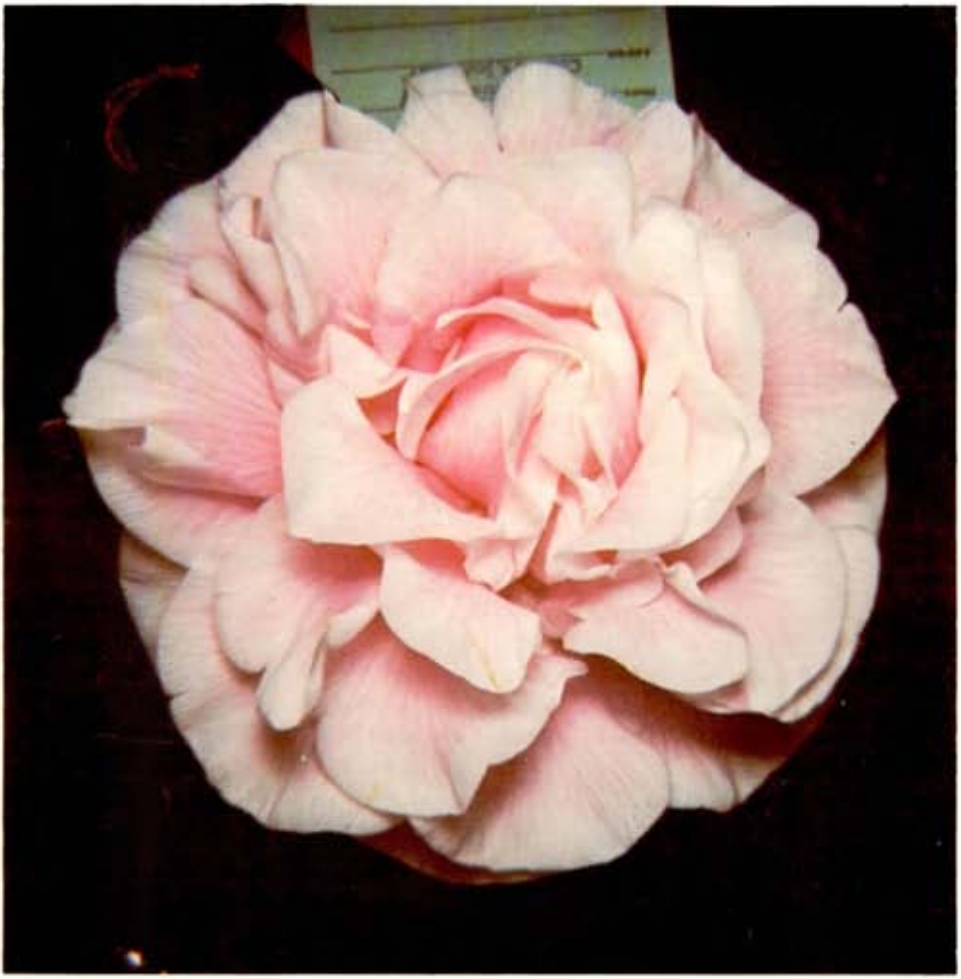
Carolina Camellias



'DIDDY'S PINK ORGANDIE'

Vol. XXII SPRING, 1970 No. 2

Carolina Camellias

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In This Issue

About the Cover

'DIDDY'S PINK ORGANDIE', Sport of 'DIDDY MEALING,' Dr. H. G. Mealing, North Augusta, S. C.

SOUTH CAROLINA CAMELLIA SOCIETY

President's Message

H. D. Pregnall

Dear Members:

As of this time there has been only one Spring Show in South Carolina, held at Charleston, with the worst possible weather conditions. It was a great success, thanks to the many greenhouse growers who were able to participate.

Instead of the thousands of blooms that we anticipated, we only had 879 but it was still one of the best shows that Charleston has had with *quality* being the key note!

Even though the temperature was down to ten degrees or lower, a number of our outside blooms seem to be coming back. I hope that before the season is over we will still be able to have the outside section in this season's shows.

Mr. Frank Brownlee of Anderson, has arranged for our Spring meeting to be held at Clemson on March 21, 1970 and as usual he is doing a fine job. Let's all try to turn out and attend. You will find more information concerning this Spring meeting in this Journal.

Don't forget that Carroll Moon is always interested in any article that you send him on your "Pet Project." Others would like to try your experiments so that they can improve their camellia culture.

Sincerely,

H. D. Pregnall,
President.

NORTH CAROLINA CAMELLIA SOCIETY

President's Message

TOM C. CLARK

DEAR MEMBERS:

The North Carolina Camellia Society is looking forward to seeing each one of its members and their friends at our spring meeting at the Sheraton Motor Inn in Greensboro on Saturday, March 14, 1970. The Society has planned an interesting program. The Men's Piedmont Camellia Club provides a beautiful show to add to our interest. Plan to bring along a friend—some flowers and let's fellowship together.

This year promises to be a most outstanding one for North Carolina Camellia enthusiasts. Plans are being made for the A. C. S. Annual meeting which will be held in Wilmington, N. C., November 12-14. Our Society has been invited to hold our fall meeting there on Saturday, Nov. 14 in conjunction with the A. C. S. The events planned for these meetings should prove stimulating to everyone. Give each one of your Camellias a special portion of "T. L. C." Get your "Gib" bottles ready for use in August—and, together, let's make this meeting of the A. C. S. in Wilmington the most enthusiastic and outstanding salute to this wonderful flower.

Plan to attend and exhibit in as many shows as possible.

Sincerely,

TOM C. CLARK.

GEORGIA CAMELLIA SOCIETY

President's Message

W. J. McCoach

Dear Members:

By the time you receive this issue of the CAROLINA CAMELLIAS, the 1969-70 show season will be history. It was a very disappointing season for outdoor growers due to the dry weather and many bitterly cold days and nights—3 to 6 degrees. I have been told many outdoor growers are seriously considering putting up greenhouses. They are tired of having one or two cold nights ruin their many months of effort. A small, 20' x 25', house will easily accommodate eighty or more medium size plants and protect them from the weather. A wood frame plastic covered house costs much less than most people think. Check it out—you'll be surprised.

In early 1969, I appointed a committee to nominate officers for the 1969-70 year, but this committee is unable to suggest any names. I have written each officer and director of the G.C.S. to encourage them to keep working on the nominations of officers for the 1970-71 year. But we need your help. If you, as members, have any thoughts on this matter, write to the officer nearest you or write to me.

Terrell Weaver tells me the Macon show will be in November, 1970. I think this would be an ideal time for a meeting of the Georgia Camellia Society in Macon to elect and install new officers. There is one point, however, on which I would like to hear from the members. Should the meeting be held Friday night before the show or Saturday night? Please let me hear from you. My address: 5254 Powers Ferry Road, N.W.; Atlanta, Georgia 30327.

Sincerely,

William J. McCoach.

P. S. Please make your $3.00 dues payment to Mr. I. Harvey; 2311 Venetian Dr., S.W.; Atlanta, Georgia 30311.

VIRGINIA CAMELLIA SOCIETY

President's Message

SAMUEL F. THORNTON

DEAR MEMBERS:

To satisfy our efficient but demanding editor, this letter has to be written in Mid-January . . . a time when inspiration and enthusiasm come a little hard to one who has only unprotected plants. By the time you read this letter, however, blooms will again be bursting forth in all their glory, the show season will have been active for some time and interest will be at a peak again.

Our Spring Show is scheduled for March 28 and 29 and just possibly may have come and gone before you read this. Work on it already has started and you will be kept informed as our plans progress. We are hoping to make it even more interesting and beautiful than the very fine 1969 Spring Show.

The extremely severe and prolonged cold weather we are having this year appears certain to put unprotected plants to a severe test for cold hardiness. This will give each of us an excellent opportunity to check the varieties we have in our own plantings. I already have done this to some extent and have been encouraged by what I have found. I think, however, that there will be some "weak sisters" that I shall want to replace with more robust individuals.

This is the last issue of CAROLINA CAMELLIAS for the 1969-70 season and therefore the last opportunity I shall have to send a message to you in this form. I have very much enjoyed these chats with you and hope that in some way they have helped to keep you in closer touch with your Officers and Directors. This, I feel, is our Society's greatest need and I urge you to keep working for improved communications during the remainder of this year and for all of the years that will follow.

Sincerely yours,

SAMUEL F. THORNTON.

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Eugene M. Worrell, *Ex Officio*

Camellias at Clemson

By T. L. Senn
Head Department of Horticulture

J. P. Fulmer
Assistant Professor of Horticulture

B. J. Skelton
Associate Professor of Horticulture

In the spring of 1960, the Department of Horticulture, Clemson University, established a Camellia Test Garden as a part of its ornamental program. The South Carolina Camellia Society played a vital role in securing plants and offering assistance in many ways.

Initially, more than 300 plants representing approximately 200 varieties were planted in a wooded area of the Ornamental Grounds. Each year grafts have been made and additional varieties planted. Camellia accessions from the U. S. D. A. through the Plant Introduction Station have been added over the years.

Several years ago, "A Friend of the Department of Horticulture" donated approximately 200 *C. japonicas* and

A section of the Camellia Test Garden at Clemson.

Test plot experiment with seaweed extract and meal.

C. reticulatas, in addition to a small greenhouse. The plants included many varieties that were not hardy in the Clemson area.

The Ornamental Grounds of the Department of Horticulture now embraces approximately fifty-two acres of land. Long range plans call for the development of the entire area which will include the Camellia Test Garden, Woody Ornamental Test Area, Rhododendron Trials, Wild Flower, Gardens, Bog Garden, Historical Garden, and a Garden for the Blind. These Gardens are always open to the public and along with the two-acre Annual and Perennial Variety Trial Gardens and greenhouses make an interesting tour for any group.

Research is a vital tool and is an active part of Clemson's total program. The Department of Horticulture is engaged in cooperative testing programs with other University departments, industry, societies, and other Universities.

One area of interest is related to flower hardiness and a cooperative program has supplied about 600 progeny that are now under evaluation. The objective is to find late blooming varieties that are not injured at low temperatures.

Improved methods of pest control are always of interest to the camellia grower. Dr. Luther Baxter of the Department of Plant Pathology has extensive research underway in the area of plant diseases. Dr. Richard Nash of the Department of Entomology is

evaluating new and promising insecticides.

Several fertilizer formulations are being tested by the Department of Horticulture under whose supervision the Camellia Test Gardens have been placed.

Another interesting area of research involving camellias is being conducted by the authors under a National Science Foundation Grant. This project is to evaluate the effects of various formulations of seaweed on the growth and development of camellias.

Preliminary tests by both amateur and professional growers have shown remarkable response to varying concentrations of seaweed meal and extracts.

There is marked improvement in the growing qualities of plants. The leaves are of a darker green color and the plants are healthier in general. The plants bud up heavier and the blooms open more uniformly and are a better color with a longer shelf life.

Research has established the existence of two major groups of plant hormones, the auxins and the gibberellins, in marine algae. Auxins, previously detected in phytoplankton and unicellular algae, have now been shown also to occur in seaweeds (*Laminaria* spp., *Ascophyllum nodosum*). The occurrence of a number of indole compounds which are probably concerned with auxin synthesis or degradation has also been reported.

Greenhouse experiment using varying rates of seaweed extract and meal on Empress camellias.

All camellia growers are well acquainted with gibberellins. Several years ago, Dr. Joyce Bentley reported detecting gibberellin-like substances in several types of seaweed. She stated that one of the active fractions has similar chromatographic properties to gibberellic acid.

Evidence is available that the distribution of certain marine plants is controlled by subtle chemical differences in sea water. These differences are probably due in part to varying amounts of biologically-active compounds such as hormones produced by sea plants. Growth and development of the shore seaweeds as influenced by hormone production.

Based on continued interest and existing evidence, the Department of Horticulture has both greenhouse and test plot experiments to evaluate liquid extracts and granular seaweed material at varying concentrations on the growth and development of camellias. The Empress variety (pink) is being grown in containers in the greenhouse in an experiment involving 44 plants. Several varieties are involved in the field plot tests.

Progress reports on all phases of camellia research at Clemson will be reported periodically and available to all interested in the growth and development of camellias.

North Carolina Camellia Society Spring Meeting

Our spring meeting will be held at the Sheraton Motor Inn in Greensboro on March 14, 1970 in conjunction with the Greensboro Camellia Show. Landscape Architect, Richard C. Bell from Raleigh, N. C., will present a most interesting address to our group. The Sheraton will serve as headquarters for our activities. The luncheon will be served at 12:00 o'clock noon. Following the program everyone is invited to attend the Show which is being held in the National Guard Armory. The Sheraton is conveniently located on Interstate 85 and South Elm Street Exit.

All members are invited to stay over for the Men's Piedmont Camellia Club Annual Banquet which will be held at the Sedgefield Inn. Plans for the evening include cocktails from 6 to 7 p. m. and dinner at 7:30.

Luncheon at the Sheraton $2.50. Banquet $6.00. Send reservations to Martin Schnibben, 617 Pine Valley Dr., Wilmington, N. C. 28401.

An Invitation to Join

SOUTH CAROLINA CAMELLIA SOCIETY

The South Carolina Camellia Society is one of the largest, most active, horticultural and hobby state organizations in America. The Society is a non-profit organization.

The purpose of the Society is to:

1. Stimulate and extend appreciation of Camellias.
2. Encourage and promote the science and art of Camellia culture.
3. Develop, acquire, and disseminate information concerning the Camellia and its origins, history and culture.
4. Seek the aid and cooperation of and to work with Clemson University, the American Camellia Society, the State of S. C., the S. C. Association of Nurserymen and Municipal authorities in the promotion of the purposes of the Society.
5. Promote, sponsor, and supervise state-wide Camellia shows in cooperation with the American Camellia Society, with amateurs, professionals, and nurseries participation with emphasis on horticulture and individual flowers.
6. Publish and distribute a magazine to its members.

Membership which runs with the Calendar year, January 1 through December 31, entitles you to three issues of "CAROLINA CAMELLIAS", issued usually in January, March, and October, which has more regular features, authentic feature articles on Grafting, Planting, Feeding, Gardens, Sasanquas, Judging, Pruning, Arrangement, Disbudding, Diseases, Spraying, and Mulching, to mention a few. Also, there are photographs and other types of illustrations.

The South Carolina Camellia Society will welcome you as a member. For your convenience an application blank is printed below.

ANNUAL MEMBERSHIP—$3.00

- -

Please Make Payment to:

SOUTH CAROLINA CAMELLIA SOCIETY
Post Office Box 177
LEXINGTON, S. C. 29072

Please enroll the individual shown below and bill for $3.00 ☐ or enclosed herewith is $3.00 ☐.

Membership runs with the calendar year, January 1 through December 31. All issues of "CAROLINA CAMELLIAS" for the current year will be sent.

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(State)

Flower Arrangement

By Coreen B. Bryant
Orangeburg, S. C.

The final series of articles featuring Classes of the 1969-70 American Camellia Society Arrangement Contest Schedule is being presented as a challenge to all who may enter or view the late Spring Shows. The pictured Class is an entry in Section 1—(Tri-Color Classes)—Class 1, "Forward Together," President Nixon's slogan—Mass arrangement in contemporary style emphasizing color harmony.

The arranger has used an antique container of old silver, in pedestal form, having a crystal bowl. The outline of the design is not oval as one would expect for a center table placement, in fact the capsule table class might have been more appropriate, but due to improper home lighting, it was necessary to transport the arrangement to studio where there was no suitable table in size relation. The placement of all fresh plant material, (garden grown), using creamy-pinkish half opened chrysanthemums, to give the upward outward feeling of the static clear bowl and combined with interesting placement of five varieties and textures of palest pink to deep rose camellias, does give one the impression of the whole as indicating a "Forward Together" theme. (Regret space limitations do not permit identification of each rare and beautiful camellia nor regulations permit reproduction of a color print, so one might fully appreciate this color class.)

The photographer, in order to keep the camellias from appearing flat, took his position a bit too far to the left, as he wished to silhouette the larger fluffy camellias, so they would not appear flat as when taken from center front. From the chosen position the left fringe chrysanthemums appear to be slightly too far out, but in life the fresh plant material viewed from center front was perfectly balanced, giving the visual impression in form and color of "Forward Together."

For the point score the Judges allowed 28 for Design, 19 for interpretation of Class, 19 for Distinction and Asthetic Appeal, 14 for Freshness of Concept and 15 for Relationship of all Elements, thus giving a total of 95, and eligible for competion in Tri-Color Classes of Standard Shows titled "Camellias in To-Days Moods."

What To Do

MARCH—

Spray for scale. If oil-emulsion spray is used be sure temperature is between 45° and 90° for at least seven days.

Fertilize camellias with Azalea and Camellia fertilizer, 10-10-10, or any good balanced fertilizer. Use about ½ cup per 1 foot of growth and scatter fertilizer near drip line of plant.

APRIL—

If you didn't get your spraying and fertilizing program started in March, begin now. Watch out for scale insects, red spider, mealy bugs, white flies, aphids, lace bugs and other insects. If in serious trouble with scale, use Cygon. Be sure and follow instructions.

MAY & UNE—

The last spring feeding of Camellias. Don't forget to water your plants when they are dry. A good mulch around your plants will help conserve moisture. For scale, Cygon can be used anytime. You might have a graft that is taking.

JULY & AUGUST—

Watch for scale on your camellias and don't forget to water when dry. If any kind of scale appears, use Cygon.

SEPTEMBER—

Start your gibbing program and have outside flowers before cold weather. It is now recommended that camellias be fertilized with a complete fertilizer and that the nitrogen be derived for an organic source. Watch out for dried out plants and give them water.

OCTOBER—

Time to think about fall camellia shows beginning usually in November. Clean up area, prune where necessary and begin looking for the fall issue of Carolina Camellias.

—CAROLINA CAMELLIAS—

Attention!

Members of the SOUTH CAROLINA CAMELLIA SOCIETY please send your 1970 dues to:

P. D. Rush, *Secretary-Treasurer*
Box 177
Lexington, S. C. 29072

Members of the NORTH CAROLINA CAMELLIA SOCIETY please send your 1970 dues to:

M. Y. Schnibben
617 Pine Valley Dr.
Wilmington, N. C. 28401

Members of the VIRGINIA CAMELLIA SOCIETY please send your 1970 dues to:

Mrs. E. M. Worrell, *Secretary-Treasurer*
1341 Harmott Ave.
Norfolk, Va. 23509

Members of the GEORGIA CAMELLIA SOCIETY please send your 1970 dues to:

Ike Harvey, *Secretary-Treasurer*
2311 Venetian Dr., S.W.
Atlanta, Ga. 30311

Spring Garden Tour in Sumter

Noted grower Wendell M. Levi of Sumter got his start in camellias about thirty years ago when he received a 'Pink Perfection' bush. The camellia was given him then as a memorial to his late mother. Since 1939, the Levi camellias have blossomed into a vast collection containing over 600 varieties, all labeled.

The gardens and the home of Mr. and Mrs. Levi will be opened to the public April 3 for the Tricentennial Tour of Private Residences in Sumter County.

The Georgian house on West Calhoun Street was built by Mr. and Mrs. Levi in 1923. Wrought iron doors welcome the visitor into a stately entrance with an eighteenth century breakfront containing Old Crown Derby. Opposite are two seventeenth century tapestry chairs.

A circular staircase ascends to the second floor containing Mr. Levi's

Home of Mr. and Mrs. Wendell M. Levi

study. Here is housed his vast collection of pigeon books and photographs. Also here are the trophies Mr. Levi has won as a camellia grower and exhibitor.

Interesting features of the interior include an eighteenth century Waterford chandelier in the drawing room and Napoleonic andirons. In the library is a collection of 1760 Worcester china and other eighteenth century objects of art.

The entire house is done along formal, traditional lines with the exception of a downstairs game room with white leather walls and chrome accents. Antique accessories form an interesting contrast.

This Sumter County Tour is one of two tours being sponsored by Wilson Hall School in co-operation with the South Carolina Tricentennial Commission. The other tour, Historic Stateburg, is April 4.

Advance tickets and information may be obtained by writing Miss Nancy Wilson, Sumter Chamber of Commerce, 215 N. Washington St., Sumter 29150.

Tickets for the Sumter County Tour on Friday are $5. Saturday's tour of Stateburg is $7. Tour hours are 10 a. m. until 5 p. m.

—CAROLINA CAMELLIAS—

Three-fourths of the earth's surface is water and one-fourth is land. It's clear the Good Lord intended man should spend three times as much time fishing as he does mowing the lawn.

Beginner's Corner

By Bob Bailey
Richland County Agent

Camellias grow well without pruning. You may want to do "some cutting" however to remove dead, injured or diseased branches, or to reduce the size of plants or to keep plant "More bushy."

The best time to prune is right after blooming. Always make pruning cuts back to a bud or larger branch.

Treat pruning wounds larger than one inch in diameter with a tree wound dressing to prevent harmful fungi from invading the branches.

Pruning simply means removing undesirable parts from the plants. Most of our pruning could be avoided if your plants had been chosen wisely and of course planted properly. This is especially true, where plantings have been thoughtlessly made and then neglected to grow up into leggy and unattractive bushes or plants. On the other hand, quite often when pruning is done, the worst kind of butchering takes places and many crimes are committed on plants by those who undertake the task and those who insist on shearing the top off all bushes exactly alike and at the same time of year. The result is bushes looking alike without any individuality, with some of them robbed of the growth that makes the most beautiful flowers.

Pruning is not a complicated task. Neither is it a hard job. A little knowledge of the growing habit of the plant, an appreciation of their natural beauty and a willingness on the part of the grower to learn a few fundamentals is all that is necessary to keep plants healthy and natural growing. If there is one infallible rule to be observed it is this . . . prune at the bottom and not the top. The oldest stems should be cut from time to time. Their places will be filled by new young clean and vigorous stems.

There are four reasons for pruning camellias:

1. Sanitation, to remove dead wood or diseased branches or twigs. The dead branches must be traced back to the crotch or the fork nearest the line and healthy wood and cut at this point. Sometimes this means cutting a branch directly to the ground. This should be done rather than leave a bare stub which is dead and ugly looking. Of course any leaves, branches, twigs or canes that are diseased must be removed and burned.

2. We prune for better flower production. Cutting away surplus growth or undesirable parts stimulates flower production.

3. Pruning keeps plants young. Each year or two the old branches

are taken out leaving young growth to develop. Pruning is necessary to keep this young growth and the beauty of the plant.

4. Pruning keeps under control of long and unruly branches.

5. Many times pruning is done to secure cuttings for propogation of new plants. Just remember prune camellias at a time when least damage is done to the wood on which flowers are produced.

Tools—Be sure that the proper tools are used. A good pair of sharp prunings shears is usually all that is needed. Be sure that the shears are sharp, so that a clean smooth even cut is made without bruising or tearing the wood or bark. A ragged cut is not only insightly but it often results in damage to a good plant. Never leave a stub when pruning. A stub will often die and decay thus causing injury to the plant. Cut the branch at its base and flush with the place where it joins the main plant. If this is done, new bark will soon grow over it and the wood will heal without damage to the plant. Stubs may also be avoided by cutting shoots just above an eye.

Finally I have found that disinfecting shears helps from one plant to another. This is done by having a solution of Lysol or some other disinfectant and water. When moving from one bush to another or from one cut to another, just dip shears into the solution.

A Camellia Personality

By Anne Johnson, Cheraw, S. C.

(*From The Cheraw (S. C.) Chronicle,* Monday, Nov. 10, 1969)

L. Caston Wannamaker, now president emeritus of the American Camellia Society, didn't know a camellia from a rose when his wife, Gladys, first began growing the plants in their garden, but shortly afterward he was bitten by the camellia bug and entered wholeheartedly into the growing and showing of camellias.

A natural result of his interest was membership in the local, state and American Camellia Societies, and he rose steadily through the ranks in serving these societies. His first office was as a director in the South Carolina Camellia Society, followed by two terms as president of the state society. He was then elected a state director of the American Camellia Society. In 1959, "Mr. Caston" was elected to the highest office in the camellia world as president of the American Camellia Society, and was re-elected, without opposition, to a second term the following year. His position as president required many hours of planning, many miles of travel and much hard work, and he gave freely of his time and efforts. The fine position of the society today is proof of the excellent job he did during his two terms of office. Few people know or realize the extent of "Mr. Caston's" services, not only to the camellia world, but to his hometown, state and nation, due to his natural modesty.

L. CASTON WANNAMAKER is shown standing by the plaque presented to him by the Charlotte Men's Camellia Society, of which he is vastly proud. The bloom on his lapel is the famous Wannamaker Strain, 'Daikagura' which he created, and the camellias on the tray were all grown in the Wannamaker garden. (Photo by Anne Johnson.)

L. Caston Wannamaker is a native of Cheraw, where he received his early schooling. He is a graduate of Wofford College where he received his A.B. degree, and the University of South Carolina where he received his LL.B. degree.

His business interests are widespread. He is by profession an attorney and is also president of the First Federal Savings and Loan Association of Cheraw. He has farming interests, including a large herd of Hereford cattle.

He is an active member of the First United Methodist Church and served for many years as superintendent of the Sunday School, as well as chairman of the board of trustees of his church.

He has for many years been active in local and statewide politics, having served several terms in the legislature.

During World War I he served with the famous 81st or "Wildcat" Division, and commanded Company B of the 317th Machine Gun Battalion in action during the Meuse-Argonne offensive.

He has been active in civic affairs for many years and in addition to being a past president of the Cheraw Kiwanis Club, is also a past president of the S. C. Savings and Loan League, past state commander of the American Legion, past District Deputy Grand Master of Masons, and has served on the State Forestry Commission.

Mrs. Wannamaker shares her husband's love for, and interest in, camellias and their enthusiasm and untiring support of the camellia cause, has done much to promote this beautiful flower. Their own outstanding camellia garden is always open to those who love the beautiful.

Several years ago "Mr. Caston" created the beautiful camellia bloom known over the camellia world as the 'WANNAMAKER STRAIN DAIKAGURA', and the 'GLADYS WANNAMAKER', named in honor of his wife. This blossom is a very delicate pink with golden stamen, a large, soft, semi-double bloom with four petaloids. It has dark, glossy foilage, is cold resistant and does not shatter.

It is truly a lovely namesake for an equally lovely lady such as "Miss Gladys", who planted the first camellia in the Wannamaker garden and took her husband to his first camellia show.

Waxing of Camellias

By Martha Blanks
Columbia, S. C.

Waxing camellias is fun and also brings out the beauty of the flower. The purpose of waxing flowers is to be able to lay camellias on tables or around and not have to put them in a dish or vase of water. They will last 3 to 4 weeks and even longer, depending on the condition of the camellia and whether or not the bloom gets bruised during waxing.

They may turn brown around the edges, fine, this gives it an antique look! I find blooms with open stamen wax prettier than blooms with tight and closed type stamens.

When cutting blooms to wax, be sure and leave at least 1 leaf, and not more than 3 (I have better luck with only 2 leaves on the bloom), it seems that you can manage to get two leaves waxed in place than you can 3, this is left up to individual. Cut bloom with about 2 inch stem.

Equipment and Material Needed:

1 double boiler or large coffee can (one that has plastic lid) placed in a pail of water
2 or 3-1 lb. boxes of household wax (depending on size of waxing container)
1 large deep bowl with ice water
1 thermometer—a must

Heat the wax and keep at 140°F—this is where you use the thermometer (this must be checked with thermometer and kept at 140°). Catch camellia by stem and immerse in heated wax, dip immediately in the bowl of ice water (remove the ice, just have cold water in bowl), place camellia on wax paper to harden. This only takes a few minutes. Be sure you have enough wax to dip camellia in without it hitting bottom or side of pot or can.

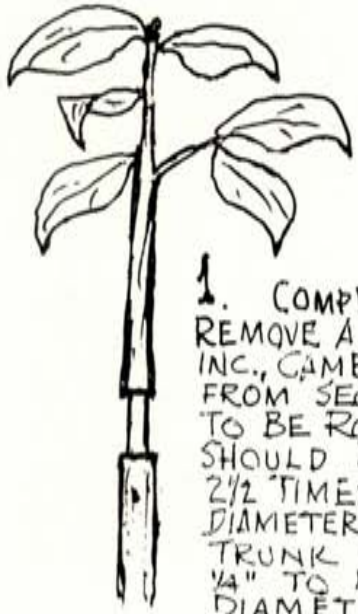
A few helpful hints: The coffee can is more convenient to use (if you have a pail it will fit into), after the wax cools, the plastic lid can be put on can and you have your wax any time you want to wax flowers.

Do not let water get into the melted wax. *Do not* melt wax directly over flame, it is flammable. *Do not* pour wax down the drain.

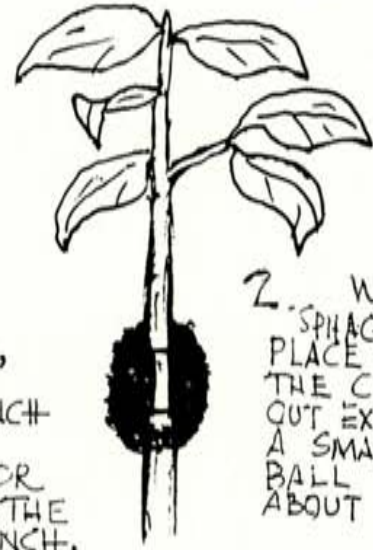
—CAROLINA CAMELLIAS—

Never trust a man who says he is the boss around his home. He may not be truthful about other things either.

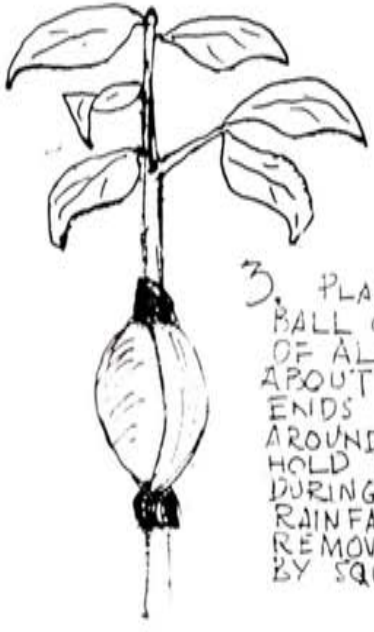
PROPAGATING CAMELLIAS BY -- AIR-LAYERING --



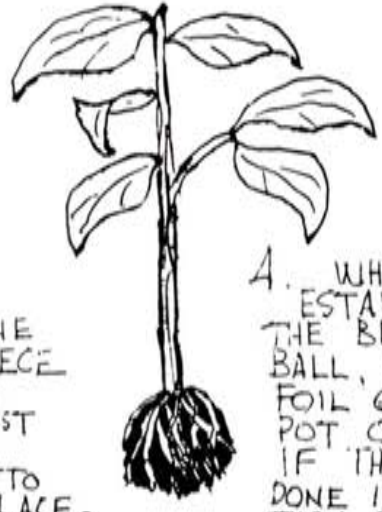
1. COMPLETELY REMOVE A RING OF BARK, INC., CAMBIUM LAYER, FROM SECTION OF BRANCH TO BE ROOTED. RING SHOULD BE ABOUT 2 OR 2½ TIMES AS WIDE AS THE DIAMETER OF THE BRANCH. TRUNK OF BRANCH MAY BE ¼" TO MORE THAN 1" IN DIAMETER.



2. WET A BALL OF SPHAGNUM MOSS AND PLACE IT SO IT COVERS THE CUT EVENLY. WRING OUT EXCESS MOISTURE. ON A SMALL PLANT THE BALL OF MOSS WILL BE ABOUT 2" IN DIAMETER.



3. PLACE AROUND THE BALL OF MOSS A PIECE OF ALUMINUM FOIL ABOUT 6" X 8". TWIST ENDS OF THE FOIL AROUND THE TRUNK TO HOLD THE BALL IN PLACE. DURING PERIODS OF HEAVY RAINFALL, IT HELPS TO REMOVE SOME OF THE WATER BY SQUEEZING THE BALL.



4. WHEN ROOTS ARE ESTABLISHED CUT OFF THE BRANCH BELOW THE BALL. REMOVE THE FOIL AND PLANT IN A POT OF GOOD SOIL. IF THE LAYERING IS DONE IN APRIL OR MAY THEY SHOULD BE READY TO POT BY SEPT OR OCT.

SCCS Spring Meeting at Clemson

The Spring Luncheon Meeting of the South Carolina Camellia Society will be held at the Clemson House, Clemson, S. C. on March 21, 1970. Mr. Frank Brownlee of Anderson has gone all out to make this meeting a big success.

Official activities will get underway with a tour of the Test Gardens, conducted by Dr. Luther Baxter, at 10:30 A.M. The Dutch Luncheon will be held at 12:00 noon, cost $3.50 per person.

Dr. Robert C. Edwards, President of Clemson University, will give the welcoming address. Dr. A. G. Plakidas, internationally known plant pathologist and author, will be the guest speaker.

Every one is urged to bring their blooms so that we can have a camellia display. Containers will be furnished for all blooms.

Members of our fellow societies and their guests are cordially invited.

For those who wish to spend the night, we recommend the Clemson House and the new Holiday Inn at Clemson.

Please make your reservations and send your luncheon check to Mr. R. F. Brownlee, Box 1170, Anderson, S. C. 29621, not later than March 18th 1970.

Dr. Antonio George Plakidas

By Jessie Katz
Covington, Louisiana

(Reprinted from the 1964 Camellia Yearbook)

Dr. Antonio George Plakidas was born on Iharia Island, Greece, on September 7, 1895. In 1912 he came to the United States where he entered the Mt. Hermon Preparatory School, founded by Dwight L. Moody, near Boston, Massachusetts. This was a self-help school where students earned part of their keep by working two hours a day. He had been in prep school only a year when the United States entered World War I and he promptly enlisted. He was a sergeant in the U. S. tank corps, being groomed for overseas duty, and was signed up with officer's training school when the war ended. After the war he became a U. S. citizen in 1918 and returned to prep school where he graduated in 1920 as Valedictorian of his class. He obtained the B.S. degree from the University of California at Berkeley in 1924 and the Ph.D. degree from the same institution in 1927.

Dr. Plakidas was employed by the Louisiana Agricultural Experiment Station in 1927 as an Assistant Plant Pathologist, specializing in the study of strawberry diseases. He was promoted to Associate Plant Pathologist in 1930 and to Professor in 1943. During this time he was married to the former Artemise Rhodes of Baton Rouge.

Dr. Plakidas is the author of over 100 scientific articles dealing with diseases of ornamental, fruit, and vegetable crops. Since 1950 his main line of research has been on diseases of ornamental plants. For this work he has received much recognition and it has attracted many graduate students to L. S. U. from other states. His research on camellias alone has been on such troubles as corky outgrowths, dieback, variegation due to viruses, flower blight, transmission of leaf and flower variegation by grafting, and strains of the color-breaking virus in the camellia.

The work of Dr. Plakidas on the breaking of the color in camellia flowers is a classic in the field of research on ornamental plants. He established the fact that the breaking of flower color in camellia was due to a graft transmissible virus rather than to "bud sports" (mutations) as was generally believed to be the case at the time. He also suggested the practical utilization of virus infection for breaking the color in single colored flowers as a means of producing new varieties. He later reported the presence of different strains of the color-breaking virus of camellias.

In 1960, Dr. Plakidas elected to retire from L. S. U. and now holds the title of Professor Emeritus.

Other Services

Dr. Plakidas' 31 years of Service to L. S. U. was interrupted for a two-year period when he served as an Agricultural Officer with the United Nations Relief and Rehabilitation Administration in Greece and Egypt during and immediately following World War II (1944-1946).

At present Dr. Plakidas is in the process of having a book published on strawberry diseases, and he is a Consultant to the Camellia Research Advisory Committee and a Fellow of the American Camellia Society. In addition, he is registered with both Baton Rouge hospitals as interpreter in his native Greek tongue—a service often used because of the many Greek ships that put into port at Baton Rouge, Louisiana.

Relaxation

He has his own camellias to work with and a camp at Grand Isle, Louisiana for his favorite sport—fishing.

Organizations

He is a member of the following:

1. American Phytopathological Society. He is a past president of the Southern Division and a past Associate Editor of the National Journal, Phytopathology.
2. Sigma Xi.
3. American Camellia Society.
4. Mycological Society of America.
5. Louisiana Academy of Sciences.

—CAROLINA CAMELLIAS—

To err is human but when the eraser wears out before the pencil you're overdoing it.

Preliminary Report on the Use of Some Chemicals on Camellias

By Herbert Racoff, D.V.M.
Columbia, S. C.

This is a report on my own experimentation and observations of several chemicals and drugs that I have used on camellias during the past year. It should be emphasized that the use of the products written up in this article are experimental. Should you want to make some trials on your own it is urged that you adhere to all recommendations and warnings made by the manufacturer.

The 1968 Yearbook of the American Camellia Society, page 110, in an article by Colonel T. Durrant of New Zealand makes reference to benefits noted following the use of a systemic fungicide, Griseofulvin, in treating some reticulata plants that were severely affected with dieback. Dieback happens to be my number one camellia problem. Being a veterinarian and having a scientific educational background has encouraged me to seek for better methods of dieback control than are currently in use.

In these trials Fulvicin (brand of Griseofulvin, Schering Cop.) large particle size, 500 milligram tablets, were used. This is a prescription drug that is prescribed for oral use in animals and humans against certain fungus infections. It is claimed the drug is fungistatic rather than fungicidal which means it inhibits the growth of the fungus rather than kills it. The drug is taken by mouth and deposited in newly growing skin, hair and nails in a concentration sufficient to inhibit the growth of the fungi. The fungi are still living but do not invade the newly growing cells. As the skin, hair and nails continue to grow and are shed or cut they are replaced by normal structures free from fungi.

In the course of these experiments, wherever possible, cankers were exercised and the plants treated by local application, or spraying with fungicides, prior to the use of Fulvicin. In some cases it was not possible to exercise the cankers down to healthy tissue and they were left alone. Two 500 milligram tablets of Fulvicin were

crushed and applied to the soil in the container. The soil was then thoroughly watered. One 500 milligram tablet was similarly applied weekly for the next three weeks and then one tablet monthly. Dying back of new shoots practically ceased after a month of treatment and extensive healing occurred where cankers were completely excised. Where cankers were left alone there was little or no extension and in some cases the cankers had started to heal over after several months of treatment. Varieties such as 'TIFFANY' highly susceptible to dieback showed no evidence of dieback when kept on Fulvicin.

Daconil 2787, Diamond Alkali Co., is a fungicide recommended for turf, roses, chrysanthemums, geraniums and iris. It is available commercially. Daconil is a nonmecurial fungicide and no spray adjuvants are necessary. It may be mixed with other wettable powder fungicides and insecticide formulations. 1½ tablespoonsful per gallon of water was applied as a spray during April and May, every 14 days. Indications are that Daconil may prove very effective when used as a spray to control dieback.

Dupont Fungicide 1991, 50% wettable powder is not commercially available. The manufacturer claims this product to be effective against camellia petal blight. I have tried it only for its fungicidal activity against dieback. 1 tablespoonful per gallon of water was used once a month as a spray. ½ tablespoonful of Surfactant F was added to each gallon of spray material in accordance with the manufacturer's recommendations. Benlate is a white crystalline powder, insoluble in water and oil. I have not used the product long or often enough to draw any conclusions.

For some time I have been bothered by the growth of algae on the stems and leaves of camellias growing in the greenhouse and by algae growing on the wood frame of the greenhouse. These have been successfully controlled with Amphyl (Lehn and Fink). Amphyl is a hospital disinfectant which has strong bacteriacidal and fungicidal activity. In other words, it has the ability to kill bacteria and fungi and their spores. In mild solutions it has been used in humans and animals to irrigate wounds and body cavities. It is available as a red liquid which is freely water soluble and can be sprayed. It is also available as an aerosol in a spray can. I have used the aerosol on grafting tools during grafting. As a spray I use 10 to 20 cc per gallon of water. (2½ to 5 teaspoonfuls).

For the past two years I have used Di-Syston (Chemagro Corp.) applied to the soil to control scale, aphids, mites and other sucking insects on camellias. Di-Syston is also marketed under the trade name of Scope. It is available as a granular formulation, mixed with fertilizers or as an emulsion concentrate. I have used the granular formulation. Dy-Syston is a true systemic. Applied to the roots of the plant it is moved to all parts of the plant through natural growth and sap flow. Working from inside the plant it kills sucking insects that feed

on the plant. The chemical is most effective when the plant is actively growing. It is effective from four to six weeks after application. I have used it both in containers and on plants grown in the ground. One to two tablespoonfuls were used for plants in containers up to three feet in height and two to four tablespoonfuls for plants three to six feet. Applications were made in March, May and July, about six weeks apart. My plants in the ground, unprotected, are all large, five feet up. In the case of these plants two to four handfuls were scattered in the mulch around the plant. Following applications of the DiSyston to the soil all the plants were thoroughly watered. To date this is the most effective insecticide I have found against peony scale and it is most effective against aphids. However, in my experience it has been only partially effective against tea scale.

This year, during August, shiny green, thickened areas were noticed on the bottom surface of some of the Camellia leaves of container grown plants. The top surface of those leaves showed pin point roughened areas. These plants had all been treated with DiSyston. I have never observed this kind of lesion on camellia leaves in the past. Identical lesions have been late this summer on container grown camellia plants of other growers in South Carolina and Georgia. Invariably, all these plants had been treated with DiSyston during the spring and summer. During late August and September the affected plants showed considerable defoliation and bud drop. Certain varieties seemed to be much more susceptible to damage, especially plants of the 'Tomorrow' and 'Betty Sheffield' families. When these plants came into bloom, it was quite obvious that the blooms were smaller than normal and in general inferior.

At this time, I would in view of these observations not recommend the use of DiSyston on container grown plants. Since no harmful effects have been seen on plants grown unprotected, in the ground, I feel that these plants can be treated with a minimum of risk. Perhaps dosages as small as one teaspoonful to a plant grown in a three gallon container applied once during the growing season, and this during March or early April, would prove to be effective and safe. Further study and experimentation is indicated.

—CAROLINA CAMELLIAS—

Coastal Carolina Camellia Society Show

January 30-31, 1971, has been set for the Spring Show of the Coastal Carolina Camellia Society in Charleston, S. C.

The President of the South Carolina Camellia Society requests that all camellia groups planning a show during the next season call him collect 766-2463. Maybe we can resolve some of the conflicting show dates.

—CAROLINA CAMELLIAS—

Keep smiling; it makes everyone wonder what you're up to.

The Fragrance in Camellias and the Fragrant Camellias

By Dr. Chun T. Ling

(Reprinted from The Pioneer Camellia Society News)

Fragrance in camellias is a characteristic cherished by those who love and grow these plants. It has been known that blossoms of Camellia Sasanqua and C. Hiemalis all have some odor; certain varieties more distinct than others. But many people do not care for the musky odor of this group. Camellia *Reticulata*, *C. Saluensis*, and *C. Pitardi* seem to be without scent in their flowers. Some varieties of Camellia Japonica blooms have subtle but very pleasant fragrance. In the Camellia Nomenclature 1968 and elsewhere the following cultivars are described as 'fragrant':

'Fragrance'—
Light rose, peony form, medium.

'Fragrant'—
Red, large full peony, spicy fragrance.

'Fragrant Frill'—
White, blush or pink, large anemone form.

'Fragrant Jonquil'—
White, medium anemone form.

'Fragrant Striped'—
(Colonial Lady)
White with rose red stripes.

'High Noon'—
Red, large, semi-double, fragrant.

'Kramer's Supreme'—
Turkey red, large, full peony.

'Scented Treasure'—
Rose red to wine red, medium, full peony, fragrant.

Although the intensity of fragrance in flowers varies according to temperature, light, humidity and time of the day, the sweet scent in C. *japonica* listed above is subtle at best, often below the detection threshold of human olfactory. Attempt to improve the fragrance of *C. japonica* by intercrossing the more fragrant cultivars by Drs. A. E. Longley and Clifford R. Parks did not yield significantly more fragrant progenies than parent plants or the most scented varieties of *C. japonica*.

However, in recent years several new species with distinct and pleasant fragrance became available. Although all of them have rather small, single white flowers they provide new sources of fragrance for hybridization with other species having larger and more beautiful blooms. The 3 new fragrant species presently available in this country are:

1. 'Camellia Lutchuensis': This new species was imported from Okinawa by the U. S. Department of Agriculture. Flowers are white, single, rather small but with exquisite sweet fragrance. The plant has small sharp-

pointed leaves and slender, drooping stalks. The young leaves are reddish colored.

2. 'Camellia Tsaii': The small white flowers of this species have sweet fragrance as strong as and rather similar to that of *C. Lutchuensis*. The plant originated in Southern China; resembling *C. Lutchuensis* in its general appearance but said to cross more readily with other species than does *Lutchuensis*.

3. 'Camellia Fraterna': Flowers are white or whitish lilac and fragrant but slightly less intense than the previous two species; a profuse bloomer, leaves small pointed elliptic with serrations black tipped; a native of Central China.

As a result of controlled hybridization or chance crossing several new varieties, which combine sweet fragrance with beauty of color, form and size in blooms, have been introduced to the public during the past few years. Some of these are described as follows:

'Fragrant Pink': This was developed by Dr. William L. Ackerman of the U. S. Department of Agriculture; controlled hybridization between *C. Lutchuensis* (pollen) and *C. Rusticana* 'Yoshida'. The deep pink peony-form blooms 2½"-3" in diameter and 1½" in depth with distinctive sweet fragrance similar to that of *C. Lutchuensis*. Blooms in greenhouse from November to June. Like *C. Lutchuensis* the plant is fine-twigged with spreading and arching branches. Leaves 2¼" long, light green with distinctive markings; young leaves are reddish colored.

'Scentsation': A chance seedling introduced by the Nuccio Nurseries in 1968. The flowers are large silvery pink, peony form and sweetly fragrant. Blooms early to midseason. The plant is upright compact in growth with waxy dark green leaves about 3" long.

'Fragrant Star': Flowers white, large, semi-double with long narrow center petals; fragrant; leaves dark green slender; medium upright growth.

—CAROLINA CAMELLIAS—

A Chinese Garden

A chinese scholar, long ago, proclaimed to his students that:

If you wish to be happy for a day, get drunk.
If you wish to be happy for a week, kill a pig.
If you wish to be happy for a month, make a visit.
If you wish to be happy for a year, get married.
But if you wish to be happy forever, build a garden.

To the ancient Chinese, a garden was a place of peace and a refuge from the noise and cares of the world. It was carefully planned and secluded, well planted. It was a replica of paradise.

The Chinese scholar had two elements that influenced his life-Yang and Yin . . . Yang represented heaven, rocks, man, mountains, light, and the good. Yin was seen in water, darkness, woman, trouble. The gardener always thought Yang when tending his garden.

Gardens had places apart for gladness, or sadness, for listening. All had names referring to the flowers, shrubs, or trees about, the Chinese ideal being to seek solitude for the refreshment for the soul, and that is why they built their gardens as they did. Through the centuries China has been called the Mother of Gardens.

Camellia Problems, Past and Future

By Dr. Luther W. Baxter, Jr.
Clemson, S. C.

The decade of the 1960's has given much to camellia enthusiasts. Numerous new varieties have been released; new methods have been developed for disease, weed, and insect control, and our knowledge of the basic genetics and growth requirements of the camellia plant have increased.

As in all previous decades in the 20th century, new and interesting varieties have been added to the large number of cultivars now in existence. Because of the infinite colors and forms in cultivars already being propagated, varieties which offer something new and interesting to the consumer are becoming more difficult to develop. However, the 60's had such outstanding varieties as 'Tiffany', 'Wildfire', 'Clark Hubbs', 'Erin Farmer', 'Elegans Supreme', 'Grand Slam', 'Miss Charleston' and literally dozens of others developed and released. In addition to new varieties of *Camellia japonica*, outstanding new varieties of *C. sasanqua* and *C. reticulata* and interspecific hybrids were made available to the public. These new varieties have added much diversity in form and color to those already in existence.

It is probable that the decade of the 60's will be remembered as the 'gib era' of camellias. Although gibberellic acid was available in the 50's, it was not generally available to the camellia enthusiast until the 60's. This one contribution, the chemical and information on its use, probably did more to promote camellias and to enhance their effectiveness than any

previous single contribution. Certainly the fall shows are living testimony to the many varieties which respond beautifully to its use.

Another very significant contribution, during the decade of the 60's which also had its inception and early development in the 50's, was the development of systemic insecticides. There are literally dozens of new systemic insecticides (some with miticidal activity in addition) now experimentally available. This development is a decisive thrust forward for combating scale insects and mites.

Other contributions of noteworthy importance were made in the field of genetics by Dr. Clifford Parks and others, in plant pathology (specifically the unravelling of virus variegation of flowers and foliage by Dr. A. G. Plakidas), in weed control, in fertilization, and propagation by physiologists and horticulturists.

There are still several problems which plague both the amateur and professional camellia grower. It is admitted that better practices are needed in the area of plant pathology for control of the following diseases: (1) Glomerella dieback and canker; (2) Sclerotinia flower blight; (3) Phytophthora root rot; (4) Exobasidium leaf gall; particularly of Camellia sasanqua cultivars; (5) virus leaf and flower variegation; (6) various nematodes attacking camellias, and (7) several seedling problems. Other problems need attention in the coming decade, one of which is to develop cold resistant varieties. The geneticist, horticulturist, and plant pathologist all need to cooperate fully on this problem so that camellias may be extended to new areas and new forms may be developed which are adapted to existing areas. For example, new cultivars of formal doubles are needed for the Piedmont section of North and South Carolina; cultivars adapted for out-of-doors are needed for areas of Tennessee, Virginia, North Georgia, and other areas where outdoor camellias do not do well. The list of problems could obviously be extended to include the need for either improved safe herbicides or new methods to properly administer those compounds courrently on the market. For the control of specific problems, there are compounds and methods already in existence but an educational program is needed for their implementation.

Several questions have arisen regarding the nature of Gomerella dieback and its relation to canker. The disease usually begins at a leaf scar, and the fungus enters through this natural wound. Usually the infection occurs at the time of young shoot development in the early spring, an occurrence which corresponds in many varieties with the shedding of the subtending leaves. However, infection can occur through various types of wounds such as insect, mechanical, etc., and especially those made by man by cultivating implements, pruning shears, lawn mowers, graft wounds, etc. After infection of susceptible varieties occurs through the leaf scar tissue, the fungus rapidly invades and kills the surrounding

cells. Since the young developing shoot tissue is very tender and succulent, it is particularly vulnerable to the invading fungus. These young shoots usually are killed a few days after infection occurs and this is typically the dieback phase. When infection occurs and kills the very young developing shoots, frequently the young leaves turn black and drop off leaving only the naked twig. The period of time required for infection to kill these shoots depends on temperature, age of the tissue when infection occurs, and variety. After the twigs have hardened on some varieties, it is difficult to artificially induce this type of twig dieback. Regardless of whether or not the subtended twig dies, the disease progresses as the fungus continues to invade nearby tissue. As the stem tissue is killed, the surrounding healthy tissue continues to grow and thus the dead tissue (which obviously does not grow) is left and gradually takes on a sunken appearance. In many instances the surrounding healthy tissue responds by growing with a flattening or flaring manner. This is the stage which persists from season to season and it is this structure on which the fungus fruits, usually during cool, wet periods in the early spring. Splashing raindrops scatter the small, microscopic spores of the fungus at random, and if some of these spores land in a wound of a susceptible camellia during periods of favorable temperature, the disease is perpetuated. On many varieties ('Ville de Nantes', 'Tiffany', 'Cleopatra', 'Cherokee', etc.)

the diseased area continues to enlarge and finally enough of the stem tissue is dirupted so that, particularly during stress periods, stem dieback results. In many varieties, particularly on resistant types in which the cankers heal, this last stage (stem dieback) does not occur. Also, when cankers occur on very large stems, the cankers may enlarge for years before final stem dieback occurs. Stem dieback is usually more serious on certain varieties of young, actively growing plants, either grafted or growing from cuttings. The progress of the disease then is (a) infection, (b) twig dieback, (c) canker formation (with fungus fruiting) and finally (d) stem dieback. If the canker is on the main stem, then obviously the disease is more serious than if it occurs on a lateral branch.

The fungus is confined to the discolored tissue and control can be effected by removal of this tissue. The problem arises however from the difficulty in detecting all of the young cankers that may not have advanced adequately for detection. Since a canker usually affords a good opportunity for the fungus to produce masses of spores, the probability is therefore good that additional infection is present on a plant containing one or more cankers. It is hoped that this lengthy discussion will clear up some of the misconceptions regarding the relationship of dieback and canker on camellias.

While the nature of Glomerella dieback and canker has been understood since the early 50's, only limited success has been achieved in its control. The general methods currently recommended include selection of healthy scions, the use of disease-free understock (preferably sasanqua seedlings), pruning out of diseased wood, prevention of scars from lawn mowers and cultivating implements, avoidance of overhead irrigation when practical, use of tolerant or resistant varieties and the use of fungicides during grafting operations (Captan at 2-3 tablespoonfuls per gallon of water). Also, the use of healthy cuttings dipped in Captan suspension and rooted in a clean rooting meidum is desirable. Currently at Clemson preliminary evidence indicates that certain cultivars have a type of resistance that needs to be exploited. For example, the *C. sasanqua* varieties 'Daydream' and 'Setsugekka, have the capacity to heal over when either artificially or naturally inoculated. Both of these varieties warrant further testing, which is currently being done. For example, 5 varieties of camellias, including *C. sasanqua* cultivars 'Setsugekka', 'Agnes Soloman' and 'Mine-No-Yuki', have been artificially infected with strains of Glomerella isolated from cankers on *C. reticulata*, *C. japonica* and *C. sasanqua*. It should be noted that occasionally susceptible plants such as *C. sasanqua* cultivar 'Cleopatra' heal. Much more work is needed before this concept can be fully utilized in camellias. *Camellia japonica* cultivars 'Governor Mouton' and 'Professor C. S. Sargent' are also resistant by the above mentioned mechanism. Other

varieties respond similarly and efforts are being made currently to determine which varieties respond in this manner and what factors trigger the healing response.

Greenhouse crosses between 'SETSUGEKKA' and other varieties have been made; over 100 one-year-old seedlings of 'DAYDREAM' are currently being grown for testing. In addition several hundred seed from 'DAYDREAM' and 'SETSUGEKKA' have been planted so that their progeny can be evaluated for their response to *Glomerella*, the fungus causing dieback and canker.

Work at Clemson regarding Sclerotinia flower blight is being directed toward enhancing chemical control by more thorough ground coverage. For example, it has been found that fruiting bodies of the fungus responsible for flower blight (*Sclerotinia camelliae*) develop much more readily when the sclerotia are under a canopy of such ground covers as English ivy, Ajuga, periwinkle, etc. Also, it is much more difficult to get adequate coverage of the soil with recommended ground sprays (PCNB, etc.) when ground cover plants form a dense canopy over the germinating sclerotia. Herbicides, such as paraquat, and flame throwers are being used this year in an attempt to expose the ground so that sprays can possibly be more effective. Last year's work revealed that none of 12 modern fungicides were effective in preventing sclerotial formation on infected flowers when applied either as a drench or as a spray. Further work

using other chemicals will be tried this year.

The only work currently being done on Phytophthora root rot, caused by the fungus *Phytophthora cinnamomi*, is screening of *Sasanqua* seedlings for response to disease development. In general, *C. sasanqua* varieties are resistant to root rot, while *C. japonica* varieties are susceptible. The disease is much more common on flat, poorly drained soils, but it should be kept in mind that little leaf of pine is caused by the same fungus and this disease is widespread in certain Piedmont soils. Since pine canopies are common for providing partial shade for camellias, it should be recognized that this disease is not restricted to the coastal areas. More and more *Camellia japonica* varieties should be grafted onto *C. sasanqua* understocks. In general *C. sasanqua* varieties are very sensitive to Glomerella dieback and canker, but, as mentioned earlier, 'Daydream' and 'Setsugekka' show promise of being resistant.

Exobasidium leaf gall can be particularly troublesome on *C. sasanqua* varieties. The disease is more troublesome where *C. sasanqua* varieties are grown under dense shade and in wet or damp areas. However, the disease during certain years can give the appearance of being severe even in the open. Since the disease occurs only during the spring and usually affects only 10% or less of the developing buds, it really causes little damage. Spray studies are underway to determine whether or not sprays applied after disease expression (monthly intervals for 3 months) are as effective as sprays applied before disease expression. It is somewhat easier to get people to spray right after a severe attack than to do so before the symptoms appear. There is a tendency to forget from year to year. Information on this problem should be forthcoming this year.

Virus induced flower and leaf variegation, as opposed to genetic induced variegation, may be desirable on some varieties, but in others the high percentage of leaves with extreme variegation causes slower growth and susceptibility to winter kill. An obvious method of controlling this problem is to select scions and cuttings from known virus free plants and to graft the scions onto virus free understock. There are some varieties of *C. sasanqua* such as 'Mine-No-Yuki' which do not show virus infection symptoms either in the flowers or in the leaves. Therefore it becomes difficult to select understock which is known virus free. Seedlings, however, are free of virus infection and it is hoped that progeny of 'Setsugekka' and 'Daydream' will be resistant to dieback and root rot and can therefore serve as understock for grafting *C. japonica*. To maintain virus free plants it becomes necessary to label and keep records on the donor plant (scions). It has been demonstrated that natural root grafts between camellias growing in close proximity can afford a mechanism for virus transmission provided, of course, that one of the two plants is virus infected.

An approach toward virus elimina-

tion has been to submerge cuttings or scions in a constant temperature water bath at different temperatures for varying periods of time. For the past two years this has not worked since the virus persists up to the lethal point of the cuttings and scions. This year a slightly different approach was taken to attempt to eradicate virus from infected wood. Scions or cuttings were exposed to temperature beginning at 42.5°C on the first day, 45°C on the second day, 47.5°C on the third day and finally 50°C on the fourth day. Controls were exposed at only one temperature, such as 50°C, 45°C, etc. The period of exposure was 1 hour. By giving daily increments of increasing temperatures, those cuttings exposed on the fourth day to 50°C for 1 hour were able to survive, while controls exposed only to 50°C for 1 hour did not survive. There is no assurance that this procedure will work and results will be slow in coming since flowers and foilage will need to be evaluated for a period of several years.

A few studies have been made with nematodes, particularly the root knot group. Camellias are not considered to be susceptible to the root knot nematode, but one of the primary problems so far considered has been the reaction of camellias when grown in close proximity to a very susceptible plant. In the garden, for example, a camellia may be growing near such a plant. Roots of susceptible hosts provide a continuous source of root knot larvae and these in large numbers appear to cause a reduction in

vigor. This condition has also been found to hold for rhododendron, dogwood, and magnolia. One important point concerns the continued use of ground covers under camellias. For example, Ajuga is sensitive to root knot and this can continue to provide inoculum and thus cause damage. At this point, before various ground covers, including lawn grasses, can be recommended for use under camellias, much more information is needed. At the present time we are cautiously suggesting that only mulches be provided for camellias. Materials such as pine straw, sawdust, and pine bark make attractive and suitable ground mulches for camellias.

Seedling problems to date are not serious, but certain precautions should be exercised in growing camellias from seed. Currently we have for various experimental purposes about 2500 seedlings which were started in a regular 1-1-1 soil-sand-peat mixture (by volume). The seed were planted in 1 gallon cans (25-35 seed per can) in September and the seedlings allowed to grow until the following April or May, at which time they were transplanted singly into No. 5 cans. These plants were then grown for one year in the greenhouse and then transplanted into No. 2 Lerio cans (May) and placed outside under lath. Many seedlings were killed by various soil-borne fungi, particularly *Rhizoctonia*. A series of tests using several fungicides as a seed treatment are currently in progress.

While the above represents some of the activity currently underway at Clemson, it is also encouraging to note that other institutions are also studying camellia disease problems. Perhaps during the decade of the 70's healthier camellia plants will constitute a significant advancement.

—CAROLINA CAMELLIAS—

ADDAGE—The three great essentials of happiness are something to do, something to love, and something to hope for.

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CERTIFICATE OF ANALYSIS

	Percent
Moisture	11.00
Nitrogen	0.41
Equiv. to Ammonia	0.50
Available Phosphoric Acid	0.00
Insoluble Phosphoric Acid	0.05
Total Phosphoric Acid	0.05
Equiv. to Bone Phosphate of Lime	
Potash (K_2O) (Available)	0.00
Free Phosphoric Acid (P_2O_5)	
pH of Water Slurry 4.5	

HARDWOOD BARK ANALYSIS

CERTIFICATE OF ANALYSIS

	Percent
Moisture	18.00
Nitrogen	0.53
Equiv. to Ammonia	0.65
Available Phosphoric Acid	0.00
Insoluble Phosphoric Acid	0.10
Total Phosphoric Acid	0.10
Equiv. to Bone Phosphate of Lime	
Potash (K_2O)	0.70
Free Phosphoric Acid (P_2O_5)	
pH 3.5	

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