots and some

of the affected stems and leaves should be taken to your county extension office.

Nematode Control in the Landscape

Presently there are no effective chemicals registered for control of nematodes on existing landscape plants. Control of nematodes in the landscape must therefore be achieved by careful planning before planting.

For **existing landscape plants** with nematode problems, it **may** help to mulch the plants, to apply adequate water during dry periods, to fertilize and lime properly, and to prune out any dead branches. Plants already showing advanced stages of decline due to nematodes — (50% or more of above ground portions of plant) should be replaced with less susceptible shrubs or turf.

For **new landscape plantings** or replanting, nematode problems **must be avoided** rather than corrected after planting. Where possible, it is best to avoid using highly susceptible plants (Table 1) on the sites where damaging nematodes are known to occur. It is also very important to purchase plants free of damaging nematodes.

To determine if damaging nematodes are present in the soil before planting, collect a representative soil sample (1 quart) in a plastic bag from the area to be planted and take it to your county extension office. Check with your county extension agent for more detail on the procedures, forms, fees, etc.

If damaging nematodes are known to occur in the planting site and highly susceptible plants must be used, the entire area can be treated **before** planting. Such sites may be treated with methyl bromide (restricted use pesticide), D-D, EDB or SMDC (Vapam). These chemicals can not be used between existing plants in a bed. Chemical treatment is usually performed by trained professional applicators.

The following information is based on many years of field research conducted at the Central Crops Research Station at Clayton, N. C.

Host Plant	Nematode Reaction			
	Root Knot	Stunt	Lesion	Ring
<u>Azalea</u>	T	S	0	T
<u>Aucuba japonica</u>	HS	S	0	S
<u>Buxus microphylla</u> (Japanese Boxwood)	HS	0	0	0
<u>Buxus sempervirens</u> (American Boxwood)	0	T	HS	0
<u>Camellia japonica</u>	T	T	0	0
<u>Camellia sasanqua</u>	T	T	0	0
<u>Gardenia</u>	S	T	T	T
<u>Ilex cornuta</u> (Chinese holly)				
cv. Burfordi	T	T	0	T
cv. Rotunda	S	S	0	S
<u>Ilex crenata</u> (Japanese holly)				
cv. Convexa	HS	T	0	S
cv. Helleri	HS	S	0	S
cv. Rotundifolia	HS	S	0	S
<u>Ilex vomitoria nana</u> (Youpon holly)	T	T	0	T
<u>Ligustrum</u>	T	T	0	T
<u>Photinia</u>	T	T	0	T
<u>Rose</u>	S	S	S	T
<u>Shore juniper</u>	T	T	0	T

HS - Plants highly susceptible (severe stunting, branch die-back and death)

S - Plants susceptible (some stunting but plants will grow satisfactorily)

T - Plants will grow satisfactorily

0 - Have not been tested

Mid-Carolina Camellia Show

Columbia, S. C.

Sponsoring Organization: SC State Fair

October 21-22, 1989

No. Blooms Displayed: 736

C. japonica: (In Open)

Very Large	<i>Tiffany</i>	Lib Scott
Runner-up	<i>Helen Bower Var.</i>	Parker Connor
Medium	<i>Rena Swick</i>	Parker Connor
Runner-up	<i>Betty Sheffield Silver</i>	Parker Connor
Small	<i>Ave Maria</i>	Parker Connor
Runner-up	<i>Kitty</i>	Parker Connor

C. japonica: (Protected)

Very Large	<i>Flossie Goodson</i>	Jack Teague
Runner-up	<i>Helen Bower Var.</i>	Mac & Ann McKinnon
Medium	<i>Nuccio's Jewel</i>	Mac & Ann McKinnon
Runner-up	<i>Ville de Nants Var.</i>	Elliott P. Brogden
Small	<i>Kiku-Toji-u</i>	Joe Austin
Miniature	<i>Fircone</i>	Marvin & Ruth Jernigan

C. reticulata: (Includes hybrids with reticulata parentage.)

Protected	<i>Valentine Day</i>	Mac & Ann McKinnon
Runner-up	<i>Dr. Clifford Parks</i>	Jim Pinkerton

C. hybrid: (With other than reticulata parentage.)

Protected	<i>Anticipation</i>	Jack Teague
-----------	---------------------	-------------

C. sasanqua: (And related species.)

	<i>Apple Blossom</i>	Greg Shannon
--	----------------------	--------------

Best White Bloom - Open	<i>Mary Alice Cox</i>	Parker Connor
-------------------------	-----------------------	---------------

Best White Bloom - Protected	<i>Gus Menard</i>	Jim Pinkerton
------------------------------	-------------------	---------------

Best Bloom by Novice	<i>Mathotiana Var.</i>	John L. Kilpatrick
----------------------	------------------------	--------------------

Gold Certificate in open, won by		Parker Connor
----------------------------------	--	---------------

Silver Certificate protected, won by		Jack Teague
--------------------------------------	--	-------------

C. japonica Certificate won by		Marvin & Ruth Jernigan for <i>Jill</i>
--------------------------------	--	--

Judges:	Geary & Bonnie Serpas	Paul & Marie Dahlen
	Joe & Mable Austin	Annabell Fetterman
	Marvin & Ruth Jernigan	Harry Watson
	Bill & Donna Shepherd	Bill & Mildred Robertson

Show Chairman - Elliott P. Brogden



Despite Hugo's visit one month earlier, the Mid-Carolina show goes on in Columbia on October 21. Lawanda Brogden shows her granddaughter Becky the outstanding display of blooms.
(Photo by Shepherd)

Smithfield Camellia Show

Smithfield, N. C. Annual Report 1 February 17, 18, 1990
Sponsoring Organization: Carolina Pottery No. Blooms Displayed: 1,360

C. japonica: (In Open)

Very Large

Donckelarii

Lib Scott

Runner-up

Helen Bowers Var.

Parker E. Conner

Medium

Ville de Nantes

V. T. & Dorothea Craddock

Small

Maroon & Gold Var.

Parker E. Connor

C. japonica: (Protected)

Very Large

Showtime

Joe Austin

Large

Ruffin

Joe Austin

Medium

Lady Kay

Joe Austin

Small

Little Babe Var.

J. K. Blanchard

C. reticulata: (Includes hybrids with reticulata parentage.)

Protected

Redwood City

Joe Austin

C. hybrid: (With other than reticulata parentage.)

Protected

Mona Jury

Joe Austin

Gold Certificate Protected, won by

Joe Austin

Silver Certificate In open, won by

Parker E. Conner

Tray of 3 Protected Alike

Bill & Molly Howell

Tray of 3 in Open

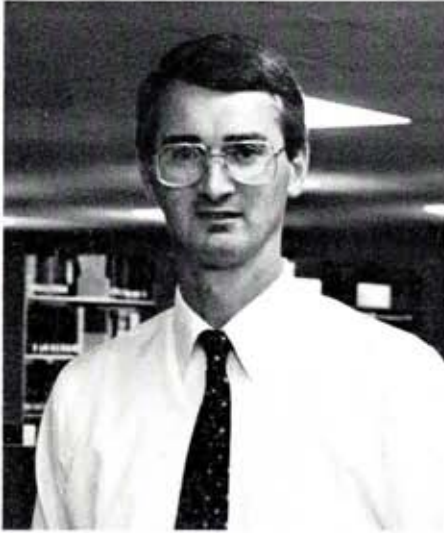
Bill & Molly Howell

Try of 5 Different Protected

Bill & Molly Howell

Editor's Column

by Jim Darden



What a Camellia season!! First there was Hugo, the gigantic hurricane which left many of our good Camellia friends devastated from Charleston to Charlotte. Then there was the warm period before Christmas which caused many a Camellia bloom to open prematurely. Then there was the frigid - 2 degree night just before Christmas which killed most of the leaves on all of my Camellias. Then there were eight more warm weeks in January and February which caused most of the remaining Camellia buds to open, not to mention the Japanese quince, forsythia, tulip magnolias, and azaleas. Finally there was the hard freeze in late February which proved that anyone can predict the weather when it finished off all of those open blooms.

I wonder what will happen next. The nurserymen tell me that it is the worst year they have ever seen. Thousands of hollies are dead in the nurseries. My dwarf Burford hollies are wiped out

completely. I hope the worst is over now and we can look forward to some normal weather for the remainder of the spring.

The prematurely warm weather has had nearly everyone in our area worried about having enough blooms for good Camellia shows. I am happy to report that our Fayetteville show had nearly 800 blooms. That is half the number we had two years ago, but we were happy to see them and considered our show a success. Charlotte had an outstanding show, as did Wilmington and Smithfield.

At the Smithfield show Joe Austin put on one of the most amazing exhibitions I have ever seen. In addition to over 100 blooms entered in the show, Joe also had over 200 blooms (unnamed) on display. Everyone was looking enviously at them, wishing that their show entries were as good as Joe's extras. What an extraordinary grower he is.

And Parker Connor has come through so wonderfully for us this year. Even when the weather has killed so many outside blooms, and the warm weather has caused so many of the remaining blooms to open early, Parker has brought outside blooms to so many shows and made them a success. He insisted in Smithfield that he was completely bloomed out, but there he was in Fayetteville two weeks later with over 100 fine entires. What a great supporter of Camellias he is.

Enough about the hurricanes, heat waves, and late freezes. Despite all, we have had another great year with Camellias. With such an outstanding flower to grow and such great people to enjoy, we can look forward to a good year EVERY year. Don't you agree?

The Kohler's Grow Camellias At Ravenscall

by Jim Darden
Clinton, N. C.

Sometimes it is unfortunate that our Atlantic Coast Camellia Society is so large, stretching from Florida to Tennessee to Maryland. There are seventeen chapters in our society, and those of us in the North Carolina/South Carolina area usually socialize and show Camellias with friends from our area. Notable exceptions are Gordon Howell and Dr. Tubby Habel, who come down from Virginia, and Marion Edwards and Tom Adams, who come up from Florida.

Sometimes we wish that those of us in the central part of the society could enjoy the fellowship and Camellias to the west, in Chattanooga and Nashville, to the south, in Atlanta, Florida, and the gulf coast, and to the north, in Norfolk, Washington, and Baltimore. Recently Mary Nell and I were very fortunate to have an opportunity to travel northward and visit new Camellia friends in Baltimore. I was asked to provide a program for the Pioneer Camellia Society on November 4-5. I accepted the invitation, and I will not soon forget the fine people and the great hospitality we found there.

The invitation was extended to me by Jack Kohler, not just to bring the program but also to be his guest for the weekend. I guess we are always a bit reluctant because we don't want to impose on new friends, and we don't know for sure that they will have adequate room for us. Mary Nell and I quickly learned that space is not a problem at the home of Jack and Agnes Kohler.

We drove up to Maryland on Saturday, arriving in time for a dinner party that Jack and Agnes had planned in our honor. This was just the beginning of the hospitality, as we would learn. The Kohler's live on a beautiful estate

called Ravenscall. Their magnificent home sits on a knoll overlooking several acres of front lawn. The house has fine white columns in front and is just as comfortable inside as the facade would imply. It was built in 1928. The town of Stevenson is one of Baltimore's finest suburbs, and Jack's next door neighbor is Ty Cobb III.



JACK KOHLER
Master at Ravenscall

(Photo by Jim Darden)

We met lots of new Camellia friends at the party. John Pumphrey stands out in my memory as a real gentleman and a student of the Camellia. He brought a fine arrangement of Mine-No-Yuki, the sasanqua known as Snow-on-the-Mountain. Zenobia and Harry Kendig are long-time leaders in the club who we enjoyed meeting. John was kind enough to allow me to invite Henry G. "Spider" Webb, a war buddy of my Dad who lives in Maryland, to be with us. He brought his lovely wife Nancy.

While at the party Mary Nell and I realized that the furnishings in the Kohler home are exquisite. In the living room we saw a collection of Russian porcelains which Jack's grandfather, the American consul to Russia during the Bolshevik Revolution in 1917, brought back to the United States. Some of the small paintings date back to the 1690's. Also framed and near the fireplace is a remnant of blue cloth which was part

of the original American flag that flew over Ft. McHenry in Baltimore harbor and inspired Francis Scott Key to write the Star Spangled Banner.

In one corner of the room stood a sword used by Jack's forefathers in the War of 1812. Agnes also descends from prominent Americans, being a direct descendent of President Pierce. Jack's family tree includes Cecil Calvert, Lord Baltimore. Interestingly, I told Jack that I descend from Lord Baltimore's wife. If we look closely we might be distant cousins.

As interesting as Ravenscall was, the conversation invariably turned to Camellias. The members of the Pioneer Society are, as you might expect, quite knowledgeable about their favorite plant. The noticeable difference was that the Marylandians talk more about cold protection than we do down south. They have already experienced a hard frost by November 4th, and they discussed many of their mechanisms for dealing with the early chills and the hard winters.



RAVENSCALL — The beautiful country estate of Jack and Agnes Kohler in Stevenson, Maryland; near Baltimore.

(Photo by Jim Darden)

Jack comes from a long Camellia tradition. Before Jack's father passed away he was known as one of Maryland's foremost Camellia growers. John Kohler landscaped his garden to protect his Camellias. Around the perimeter of his Camellia garden he altered a Camellia with a Fir or Hemlock, then another Camellia, and so on. His theory was that the arms of the evergreen trees embraced and protected the more tender Camellias, and the needles fell to provide a good mulch to insulate the camellia root systems. He felt that two

things were crucial for Camellia growing in the mid-Atlantic area: (1) protection from the cold, and (2) good indirect light. His theories were certainly validated by the many show trophies he won, and the fact that still people come to see the old Camellia trees that still thrive in John Kohler's garden twenty years after his passing.

Jack Kohler also does a very good job with his Camellias, and he has developed some interesting growing concepts of his own which appear to have great potential in the cooler climates of the Camellia belt. Most notable of these is his concept of the walled garden. Jack had built an 8' tall red brick wall around a patio garden attached to his home. The home is oriented due east-west, so the plants on the south side of the garden are completely protected from the southern sun by the wall. Shade plants which need protection thrive there next to the wall, and, you guessed it, the whole wall is planted with Camellias.

The other side of the garden receives the full sun coming over the south wall. Jack has many plants there, including dissectum Japanese maples, other sun-loving plants, and a few japonica Camellias. The Camellias on this side of the garden are noticeably smaller than those twenty feet away on the protected side, even though they are the same age. Jack has proven that Camellias will grow nicely in Maryland when protected from wind and direct sun.

Jack's walled garden has several interesting features. On a brick pedestal at the end of the garden near the house (the west end of the garden) rests a large piece of pink rock quartz which weighs 120 pounds. Across the patio garden in the opposite wall (on the east side) is a huge round opening called a moon gate. Morning sunlight comes through the moon gate and strikes the quartz. The house and garden are perfectly oriented so that



Moon window in the walled garden — This view from the second floor shows the walled garden used by Jack Kohler to protect his collection of Camellias.

(Photo by Jim Darden)



Jack shows off YULETIDE, one of his sasanqua camellias, which grows next to the reflecting quartz.

(Photo by Jim Darden)

on the equinox the sunlight comes perfectly through the moon gate, strikes the quartz, and sends sparkling rays of light all across the three story end of the house. What a unique addition to a garden.

The Camellias grown in Maryland understandably need to be as cold hardy as possible. The harsh winters of 1977, 1978, and 1985 decimated the outdoor Camellia population here. Fewer than a dozen growers in this society of over 100 members grow *reticulatas*. The few grown by Jack Kohler reside in a neighbor's greenhouse. Japonicas and sasanquas, however, are common here. Jack's favorite sasanquas are Shishi-Gashira, Bonfire, and Yuletide. He hopes to re-introduce sasanquas to the area, and is having good luck using the walled garden to do it. Of course, the new hardy varieties produced nearby in Beltsville by Dr. Bill Ackerman will bring sasanqua Camellias to this area with hardiness never seen before.

Jack's favorite japonicas for outside growing here are Betty Sheffield Supreme, Mathotiana, Elegans, and Debutante. Another favorite of Jack's is Cream Puff, which I can't find in the Nomenclature book, but appears to be a japonica. It is the most heavily budded plant in Jack's garden, growing nicely on the inside of his south wall.

During the recent hard frost, Jack had several plants in pots just a few feet outside the wall, while others were protected inside the garden. Almost invariably those inside came through the frost with no bud damage, while those outside with open buds had all of their open flowers killed. The unfortunate truth here is that the sasanquas do not bloom here early enough in the fall to avoid having open blooms damaged during the first frost. Without going the extra mile to wrap sasanqua plants and protect them, most growers do not get to enjoy their fall beauty.

Jack plans to construct an easy-to-move plastic shade device which will

allow him to quickly pull clear plastic over his camellias when bad weather looms ahead. He says that growers here expect 10-12 really harsh days per year, with wind, snow, and bitter cold. If Camellias can be protected during these times they can fend for themselves during the remainder of the winter. The plastic cover can be rolled back in just a few minutes, therefore not allowing the plants to suffer from the excess heat of the greenhouse effect on sunny winter days.

Jack's Dad began the tradition of protecting Camellias on cold nights back in the 1950's. When bitter cold was forecast he would put plastic dry cleaning bags over his Camellias. The neighborhood joke was that you could predict the advent of cold nights by checking to see if John Kohler had wrapped his Camellias. All jokes aside, the extra effort paid handsome

dividends. The plastic bags came off if the temperatures went above 40 degrees the next day.

Jack finds that the walled garden not only protects the plants during the winter, it also cools them on hot summer days. Often when 90° temperatures exist in Stevenson, Jack's walled garden remains at 78°. He can hose down the walls and brick walkways of the garden to create evaporation and further cool the area as needed.

Even with his busy schedule as owner of a major printing business in Baltimore and Florida, Jack Kohler has found time to serve as an officer in the Poiner Camellia Society, and to further the cause of Camellias in Maryland. His ideas, though rooted in solid, old fashioned tradition, are fresh and innovative. Camellia growers in all moderate and cool climates can gain from his techniques.



Jack compares two blooms . . . the white bloom of SNOW is intact, having been grown against the north wall for protection. The red bloom of YULETIDE was on the inside of the south wall, facing north, and was frozen. (Photo by Jim Darden)

Jack and Agnes gave Mary Nell and me one of the most enjoyable and memorable weekends we could have had. Though the ride up to Maryland seemed to take us far up north, these Camellia lovers are quick to tell you that they are true Southerners, living a good 23 miles south of the Mason-Dixon line. That puts them well into the Camellia belt, and explains why they extend such great Southern Hospitality to their visitors.

We enjoyed our weekend in Maryland, and hope to go back for the Camellia show there in the spring. We hope that Jack and Agnes will come down and be with us in Fayetteville in March. For all of you "deep South" Camellia growers I've got a good piece of advice. If you get a chance to visit the folks in the Pioneer Camellia Society, don't miss the opportunity. You will miss the weekend of a lifetime and great Camellia friends.

* * * * *



Jack Kohler shows off one of his favorite camellias — CREAM PUFF. This plant has excellent foliage and is still heavily budded after a hard freeze.

JULIA, JULIE

by Ed L. Atkins
Shalimar, Florida

It never occurred to me when I registered the hybrid camellia "JULIA" that adult camellia growers would find it so difficult to tell the difference between JULIA and JULIE. Even accredited Judges find it difficult telling the difference between SOLID (IE) AND JULIA VARIEGATED (IA) with a nomenclature book in hand.

I'll admit I caused the problem. Several years ago, before the automatic variegated rule, I had this non-ret hybrid that bloomed lavender and white. We carried this bloom to several shows only to have an "X" placed on the entry card stating no such bloom was in the "BOOK". I thought this bloom was good enough to register in the "BOOK" and mailed a request to ACS requesting it be entered as a new bloom. I ask the

opinion of many top growers, all agreed it was good enough and different enough and should be registered.

Two seasons later someone brought a bloom similar to "JULIA" to a show saying it was "JULIE" variegated. I don't think they are the same flower.

The problem seems to be however, that both growers and Judges find it difficult to tell the difference between JULIE SOLID and JULIA variegated. Even while looking at the "BOOK". Repeat after me JULIE (IE) SOLID, JULIA (IA) variegated. Now that wasn't hard was it?

Recently in a local show I saw a plate of three "JULIE" solid color blooms sent to the head table by accredited Judges with the entry card plainly marked "JULIA".



Three Wise Men? — Marion Edwards photographed these three camellia wizzards (Howard Rish, Joe Austin, and Jim Pinkerton) discussing ballet, the opera, and current Broadway plays.

The Use of Insecticidal Oils

Dr. James Jarratt, Entomologist
Mississippi Cooperative Extension Service

It is often very difficult to spray trees or shrubs in an urban environment because of the stigma associated with pesticide use. One material that can be used to get around this stigma is oil. The concept of using oil for insect or mite control has been around for 100 to 150 years but the period between 1945 and 1970 provided the greatest activity in improved spray-oil technology and application.

These insecticidal oils are not a single component, but rather a complex mixture of petroleum hydrocarbons. The final product is dependent upon the nature of the crude oil used in the refining process. Most insecticidal oils used to spray ornamental trees and shrubs are produced from paraffinic crude oil. Since these products are not a single chemical component, it is necessary to define them in other ways. Two of these specifications are unsulfonated residue and viscosity.

Unsulfonated Residue

Oils may originally contain both
H H
saturated HC-CH and unsaturated
H H
HC=CH hydrocarbons. The unsaturated types are the most harmful to plants so they are removed by treating the oil with concentrated sulfuric acid. The unsaturated hydrocarbons react with the acid and can then be separated and removed. After separation, the remaining component is called the unsulfonated residue (U.R.). If an oil label lists a U.R. rating of 92%, this means that 8% is unsaturated hydrocarbons or sulfonated compounds. An oil with a

U.R. rating of less than 92% would be considered unsafe on green plants.

Viscosity (Saybolt)

This is a measurement of oil heaviness or thickness. It is defined as the time in seconds which it takes a quantity of oil to flow from one chamber to another at a temperature of 100°F. The insecticidal oils may fall within a range of 60-200 seconds.

Oils with a U.R. rating of less than 92% plus a Saybolt viscosity of 100 seconds or longer would be classified for use as dormant oil sprays, while oils with a U.R. rating of 92% or higher and a viscosity rating of around 70 seconds could be sprayed on plants with green foliage. These latter type oils have been referred to as superior oils and may also be used as dormant oils by increasing the amount used per unit of volume or water. Consult specific labels for this particular use. Another point that should be adhered to is the temperature caution statements which appear on the label. There will be both high and low temperature statements. Some argue there is no need for the low temperature on the label, you should honor these temperature caution statements.

Oil sprays are used mostly in control of such soft bodied pests as mites, aphids, scale insects, over-wintering aphids and eggs of either mites or insects. In using oils you must realize that control is based solely on contact action. The oil coats the insect, mite or egg cutting off respiration which suffocates the pest. In using oils, coverage is extremely important and, remember, you have no residual action. Some specific uses may be in

whitefly or scale control. Let's say you had a bad whitefly problem last fall on wasleaf ligustrum and are dreading the thought of dealing with the problem this Spring. The first spray you might want to consider is an oil spray. For example, you could use Volck oil at the rate of 2.5 ounces per gallon of water during the early part of the growing season. You would follow much the same procedure in a scale control pro-

gram. However, in this case the same oil could be used as a dormant spray on dormant shrubs, broadleaf evergreens, woody plants and shade trees. The labeled rate for this circumstance would be 5.5 ounces per gallon of water.

Reprinted from the *Mississippi Nurserymen's Association, Inc. Newsletter*, Volume VII, Issue 1.

* * * * *



Bill Shepherd conducts a class in making paper Camellias at the A.C.S. headquarters at Masee Lane. The workshop took place in new Annabelle Lundy Fetterman Education and Museum Building during April of 1989. The fine chandeliers were donated by Dr. and Mrs. Herb Racoff and the Mid-Carolina Camellia Society.

Coastal Carolina Camellia Show

Citadel Mall, Charleston, S.C.

January 27, 1990

Best Bloom - Open

Large	<i>Carter's Sunburst Blush</i>	Pete Lambrakos
Medium	<i>Ville de Nantes</i>	Elizabeth Brown
Small	<i>Lady Hume's Blush</i>	Dr. Herbert Racoff

Best Bloom - Open Runner Up

Large	<i>Steve Blount</i>	Parker Connor
Medium	<i>Miss Aiken Var.</i>	Parker Connor
Small	<i>Wilhelmina</i>	Parker Connor

Best Bloom - Protected

Large	<i>Helen Bowers Var.</i>	Joe Austin
Medium	<i>Ville De Nantes</i>	Clara & Fred Hahn
Small	<i>Maroon & Gold</i>	Ann & Mack McKinnon

Best Bloom - Protected Runner Up

Large	<i>Showtime</i>	Clara & Fred Hahn
Medium	<i>Nuccio's Jewell</i>	Sandra & John Penny
Small	<i>Dahlonga</i>	Marie & Paul Dahlen

Best Seedling

Joe Austin

Best Miss Charleston - Open

Parker Connor

Best Miss Charleston - Protected

Clara & Fred Hahn

Best Hybrid - Open

Anticipation Pete Lambrakos

Best Hybrid - Protected

Mona Jury Annabelle Fetterman

Best Reticulata - Open

Black Lace Louise & Roy Homans

Best Reticulata - Protected

Hall's Pride Joe Austin

Best Novice Bloom

Firebrand Anne Worsham Richardson

Best White - Open

Snowman Louise & Roy Homans

Best White - Protected

Silver Chalice Joe Austin

Best Miniature

Man Size Mrs. Alford Bissell

Court of Honor - Open

<i>Rudolph</i>	Parker Connor
<i>R. L. Wheeler</i>	Parker Connor
<i>Tom Car Var.</i>	Parker Connor
<i>Drama Girl</i>	Parker Connor
<i>Wild Fire</i>	Parker Connor
<i>Betty Sheffield Blush</i>	Betty Brown

Runner Up Court - Open

<i>Pierate's Pride</i>	Parker Connor
<i>Oscar Elmer Var.</i>	Parker Connor
<i>Swanda's Dream</i>	Parker Connor
<i>Miss Aiken</i>	Parker Connor
<i>Professor Sargent</i>	Louise & Roy Humans
<i>Wildwood</i>	A. A. & Frances Muckenfuss

Court of Honor - Protected *Mathotiana Supremen Var.*
Dr. Clifford Parks
Tomorrow's Dream
Ruffian
Elegans Champagne
Mrs. D. W. Davis Special

Clara & Fred Hahn
 Clara & Fred Hahn
 Joe Austin
 Joe Austin
 Joe Austin
 Joe Austin

Runner Up Court - Protected *Charlene Var.*
Jessie Connor
Katie Var.
Baby Pearl
Margaret Davis
Commander Mulroy, Sport

Annabelle Fetterman
 Annabelle Fetterman
 Annabelle Fetterman
 Annabelle Fetterman
 Joe Austin
 Joe Austin

Sweepstakes

Gold Sweepstakes in Open
 Silver Sweepstakes in Open
 Gold Sweepstakes Protected
 Silver Sweepstakes Protected

Parker Connor
 Elizabeth Brown
 Joe Austin
 Annabelle Fetterman

Show Chairman: Rupert Drews
 Number of Blooms: 1,171 (Last year 1,532)



Gladys and Jim Pinkerton invited Camellia friends who had "experienced" HUGO to their home on October 14, 1989 for the "best bar-be-que" in Williamsburg County. They are (L to R) Mac McKinnon, Ann McKinnon, Harry Watson, Mildred Robertson, Frances Racoff and Dr. Herb Racoff.

(Photo by Shepherd)

Calendar Dates as Indicators of Woody Stem Cutting Rootability

by
Dr. Frank A. Blazich¹

There are many factors influencing the propagation of woody plants by rooting stem cuttings. One very important factor is the time of the year the cuttings are taken for rooting which is referred to as timing. For particular species, timing is so critical that if the cuttings are not taken at the proper time they will not root regardless of treatments administered to the cuttings or the environmental conditions under which the cuttings are maintained for rooting.

Discussions of timing are usually associated with calendar dates. For example, references for rooting cuttings of particular woody species often instruct the propagator to take cuttings during a specific month, or during a certain season of the year. Rooting information presented in this manner (calendar dates as indicators of rootability) is somewhat misleading because timing is related to a particular physiological condition of the cutting material and not a specific date. This physiological condition is affected by maturity of the wood (stem tissue) which is influenced by the environmental conditions (includes moisture and fertility levels of the growing medium) under which the stock plants are growing. As environmental conditions change, so will change the physiological status of the cutting material, thus directly influencing rooting. Since calendar dates can be misleading, rooting experiments and references for propagating woody plants by stem cuttings should include in addition to calendar dates, a description of the growth stage of the

cuttings or the stock plants. Without a proper description, the information can be virtually worthless.

When describing the physiological status of woody stem cuttings, the terms softwood, semihardwood and hardwood are generally used. However, despite frequent mention in propagation literature, the terms are often not clearly defined.

A softwood cutting, sometimes referred to as a greenwood cutting, is taken from soft, succulent new growth just as it begins to harden (mature) following a growth flush. This type of growth normally occurs in the spring but material of this nature is available from plants that grow throughout the growing season or have late flushes of growth. Semihardwood cuttings are prepared from partially-matured wood of the current season's growth after a growth flush. Timing of this type of cutting ranges from late spring into fall depending on the species and environmental conditions. Finally, a hardwood cutting is taken from a completely mature stem. The stock plant is fully dormant with no obvious signs of active growth (usually in late fall, winter or early spring). For deciduous species, hardwood cuttings would be taken following leaf drop and continue through the dormant season.

An excellent practice for propagators is to keep yearly records of when cuttings of various species are taken, and the extent of rooting for each date. These records should also include such information as rooting treatments applied to the cuttings and the environmental conditions under which

the cuttings are rooted. Such records can be useful for future reference because they can serve as guidelines for when cutting should be collected, treated and maintained to achieve maximum rooting. However, one must keep in mind that calendar dates for maximum rooting of various species can and will vary from year to year depending upon growing conditions. For example, because cuttings of a certain azalea cultivar rooted well when taken during the first week of August 1986 does not mean the same degree of success will be achieved when taken during the same time period the following year. Also, the optimum calendar date might be the same for several years in succession and suddenly change due to variation in weather patterns or moisture and fertility levels.

In summary, when rooting stem cuttings of woody species, calendar dates can serve as guidelines as when

to take cuttings. They are not, however, absolute indicators of cutting rootability and caution should be exercised in their use. To avoid problems associated with calendar dates, propagators should become very familiar with the plants they are attempting to propagate and be able to recognize the three stages of maturity (softwood, semihardwood and hardwood) used to classify wood stem cuttings. Recognition of any other morphological or physiological features correlating with high rooting potential would also prove extremely useful. In actuality, calendar dates are best used as attempts to communicate with propagators when particular stages of stem maturity most conducive to rooting are predictably reached in various woody plants.

¹Professor. Department of Horticultural Science, North Carolina State University, Raleigh, NC 27695-7609.



Dr. Dave Scheibert, Parker Connor, and Bill Shepherd talk camellias and enjoy the festivities at the Coastal Carolina Camellia Society spring picnic at Edisto Island, S. C.

Jacksonville Camellia Show

Jacksonville, Florida
Camellia Society of North Florida

December 2, 1989
Number of blooms displayed: 1068

ACS Outstanding Bloom Certificates

C. Japonica (In Open)		
Large-Very Large, Chem. Tr.	<i>Helen Bower Var.</i>	Parker E. Connor, Jr.
Small-Medium, Chem. Tr.	<i>Mrs. Hooper Connell</i>	Elizabeth Brown
Large-Very Large, Not Tr.	<i>Melinda Hackett</i>	Parker E. Connor, Jr.
Small-Medium, Not Treated	<i>Doris Ellis</i>	Parker E. Connor, Jr.
C. Japonica (Protected)		
Large-Very Large	<i>Ruffian</i>	Mabel & Joe Austin
Small-Medium	<i>Betty Sheffield Blush Sup.</i>	Annabelle Fetterman
C. Reticulata (In Open)		
Best Bloom	<i>Dr. Clifford Parks</i>	Mr. & Mrs. W. J. Boll
C. Reticulata (Protected)		
Best Bloom:	<i>Harold L. Paige Var.</i>	Mabel & Joe Austin
C. Hybrid (In Open)		
Best Bloom:	<i>Julia</i>	Mr. & Mrs. Tom Adams
C. Hybrid (Protected)		
Best Bloom:	<i>Rose Bouquet</i>	Mabel & Joe Austin
C. Sasanqua		
Best Bloom:	<i>Star above Star</i>	Mr. & Mrs. Tom Adams
Best Miniature:	<i>Frances Councill</i>	Mr. & Mrs. Tom Adams
Best White:	<i>Mary Alice Cox</i>	Parker E. Connor, Jr.
Best Mutant:	<i>Mutant of Campari</i>	Mabel & Joe Austin
Best Seedling:	<i>Non-Rectic Hybrid No. 2</i>	Hulyn Smith

ACS Gold Certificates

In Open:	Parker E. Connor
Protected	Annabelle Fetterman

ACS Silver Certificates

In Open:		Mr. & Mrs. Tom Adams
Protected:		Jim Pinkerton
Three of same variety:	<i>Betty Sheffield Pink Var.</i>	Elliott P. Brogden
Five different varieties:		Jim Pinkerton
Best Local Bloom:	<i>Tomorrows Dawn</i>	John Rumbach
Three of same variety:	<i>Betty Sheffield Pink Var.</i>	Elliott Brogden
Five Different varieties:		Jim Pinkerton
Best Local Bloom:	<i>Tomorrow's Dawn</i>	John Rumbach

Court of Honor

Mr. & Mrs. Tom Adams

Joe Austin

Mr. & Mrs. W. J. Boll

Elizabeth Brown
Parker E. Connor, Jr.

M. S. Edwards
Annabelle Fetterman
Mr. & Mrs. Fred Hahn

Jim Pinkerton

Mr. & Mrs. W. C. Robertson
John Rumbach

Betty Sheffield Supreme
Mrs. Hooper Connell
Julia Hamiter

Carters Sunburst
Tomorrow Park Hill Blush
Woodville Red Blush

Campari
Valentine Day Var.

Baronne De Bleichroeder
Happy Holidays
Moonlight Bay
Nuccio's Jewel

Valley Knudsen
Oscar B. Elmer
Elegans Supreme Var.
Jessie Connor

Show Time
Tamsin Coull

Hulyn Smith

Miss Charleston Var.



Atlantic Coast Camellia growers attend Gulf Coast meeting in August. These pretty ladies are (L to R) Lauren Smith, Pearl Terry, Annabelle Fetterman, and Jean Pursel. Bill Shepherd makes up the back row. (Photo by Shepherd)

WATCH YOUR CONDUCTIVITY!

By Dr. Ted Bilderback
N. C. Agricultural Extension Service
N. C. State University

The last 2 summers have been extremely hot in North Carolina. This has brought about two conditions. First of all, if slow release fertilizers are subjected to very high temperatures, they release faster. Higher salt levels will occur in the container and could damage plant roots. This can also set up root rot problems as well in susceptible species. Secondly, if the fertilizer releases faster, it does not last as long. This occurred last year and by the time nurserymen realized it, time was getting pretty late in the season to apply more. Plants went into the winter hungry and are a little yellow and off color this spring. Luckily, we have not had a test winter and plant vitality has not been questioned. With new fertilizer application this spring, they will green up. The first flush of growth may not be as vigorous, but we have been lucky. The only way that a nurseryman can anticipate how to manage fertilizer application is to routinely test the salt levels in the containers.

A quick and easy way to determine fertilizer levels of container media is to pour distilled water onto the surface of the medium, collect and leachate and test it with a solubridge, conductivity meter and/or a pH meter. This procedure is called the pour-through or as coined by Dr. Robert Wright at VPI, the VTEM Procedure.

Collection and analysis of the sample can be done by nurserymen in the container growing area. In pine bark and other organic potting media, nutrients dissolved in the water play a bigger role in plant growth than nutrients exchanged from media

particles. That is why laboratory procedures are not necessary to determine soluble salts and pH.

Soluble salt levels of 0.5 to 0.75 mMHos (millimhos/cm) are desirable for salt sensitive crops such as azaleas and rhododendrons and 0.75 to 1.5 mMHos for most other nursery crops. If soluble salts go above the upper limits leaching by thoroughly irrigating the containers usually reduces the risk of salts damage. If the soluble salts levels drop below the lower limits during the growing season, fertilizer should be reapplied.

When detailed nutrient levels are desired, which is suggested every 4 to 6 weeks, water samples may be sent in polyethylene bottles to the Agronomic Services, Soil, Plant and Nematode Testing, NCDA, Raleigh, N. C. 27611. Fertilizer application to containers should result in a range of nutrients in the medium solution of 50-100 ppm N, 10-15 ppm P and 30-50 ppm K, and 10 to 15 ppm each of calcium and magnesium according to data reported by Dr. Wright. Minor elemental levels should range between 0.1 and 0.3 ppm.

The pour-through method is a quick and easy way to determine salts levels in containers. Testing should be done after the containers have been irrigated and have drained (approximately 2 hours after irrigation). After randomly selecting at least 3 containers from growing blocks, each would be placed in a pan, shallow bucket or suitable vessel with some object also placed under the container so it does not seal to the bottom of the

pan. Distilled water can then be poured through each container. About 75, 150, and 350 ml (2.5, 5.0 and 12 fluid ounces) of water per quart, gallon, and 3 gallon container respectively, are normally sufficient with irrigated containers. At least half of this volume should drain within 5 minutes. The leachate can then be poured into a cup and is ready for pH, soluble salts or nutrient analysis. If only a soluble salt reading is desired, the leachate can be poured into the vial of a portable conductivity meter and discarded after reading.

If a nurseryman monitors container nursery stock ever two weeks and tests them for salts levels, he may save himself a lot of money. It would be highly recommended to write test results down each time in a notebook used for that purpose and keep a record throughout the growing season. To obtain a visual record, a grower could plot each reading on a piece of graph paper. The bottom of the graph would represent time over the growing season with weekly or every two week intervals. The vertical axis would represent the concentration of salts from 0.2 to 2.0 mMhos.

A solubridge measures electrical conductivity (EC). New equipment may be called a conductivity meter. Older solubridges read from 10 to 1000 mhos $\times 10^{-5}$ while newer meters read 0.1 to 10 mhos $\times 10^{-3}$ or millihmos/cm

(mMhos). Conductivity meters read mhos $\times 10^{-6}$ or micromhos/cm. A mho is the reciprocal of an ohm which is the measure of electrical resistance.

The approximate ppm (parts per million) can be calculated by multiplying the EC reading in millimhos/cm by 700.

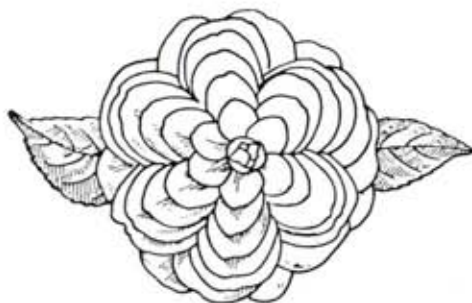
Testing equipment ranges in price from about \$40 for pocket pen indicators to very expensive, but a nurseryman should be able to find suitable equipment for under \$500. Companies which have a variety of equipment to choose from include:

Myron L. Company
6231C Yarrow Drive
Carlsbad, CA 92008-4893
619-438-2021

Cole-Parmer Instrument
Co.
7425 North Oak Park
Avenue
Chicago, IL 60648
1-800-323-4340

Exttech Instruments
150 Bear Hill Road
Waltham, MA 02154
617-890-7440

Fisher Scientific
3315 Atlantic Avenue
Raleigh, N. C. 27629
919-876-2351



Leaf Gall on Camellias

by Dr. Luther W. Baxter, Jr.
Dept. of Plant Pathology
Clemson University
Clemson, S. C.

Camellia leaf gall is a fungus disease that has but one life cycle per year which occurs during late April or May (perhaps slightly earlier in the southern states). Leaf gall, caused by the fungus *Exobasidium camelliae*, affects *Camellia japonica*. *E. camelliae* var. *gracilis* affects *C. sasanqua* and occasionally *C. oleifera* (not to be confused with the *C. sasanqua* cultivar, Narumigata, which is often called "oleifera"), and some hybrids such as Valley Knudson (*C. saluenensis* x *C. reticulata* 'Buddha'). The form of *Exobasidium* that affects *C. japonica* will not affect *C. sasanqua* and vice versa. Also, *Exobasidium vaccinii* that causes leaf gall of azaleas and rhododendron will not attack camellias. Other species of *Exobasidium* also cause leaf and shoot galls on other ornamental and wild plants.

The very distinctive symptoms are characterized by thick, fleshy leaves. Most leaves in a developing vegetative bud are affected, but occasionally only one or two leaves, or parts of a few leaves, are affected. The optimum time for symptom expression is May, although the time may vary from location to location. Galls on the

affected buds develop at about the time of normal new vegetative growth in the spring. As the galls mature, the lower side of the leaf (lower epidermis) breaks away, exposing the white mass of spores on the surface which are then either wind blown or spread by splashing water. The disease may be very alarming to the grower, but it rarely is damaging except from an aesthetic point of view.

Control involves one of two approaches. First physical control involves removing and destroying all the galls as soon as detectable. It is difficult to find *all* the galls, but this is absolutely necessary in order to control this disease. (One other problem, your neighbors must also cooperate since the spores can be blown in from outside your nursery.) Secondly, chemical control involves the use of fungicides during the spore production period. Our knowledge about control of this disease by chemical means is not satisfactory, but usually spraying with a fungicide will help. About 3 to 4 sprays applied during May and June should help to control the disease.

**Make Plans Now To Attend The
Atlantic Coast Camellia Society**

**ANNUAL MEETING
October 5-6, 1990**

**Send your Reservation
and one Nights Deposit to:**

**The Independent Holiday Inn
Post Office Box 405
Myrtle Beach, SC 29578-0405**

— Or Call —

1-800-874-7401

ATLANTIC COAST CAMELLIA SOCIETY

Jim Darden, Editor

Route 6, Box 504

Clinton, N. C. 28328



RETURN POSTAGE GUARANTEED

M/M GEARY M. SERPAS
104 TYVOLA DRIVE
SUMMERVILLE SC 29485

BULK RATE
U. S. Postage
PAID
Clinton, NC
Permit No. 382

CAMELLIAS . . .