THE AZALEAN

Journal of the Azalea Society of America

Volume 8 Number 3 September 1986

AZALEA SOCIETY OF AMERICA

The Azalea Society of America, organized December 9, 1977 and incorporated in the District of Columbia, is an educational and scientific non-profit association devoted to the culture, propagation and appreciation of the series *Azalea* (subgenus *Anthodendron*) of the genus *Rhododendron* in the Heath family *(Ericaceae)*.

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THE AZALEAN

The Journal of the Azalea Society of America, Inc.

Dr. Charles H. Evans, Editor

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Volume 8 No. 3 September 1986

IN THIS ISSUE:

ASA'S 1986 GARDEN STATE PARTY

One hundred ASA members and their guests gathered in Morristown, New Jersey during May 16-18, 1986 for the eighth ASA Annual Meeting and Convention. Centered at the Headquarters Plaza Hotel, the convention offered a weekend of lectures, plant sales, garden tours, and informal gatherings. These events, arranged by members of the Robert Gartrell Chapter, were enhanced by the party atmosphere which convention chairman Mal Clark had promised.

The Friday evening opening ceremonies began with welcoming remarks from Jerry Goodman, president of the Robert Gartrell Chapter. ASA president John Rochester next discussed the continuing spread of ASA conventions from the Middle Atlantic chapters to Alabama, New Jersey, and next to Oregon. He thanked all who were contributing to the endowment of the society to provide a sound financial basis for the future and issued a challenge for each member to sign up a new member during 1986-1987. He also cited the Society's participation during the past year in the review of the manuscript for *All About Azaleas, Camellias and Rhododendrons* published by Ortho Books and in the continued improvement of *THE AZALEAN*. Allan Anderson introduced Dr. Joseph Peterson of Rutger's University, who spoke on petal blight and other disfiguring diseases of azaleas. After Dr. Peterson's presentation, a plant sale opened in the adjoining room. For the duration of the convention it featured a wide variety of four inch to one-gallon size container grown azaleas.

Saturday dawned sunny and mild. After an informal gathering for continental breakfast, members and guests boarded buses for the Leonard J. Buck Garden which is situated about one-half hour west of Morristown in Far Hills, New Jersey. Created in a glacial age valley by Mr. Buck in the first half of the twentieth century, this unique rock garden has been administered since 1976 by the Somerset County Park Commission. Mr. Buck had an interest in the relationship of plants to mineral deposits from his training as a mining engineer, and he was intrigued by the rock outcroppings in the valley as well as by the brook that sprang from the plunge pool of ancient Lake Passaic. He decided to create an aesthetic alpine setting with an extensive collection of rock plants. Under the guidance of landscape designer Zenon Schreiber, a dam was built, paths were laid, and outcroppings were exposed or reconstructed until the valley had been transformed with native and imported plants into an impressive garden. In 1950, the National Association of Gardeners made one of its rare awards of a Gold Medal to Leonard Buck for his outstanding contributions to horticulture.

Coffee and pastries were served at the garden Visitor Center, and then tours were conducted of the garden which occupies an area of a little more than a quarter of a mile in diameter. A number of paths wind through areas filled with wild flowers, ferns, annuals, and perennials among which are interspersed extensive plantings of traditional rhododendron and deciduous and evergreen azalea varieties. Many of the azalea plantings, particularly in the azalea meadow area, are fully mature and spectacular in their breadth and height—often reaching twelve feet. *R. williamsianum,* 'Gibraltar', *nudiflorum, roseum, oblongifolium, mucronatum,* and many other azaleas are outstanding in their arrangement amongst plantings of Japanese primrose, *trillium,* sweet woodruff, *virburnum commontusum marseii,* Ohio buckeye and other springtime flowers, shrubs, and trees.

After the Buck garden, the buses traveled to the Frelinghuysen Arboretum, which is just minutes from the center of Morristown. The arboretum occupies what for many years was known as Whippany Farm, a country home of the Frelinghuysen family. The main house, which now serves as the administration building, was constructed in 1891 by business magnate and senator George Griswold Frelinghuysen. Since the death of this daugther Matilda E. Frelinghuysen in 1969, the property has been part of the Morris County Park System. William MacPherson, a landscape consultant from Trenton, New Jersey, designed the first plantings. An accurate record of the estate, as seen through MacPherson's eyes, has been preserved and records the plantings which were installed soon after Whippany Farm was established. The estate continued as a working farm into the 1960's and approximately 127 acres now form the Frelinghuysen Arboretum.

Upon arrival at the arboretum, ASA members were treated to a marvelous buffet luncheon prepared and served by members of the Robert Gartrell Chapter on the porch of the Frelinghuysen home. After a leisurely repast in the adjacent formal gardens with their spectacular 'Raccatil' tree peonies in full bloom, the arboretum horticulturists led the members through the various areas of the arboretum which include a number of fully mature rhododendron and deciduous and evergreen azalea hybrids in hillside, valley, and wooded areas.

Later in the afternoon after returning to the hotel, members were treated to a splendid social hour with an appetizer buffet, cash bar and music by the Morris Baroque Trio, featuring flutist June Clark. Following the social hour, about eighty members and guests attended the convention dinner and evening program. The annual meeting opened with remarks by Jerry Goodman and

Mal Clark following which John Rochester presented the Charter of our newest chapter to Delmarva Chapter president Gordon Severe.

Bob Carlson, the speaker for the evening, was introduced by Mal Clark and by Polly Hill as she recited the following poem which she had written while traveling to the meeting.

> Anticipation's half the fun
> This mid-May bash is such a one.
> But since it's Carlson who will speak
> Reality will pass the peak.
>
> We're looking for the best of shots
> Of petals plain or some with spots.
> We'll learn what's hardy up my way
> Tomorrow's plants we'll see today.
>
> Airport poetry by
> Polly Hill
> May 15, 1986

Bob's talk, "Northern Grown Azaleas," was a delightful mixture of his now famous rhymes and a historical commentary describing the development of growing hardy azaleas up north with his wife Jan. Many of his favorite old and new varieties he illustrated with slides, some which had been taken by his daughter Sue who along with Jan were guests for the evening.

The annual meeting continued with unanimous adoption of the proposed changes to the society's by-laws and election of society governors previously listed in the March issue of *THE AZALEAN*. The final event was presentation by John Rochester of the Society's first Distinguished Achievement Award accompanied by a framed caligraphed certificate to past governor and founding member George W. Harding. It was a splendid evening and special thanks go to Mal Clark for the arrangements that also included a continuous slide show of Robin Hill and Gartrell hybrids and display of large azaleas in containers that decorated the convention area.

After continental breakfast at the hotel on Sunday morning, Helene and Jerry Goodman hosted the convention for a tour of their azalea garden accompanied by coffee and Helen's marvelous pastries. This was followed by a buffet luncheon at the hotel where Ryon Page was introduced as president and Mal Clark as chairman of the Board of Governors for the next year, which will end with the Ninth ASA Convention and Annual Meeting to be held during late April 1987 in Eugene, Oregon.

Charles H. Evans

THE AZALEA CALENDAR

September 20, 1986
Glenn Dale Preservation Project Workday
9:00 a.m. Plant Introduction Station
Glenn Dale, Maryland
Contact: Roger Brown (301) 577-7509

September 22, 1986
Brookside Gardens Chapter Meeting
7:30 p.m. Sligo Community Center
Silver Spring, Maryland
Contact: Buck Clagett (301) 869-1059

October 11, 1986
Delmarva Chapter Meeting
Polly Hill speaking on Azaleas and Companion Plants
1 p.m. Rehoboth Art League
Rehoboth, Delaware
Contact: Gordon Severe (301) 945-2912

October 18, 1986
Glenn Dale Preservation Project Workday
See September 20.

October 19, 1986
Richmond Virginia Chapter Banquet
Contact: Page Calisch (804) 272-5195

November 15, 1986
Glenn Dale Preservation Project Workday
See September 20.

December 8, 1986
Brookside Gardens Chapter Annual Meeting
Contact: Buck Clagett (301) 869-1059

April 29-May 1, 1987
9th ASA Convention and Annual Meeting
Eugene, Oregon
Contact: Eleanor Stubbs (503) 638-5048

May 1988
10th ASA Convention and Annual Meeting
Washington, D.C.

THE AZALEA CALENDAR lists upcoming Society and chapter activities. Items to be included should be forwarded to the Editor together with name, address, and/or telephone number of contact person(s) at least three months prior to the month of publication of *THE AZALEAN* in which the notice is to appear.

PETAL BLIGHT AND OTHER DISEASES OF AZALEA

Joseph L. Peterson
New Brunswick, New Jersey

Everyone appreciates perfect flowers or foliage on their azalea plants. Unfortunately, certain diseases make these beautiful plants unsightly. Diseases of azalea that are of most importance to the azalea fancier and gardener will be discussed in this article.

AZALEA PETAL BLIGHT

Ovulinia or azalea petal blight, which appears only on flowers, is one of the most devastating diseases of azalea. The disease is also known as Ovulinia flower blight, azalea flower blight, or azalea flower spot. The disease, caused by *Ovulinia azaleae* Weiss, was first reported in South Carolina in 1931 and spread rapidly during the 1930's throughout the southeastern states and Texas wherever azaleas were grown. The disease was reported in the mid-Atlantic states in the 1950's. It was generally thought the petal blight fungus would not overwinter in the more northerly states except in greenhouses, where it had been previously reported. The disease in northern greenhouses was carried on plants shipped in from the South and perpetuated in plant debris in the greenhouse where it was often a serious problem for commercial flower growers. During the late 1960's, the disease was established in outdoor plantings in New Jersey and later found in Connecticut, Rhode Island and southern New York. Although it occurs in California, it has not been officially reported in the Pacific Northwest. The disease has also been reported from Australia, New Zealand, Japan, Great Britain, Switzerland, Belgium, and France.

Since the flowers are the only part of the plant that are infected by the fungus, the disease is of more concern among azalea fanciers, consumers, and greenhouse growers, than among nurserymen. Why the disease became important in outside gardens of the northern states in the last 15-20 years has been attributed by some to changing climates but more accurately to the greater interest and more intense growing of azaleas in these areas. The fungus inoculum potential is always greater when a higher concentration of plants occurs.

Infected flowers first show small water-soaked spots. These spots may occur on petals as they just begin to open. The spots enlarge rapidly and become slimy to the touch or when gently rubbed between the fingers. Generally, most flowers are affected and become limp two to three days after infection when disease conditions are optimum. The lower flowers are generally affected first and often flowers at the top of the plant may not show the disease. Diseased flowers turn prematurely brown and generally cling to the plants longer than non-infected flowers. Small white spots soon appear on the dried flowers, and the spots slowly turn blackish. These black raised spots develop into the sclerotia which represent an overwintering stage of the fungus. Usually two to five sclerotia will develop on a single flower. The infected flowers generally fall to the ground during the summer months or may adhere to the plant throughout the year. Sclerotia do not form on flowers where *Botrytis* or insects have caused the spots. There are not Ovulinia disease symptoms on the vegetative parts of the azaleas.

The initial infection spots on the petals can be confused with spots caused by the fungus *Botrytis* or insect feeding punctures. The typical slimy feel of the Ovulinia disease is not present and the spots do not expand as much with *Botrytis* infection. Insect feeding spots, when observed with a lens, show tearing of the tissue or a small hole in the center of the spot. Insect induced spots do not enlarge like Ovulinia-caused spots.

The fungus may overwinter as sclerotia, and in the spring, during the beginning of the host blooming stage, the sclerotia germinate and give rise to small, cup-shaped apothecia (3-10 mm tall). The apothecia contain ascospores which are discharged, become airborne, and are carried to nearby exposed petals. Primary infection occurs when the ascospores germinate and penetrate the flower. The importance of sclerotia and apothecia in the infection and overwintering process is not clear, since researchers in certain azalea growing areas of the world have never observed apothecial formation.

After primary infection, colonization, and breakdown of the flower tissue, conidia form on the fungus mycelium permeating the infected flowers. The two-celled conidia, as they are produced, push through the cuticle and form a many-spored layer on the petal surface. The conidia are then spread by splashing water and wind to adjacent flowers and plants. Insects may also carry and spread the conidia from flower to flower. Experiments in New Jersey indicate conidia are generally carried less than 100 feet from where they were first formed, and most likely because of the weight of these spores, they are carried only a few feet. Like ascospores, they germinate and penetrate the flowers after landing on them. This represents the secondary infection part of the disease cycle and is the cause of the most significant spread of the fungus or disease. As more flowers are infected, more conidia that are formed in three to four days are produced. The later flowering azaleas are then infected as the conidia are carried to these flowers. Since there is an apparent lack of apothecia formation in some azalea growing areas, the role of conidia or vegetative mycelium as possible overwintering structures may be more important and is being studied.

Infection is greater when periods of frequent precipitation and warm temperatures coincide with azalea flowering. Heavy dew in the mornings or extended periods of misty weather are particularly favorable to spore germination and flower infection in both primary and secondary infections. In general, lower temperatures at the beginning of the flowering period and dry conditions towards the end of the flowering period most likely reduce the infection potential of the Ovulinia fungus.

The disease and life cycle of this fungus is not completely understood. Spermatia and receptive spines, which represent aspects of the sexual phase of the life cycle, have been observed in nature at times; however, the mechanism or function of these structures has not been completely followed or demonstrated in the laboratory. A proposed life cycle is shown in Figure 1.

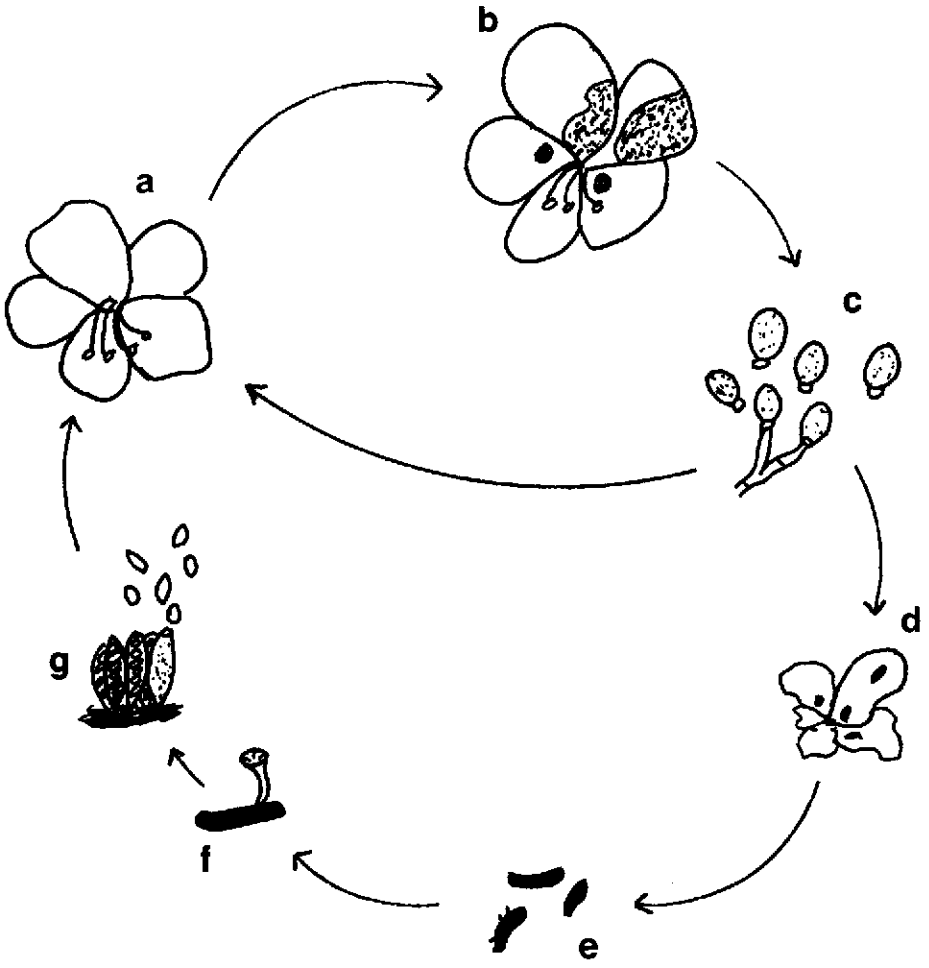

Figure 1. Live Cycle of Ovulinia Petal Blight
a. Primary infection of young azalea flower by ascospores. b. Infected flower with blight symptom. c. Conidia formed on diseased petal. These conidia are splashed or carried to adjacent flowers and initiate secondary infection. d. Diseased petals adhere to azalea or fall to ground after sclerotia are formed at end of flowering period. e. Sclerotia are dormant through summer, fall, and winter and act as resting bodies. Sexual reproduction which is not clearly understood occurs during this period. f. Apothecia containing asci and ascospores may form in spring during flowering time. g. Asci in an apothecia discharging ascospores into the air which in turn are carried to newly opening flowers and initiate primary infection.

The disease was apparently first noted on the Belgian-Indian azaleas. The Kurume azaleas, according to some growers, are not as susceptible. In general, most native azaleas are susceptible or can at least be artificially infected. Most growers believe that nearly all azaleas are susceptible to the disease, and if inoculum and weather conditions are favorable, they may be infected. The large-flowered rhododendrons and other members of the *Ericaceae* family such as mountain laurel and blueberry are naturally infected by *Ovulinia*.

Control of the disease is best accomplished by keeping the fungus out of your azalea plantings. This can be accomplished by not introducing disease-carrying plants into your planting or at least quarantining plants to be introduced until they have been ascertained to be disease-free. Sprays applied at or just before bud opening have offered a means of blight control. In general, sprays of benomyl (Benlate) or triadimefon (Bayleton) at weekly intervals throughout the flowering period have controlled the blight and inhibited sclerotia formation. Chlorothalonil (Daconil 2787) and Triforine have also been effective in some disease control tests. Combination sprays of chlorothalonil and benomyl have been effective in grower tests and may reduce the chance of fungus resistance development to the fungicide. Correlating spray intervals with weather conditions favorable for disease development may be helpful but not always practical. Sanitation measures such as the removal of diseased flowers, when practical, is a method of reducing the inoculum potential for infection and can help maintain disease-free gardens. Cooperation among growers in a given area in controlling the disease will help reduce the problem.

POWDERY MILDEW

Powdery mildew is not a serious disease on azalea but on susceptible cultivars can be unsightly. Our experiments have shown a reduction of azalea growth and at times flowering over a period of two to three years if the disease is not controlled. Deciduous azaleas are generally more susceptible to mildew than other azaleas and will tend to lose their leaves sooner if appropriate fungicides are not applied. Young plants especially grown in the greenhouse may be seriously affected if a fungicide program is not followed.

Disease symptoms include the development of white powdery spots of mycelial growth on the leaf surface. Depending on the susceptibility of the cultivar and with favorable weather the mycelium can completely cover the leaf. In some azalea cultivars, the mildew may occur on the lower leaf surface only. After the mycelial covering has developed on the leaf, single-celled conidia form in chains on the mycelium. These are produced by the thousands and are carried by the wind to adjacent plants where they incite new secondary infections. As the summer progresses, small black fungus fruiting bodies (cleistothecia) containing ascospores form on the mycelium. The fungus apparently survives the winter and dry periods in this form or as dormant mycelium on old leaves. The following spring, in most growing areas, the ascospores are released from the cleistothecia or conidia are formed on dormant mycelium, and these spores are carried by the wind to young developing leaves where they germinate and cause the initial or primary infection. The exact nature of the overwintering process has not been clearly demonstrated. A proposed life cycle is shown in Figure 2.

The disease is favored by warm temperatures (25°C day/15°C night) but can progress and be serious at lower temperatures. Young leaves are generally more susceptible to the disease than older leaves. *Microsphaera alni* DC. ex Wint [= *M. penicillata* (Wallr. ex Fr.) Le'v.] and *Erysiphe polygoni* DC. are the casual organisms of this disease and can live actively only on the living host plant. One must observe the appendages on the fungus fruiting bodies and the formation of conidia microscopically to tell which fungus is present. There are several azaleas that are powdery mildew resistant. Selection and planting of these resistant cultivars can offer the best means of disease control. When desired, mildew can be controlled with protective fungicides such as benomyl (Benlate), triadimefon (Bayleton), Triforine, or dodemorph acetate (Milban) applied at weekly to 10-day intervals.

LEAF AND FLOWER GALL

Leaf and flower gall is generally not a serious disease of azalea but at times can be troublesome in both greenhouse and outdoor plantings. The disease was particularly serious in New Jersey in 1986 and is widespread on azalea in the United States. The disease, sometimes called "pinkster gall", is said to have been found originally on the Pinkster azalea. It is particularly serious on azaleas grown in poorly aerated greenhouses and is commonly found along the shore areas of the United States but can be a problem in inland areas as well. The disease occurs on petals and young stems but is most commonly found on leaves or parts of leaves. Affected leaves begin to thicken or appear overly fleshy at the infection points. The developing galls are shapeless, bladder-like, and measure one to two inches in diameter. The galls at first are greenish to pinkish, depending on the host, and are initially soft and succulent. Later a whitish fungus growth covers the gall surface. As the galls mature they slowly turn brown, shrink, and become quite hard.

The disease is caused by *Exobasidium vaccinii* Wor. in the United States, while in Europe *E. japonicum* Shirai is listed as the casual organism. There are several *Exobasidium* species listed on various hosts throughout the world, and taxonomists feel that most species are inadequately described. The fungus is said to overwinter as spores in bud scales but most likely overwinters as systemic mycelium in the host plant. Spores germinate and the mycelium infects the young buds as they expand in the spring. As the mycelium permeates the leaf or petal tissue, the infected plant parts develop the swollen galls. When the gall is still soft, the fungus breaks through the epidermis and sporulates on the gall surface giving it a white cast. These basidiospores are carried by wind and splashing rain to nearby plants where they germinate and cause secondary infection. Infection is dependent on high moisture in the form of

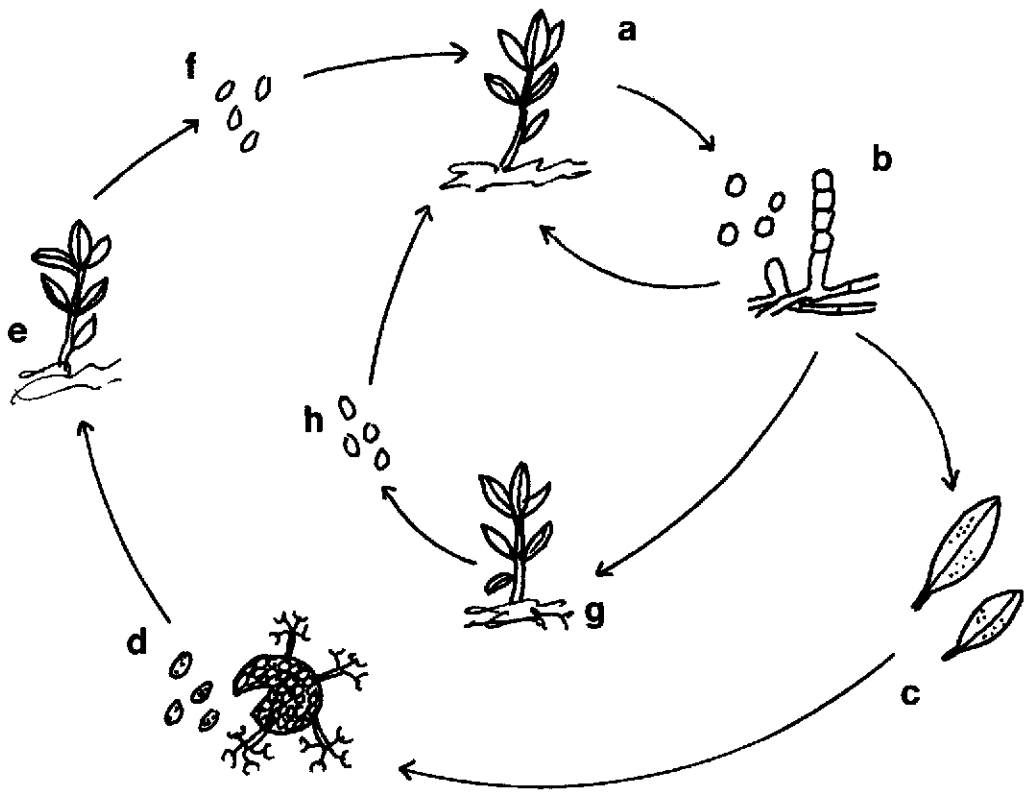

Figure 2. Possible Life Cycle of Azalea Powdery Mildew
a. Infected azalea plant. b. Conidia formed on mycelium covering leaves. These conidia are wind dispersed to nearby plants and initiate secondary infection. c. Infected leaves with fungus fruiting bodies (cleistothecia) formed in late summer and fall. Leaves fall to the ground in deciduous azaleas. d. Close-up of fruiting body with characteristic appendages. Ascospores are released in spring and carried by wind to adjacent bushes where primary infection occurs. e. Ascospores germinate and infect newly formed leaves. Characteristic superficial mycelium and conidia form on the leaf. f. Conidia will induce secondary infection. g. Mycelium may remain dormant in bud tissue, become active in the spring, and produce conidia. h. Conidia produced on plants infected with dormant mycelium. These conidia will initiate primary infection.

rain or humidity at bud break time. Leaves are most susceptible when less than a 1/3-inch long, and lower leaves are generally affected first, depending on the available moisture.

Two other *Exobasidium* species can cause diseases of members of the rhododendron family. *E. burtii* Zeller is listed as the cause of yellow leaf spot and *E. vaccinii-uliginoisi* Boud. as the cause of certain witches broom or bud proliferation symptoms. These two diseases are of minor importance and have seldom been observed.

In general, the gall disease does not warrant extensive control measures. Reducing humidity in greenhouses when possible or avoiding free moisture on the leaves will reduce infection. When practical, the disease can be controlled quite effectively by picking and destroying newly formed galls before they become white. In general, the fungus has resisted applications of different fungicides, and although some recommendations list various fungicides for disease control, fungicides generally are not effective. Selection and propagation of less susceptible cultivars for your area may offer the best means of disease control.

BOTRYTIS BLIGHT

This disease caused by the fungus *Botrytis cinerea* Pers. ex Fr. can be confused with symptoms of Ovulinia petal blight. The disease is more serious on plants grown in humid greenhouses then on outdoor grown plants.

Petal infection is characterized by small spots similar to initial *Ovulinia* infection spots. If extremely humid or moist conditions prevail, the spots enlarge and may coalesce. The infected petals do not feel as slimy as petals infected with the Ovulinia fungus. During periods of high humidity, the fungus may sporulate profusely on the diseased petals giving a gray moldy appearance, hence the name "gray mold." The fungus spores are spread rapidly by air movement or wind to nearby plants. When conditions are favorable, the fungus can move from old infected petals or senescent plant parts into young emerging stems and leaves, causing leaf blotch or die-back of the young succulent tissue.

Since the fungus survives on plant refuse under the bushes or in the greenhouse, sanitation measures such

as cleaning up the debris offer a means of reducing the disease potential, especially in the greenhouse. If the disease potential is serious enough, sprays with fungicides such as Benomyl (Benlate), iprodione (Chipco 26019) or vinclozolin (Ornalin) are effective when applied at bud break and at full bloom.

DIE-BACK

Die-back of azaleas can be caused by various fungi in addition to *Botrytis*. *Botryosphaeria* and *Phomopsis* are often associated with this shoot die-back. Generally plants that are stressed, such as from drought, are more susceptible to infection. These organisms generally enter through wounds such as stem splitting resulting from freezing damage in the winter. Controlling die-back caused by *Botryosphaeria* and *Phomopsis* is accomplished best by reducing summer moisture stress and winter freezing damage in azalea. Plants are less susceptible to these organisms when kept in good growing condition and protected from environmental conditions. Fungicide applications have not been very effective in controlling this disease.

Species of *Phytophthora* can also cause die-back in azaleas planted outdoors and have the potential to cause severe loss, especially in nursery plantings. Mycelium arising from germinated zoospores can infect leaves and spread into young succulent shoots causing a die-back. The fungus moves much slower into older woodier stems. Rhododendron seems to be more susceptible to this disease than azalea. Moist, warm (24-28° C) conditions favor infection by the zoospores. The zoospores, formed on the fungus mycelium, develop on wet leaves under the azaleas and are splashed by rain or irrigation water to the foliage.

Phytophthora die-back control can be enhanced by keeping foliage as dry as possible and avoiding puddling of water beneath plants where inoculum can be splashed onto the foliage. Applications of fungicides that protect the plant from leaf infection can be helpful. Fungicides such as mancozeb (Manzate 200 or Dithane M-45), Captan, or chlorothalonil (Daconil 2787) can prevent infection if applied as a protectant.

RUST

Azaleas or rhododendrons are subject to various rust diseases, depending on the host species. Rust diseases caused by species of *Pucciniastrum* and *Chrysomyxa* can be serious at times on azaleas, particularly certain deciduous cultivars, growing in well-established gardens. Small circular chlorotic spots appear on the upper leaf surface and are generally the first rust symptoms observed. Small yellow to orange spores containing pustules form on the lower leaf surface in late summer and fall. Infected leaves generally drop prematurely.

Rust fungi have complex life cycles and can at times produce as many as five different spore stages. Some rusts require two different hosts to complete their life cycle. For example, *Pucciniastrum myrtilli* can produce uredospores and teliospores on azalea and spermatia and aeciospores on hemlock. The uredospore is the repeating spore and is generally responsible for secondary infection and spread of the disease in the azalea plantings. The aeciospore formed on the hemlock in the spring will infect the azalea and represent the initial or primary infection. Some rusts will bypass the aeciospore stage and uredospores that have overwintered or systemic mycelium may act as the primary infection cause.

Rust can best be controlled by planting resistant cultivars or applying suitable fungicides. Where alternate rust hosts are known and if practical, control can be achieved by removing these hosts from all areas immediately surrounding the azalea planting. Applications of triadimefon (Bayleton) or mancozeb (Dithane M-45 or Manzate 200) as a protectant beginning with the first appearance of the disease and at weekly intervals will generally give good disease control.

Disease control in azaleas is best accomplished by cultural practices or by using resistant varieties when possible. Fungicides mentioned in this article are given as examples for disease control. In all cases, growers should consult their local or state extension service for regulations governing the use of these fungicides in their growing areas and for other effective fungicides that may not have been mentioned in this article.

Dr. Joseph L. Peterson is Professor of Plant Pathology at Cook College-NJAES, Rutgers University, New Brunswick, New Jersey 08903. He is a Fellow of the Mycology Society of America and is an authority on fungus diseases of azalea and rhododendron.

NORTHERN GROWN AZALEAS

Bob Carlson
South Salem, New York

For 17 years, in fact until just about a year ago, I was a full-time, traveling computer software salesman and, unfortunately, only a part time nurseryman. This meant that my wife, Jan, found herself in the role of full time manager of the nursery that I had started as a result of my enthusiasm for fragrant azaleas—especially when I was on the road, which was much of the time!

Well, one spring evening, a few years back, as I was sitting alone at a nearly empty bar at the Los Angeles Airport Marriott and wishing I was back home with my family AND my azaleas, the following thoughts popped into my head, and I'd like to share them with you. I called it "No Waiting":

If you've walked into a nightclub
When there isn't any hubbub,
Excepting one bartender, you and booze,
You can rest assured he's going to say:
"You're the victim of the Should Have Been Here Yesterday,
But Wait Until Tomorrow's Action Blues."

To avoid this in your garden,
Make sure blooms are always startin'
When selecting the azaleas that you use—
So your guests won't have to hear you say:
You're the victim of the Should Have Been Here Yesterday,
But Wait Until Tomorrow's Action Blues."

And I realized as I was going through my collection of slides, trying to decide which ones to share with you this evening, that this is a wonderful chance to share with you, not just the ones that are in bloom at this moment but many of my favorites. And it's a chance to share not just some of my favorite azaleas but also some of my favorite nursery rhymes.

For who was it that said "You may take the boy out of the nursery, but you can't take the nursery out of the boy..."? So I'll start with—

Peter, Peter, pumpkin eater.
Bought a 'zalea, but couldn't keep her.
Got her in a florist shop—
One year later, what a flop!

Nice at first, but no repeater;
It died without a winter heater.
Next time he'd better try our metre—
Carlson's azaleas do not, Peter.

To put my comments about our northern grown azaleas in persepctive, I'd better let you know how cold it gets at Carlson's Gardens; geographically, we're located 50 miles north of New York City in the northeast corner of Westchester County, three miles from the state of Connecticut. The U.S.D.A. Plant Hardiness Zone Map places us in Zone 6a with an average minimum temperature of -10 degrees. And when those winter winds are howling, it's plenty cold for both azaleas and dogs.

Of course, our wintry weather can be unpredictable and unseasonable. These are pink *mucronulatum* that got caught by an April 17 snowfall. They are favorites of ours because they are both our first to bloom and can also come back from a freeze, like this one, and put on another show with the buds that weren't open when the frost, or in this case the snow, hit them.

We particularly like to mix the many shades of both soft and bright lavenders and pinks. They don't all bloom at exactly the same time. And they make wonderful cut flowers for the house.

Which brings to mind a thought that maybe not everyone here has yet discovered:

> "The best time to prune an azalea is when it's in bloom—That way you're not disturbing next years blossoms; and you're doubling your enjoyment with some bouquets for inside the house."

The very soft pink on the left is one of our favorites. We call it 'Pink Peignoir'.

So what kinds of azaleas can we grow here in the frigid North? Well, perhaps not quite as wide a selection as some of you folks from down South. Still, at last count we were growing more than 1200 named varieties and species of both azaleas and rhododendrons. Which is certainly a few more than our friend, Ephraim Caine, should be trying. You see—

Ephraim Caine is from down Maine
where the pine and 'taters grow—
Where majestic pine mostly winter fine
unless broke by ice and snow—
Where potato eyes soon make French fries
or that Russian alcohol—
Where there's few long days with growing ways
as the Spring turns into Fall.

Well one cold March Ephraim had the starch
to take his missus South,
And the blooms they saw before Maine's first thaw
left them both with open mouth.
So of course they yearned, after they returned,
to grow azaleas there;
But from what he'd heard, it would be absurd—
No conservative would dare.

Then he found our verse and soon disbursed
an order for roseum,

Which with poukhanense showed permanence;
now his neighbors, too, could see 'em.
So from henceforth, if you live up North,
and just remember Maine's
Colder yet than most states get,
you'll succeed at raising Caine's.

But what else can we grow at Carlson's Gardens?

Let's look again at one part of our gardens that we refer to as our "Gable Azalea Walk" because it contains some of Joe Gable's very hardy varieties. Unfortunately, our names for beds are not always quite so logical. Do any of you also have a "Vegetable Garden Bed" that now contains azaleas instead of vegetables? Oh, well...

The season starts in this garden with the very hardy Gable azalea, 'La Roche', and its magenta red flowers. Then in quick succession come 'Old Faithful', 'Corsage', 'Olive', 'Rose Greeley', and 'Big Joe'. The bright pinks are the Kaempferi azaleas 'Fedora', 'Whitelegg', and 'Othello' and Joseph Martin's beautiful 'Dolores'. In addition to Gable's 'Rose Greeley', the whites in this bed are 'Polar Bear', 'Delaware Valley White', 'Kathy', 'White Lady', 'Annamaria', and a *mucronatum* hybrid of ours we call "Take The Time'. The soft pink is the Glenn Dale, 'Illusion'. The low growing purple is Girard's 'Sandra Ann'.

Now let's look at some of them close up:

- Gable's 'Old Faithful' is about four feet in 15 years, a nice orchid pink that carries as pure pink in some lighting and as a definite lavender pink in others.

- Gable's 'Corsage' is a soft lavender that is a taller and more open grower.

- 'Olive' is a low and spreading Gable azalea that was selected and named by George Lee for his wife. George was the brother of Frederic Lee, the author of *The Azalea Book*.

- 'Big Joe' is a light purple that can get very tall over the years. The plant from which we obtained our original cuttings must have been at least 12 to 15 feet tall in George Lee's Connecticut garden.

- 'Fedora' is a bright pink Kaempferi that is especially showy and makes a great cut flower (several large branches make a wonderful bouquet.) It's a personal favorite!

- 'Illusion' is a Glenn Dale that George Lee said was one of the hardiest Glenn Dales in his garden, and it has been in ours, too. Most people who see it love its soft shades of pink.

- 'Dolores' is a very hardy, vibrant pink that Joseph Martin of Painesville, Ohio, introduced in 1974, saying that it had "withstood temperatures to a minus 20 degrees."

- 'Springtime' is one of Joe Gable's earliest and hardiest. A bright pink, it blooms even before 'La Roche'.

- 'Karen' is a bone hardy, low growing, bright purple that we sometimes see available commercially.

- 'Nudiflora Pink' came to us from Orlando Pride and is a most unique color; "antiqued" or "old fashioned" are terms that come to mind when I try to describe it. Another personal favorite.

- 'Mme. Butterfly', a Deerfield Hybrid, a white with lavender tinting and edges has also proved to be a favorite with many of our customers.

- We obtained this lovely lavender pink from Frank Abbott of Bellows Falls, Vermont, who said it was the hardiest pink evergreen azalea he could grow. We named it 'Yankee Doodle' and introduced it for the first time in 1976, in honor of our Centennial.

- Gable's T-4-G is a little beauty that started opening in our rock garden yesterday. I can't imagine why it was never named. I measured our plant yesterday: in 10 years it is almost 20 inches high and a little over three feet wide, all with little or no pruning. It is a compact pink gem!

I'm going to pause at this point to offer a few words of sympathy for those of you who have been suffering through one of the driest springs in memory. We've had a dry one, too; but not as dry as the season a few years back that inspired these words of hope:

Mrs. Jeremiah Aloysius
Withington III
Hesitated planting because
she said her gardener heard
On the telly and the radio
and everywhere about
Of the horticulture difficulties
brought about by drought.

But down the street her neighbor,
Mrs. Jimmy Jones I,
Hesitated not and was
preparing for the worst—
Everytime that she
or Mr. Jimmy took a bath
She'd ladle out the water
for her plants along the path;
And every time she finished
washing dishes in the sink
She'd get a pail of water
for the plant that needs a drink.

Well, it wasn't very long before
her neighborhood all heard,
Even Mrs. Jeremiah
Withington III,
Who promptly told her butler,
when he washed the St. Bernard,
To save the dirty water
for her posies in the yard.
But when she called her garden club
and loyally explained,
It rained...

So you see there's hope!

Having had the effrontery a little earlier to suggest to this assembled group of experts the best time for prun-

ing azaleas, I'm now going to be so bold as to suggest a way of minimizing the need for pruning. At least for the kind of drastic renovation that calls for cutting back a third of an overgrown plant each year. We call it "Facing Down":

Foundation plantings overgrown?
Face 'em down!
Detracting from your lovely home?
Face 'em down!
If leggy shrubs with knobby knees
Now resemble forest trees,
Azaleas placed in front will please—
Face 'em down!

It's easier than lopping back—
Face 'em down!
Or moves that jeopardize your back—
Face 'em down!
Just make that bed a little wider
So your new low one's the outsider,
To cover up and be the hider—
Face 'em down!

With those thoughts in mind I'm going to show you our new group of *mucronatum* hyrbrids that we call our "Face 'Em Down Azaleas". As one of our customers pointed out to me, that's not a very elegant name for them, but we think it describes one of the best landscape uses for them.

Here are three of them taken several years ago. They are in full bloom right now and have filled out much more than they were the year this picture was taken. Unfortunately, Kodak takes "a week to 10 days" to get slides back to us so I can't show you how great they look now. Nor can slides possibly describe the marvelous fragrance that a planting like this treats us to as it matures.

The plant on the left we call 'Baby's Blush', the one in the center is 'Early Erroll' (named for a favorite Erroll Garner record, not for Errol Flynn), and the one on the right is now renamed 'Sweet Maiden's Blush".

- This is 'Early Erroll'. Although it opens with this touch of pink, it carries in the garden as a white.

- This is 'Sweet Maiden's Blush' and it carries as a soft pink.

- 'Baby's Blush' has an even dainter flower and is a lighter blush pink.

- 'Supersuds' has the largest flowers of the group and is almost a pure white.

- 'In A Mist' may just be our favorite. Here is a close up of it. Jan describes it as a being like a watercolor wash.

But they all have the attributes of starry-shaped flowers and a delightful fragrance. And frankly, I prefer the soft blend of colors in a mixture of clones such as these to the glaring, unrelieved white of a planting of 'Delaware Valley White'.

- I've saved till last what some might consider the black sheep of this particular family but again it's one of my personal favorites. I call it 'Pink Patootie' and guess I like it particularly for its unusual shade of pink. Our stock plant of 'Pink Patootie' is about three feet high and five feet across in 15 years.

I would be remiss if I didn't share with you pictures of at least a couple of Polly Hill's azaleas.

- 'Lady Locks' is a *macrosepalum* hybrid with fuzzy, sticky leaves that are unlike any other azalea we grow. And it seems to us to be even more fragrant than our *mucronatum* hybrids.

- This is 'Hot Line'. Polly has described it as "just a wee bit hot purply red". It blooms in June and gets to be 18 inches by 48 inches wide in 16 years.

Having shown you these evergreen azaleas that have proved hardy enough for us over the years for us to continue growing them commercially as well as for our own garden, I should offer a few words of caution based on some 18 years of growing azaleas in the North. Despite repeated requests to sell small liners, it remains our policy not to.

And I think I can express it best in verse:

A smallish plant from a smallish pot
Is best not shipped, no mattter what!
Mortality rates the first few years
Can reduce a pocketbook to tears.
Post-natal care can not be cursory;
Most infant plants still need a nursery.

But when an azalea comes of age
Suddenly the world's its stage!
From the terrible two's a move's less shocking,
Reducing the need for Dr. Spocking.
It helps to know the plants your startin'
Have graduated Kindergarden!

So much for the evangelistic side of this little talk.
For those of you who want to start with hardier varieties I'm going to pose some questions:
Who's on first? What's on second? No. . .

Who was the first hybridizer to grow
Azaleas that score after forty below?
What kind of azaleas are second to none,
Fulfilling all bases of comparison?
Lest this third degree tempt you say, "I don't know."
Try the game winning answer that's most apropos—
"Hey, A - A - BBOTT!!!"

Many years ago I visited with Frank Abbott in Bellows Falls, Vermont, and came away with both seeds and cuttings from his 40 or more years of hybridizing for hardy azaleas. Here are just a few of the deciduous clones that we have selected and named to date:

- 'Abbott's Rose Ruffles' is a soft ruffled pink that is now about five feet tall and three to four feet across.

- Out of the same seed lot came this little beauty that we called 'Starfire'.

- This little gem went under the name of 'Abbott's Yellow No Name' for several years after my daughter,

Sue, took this picture without tagging the plant in the nursery and none of us could remember which plant it was. It has since been refound and was renamed 'Sparkle Plenty' for inclusion in Fred Galle's azalea book.

The next two were named when I was on a nostalgia kick wishing I could change my style of piano playing to be like Jerry Lee Lewis.

- I called this screaming rose red, 'The Killer'
- And this low growing off-white, 'Little Queenie'.

Now just in case any of you have had any hardiness problems growing evergreen azaleas and are reluctant to try any of the wonderful deciduous varieties that are available, let me relate to you a fairly recent experience by our long-time friend, Mrs. Withington:

Mrs. Jeremiah Aloysius
Withington III
Was not enthusiastic
as she solemnly conferred
With her gardener about what to do
with fifty new azaleas,
For many she had tried before
succumbed as winter failures.

"I loved them at the florist's
in those lovely shades of red;
Yet no matter where we put them,
by Spring most all were dead.
I wanted kinds that kept their leaves
instead of those that don't;
But my husband's mother's letter
says she ordered ones that won't!
Instead of wasting time again
I think we'll just forget them—
I'll see if Mrs. Jones's husband
wants to come and get them.

No sooner had she offered
and put down the telphone
Than Mrs. Jimmy Jones I
had lugged them home alone;
And by the time that Mr. Jimmy
got home after work,
He found all fifty planted
and a knowing wifely smirk.

The winter cold was dreadful,
but those plants came through it all—
And when they started blossoming,
you know who had a ball.
Their blooms were so spectacular,
the Joneses both concurred,
They had to show them first
to Mrs. Withington III,
Who once again discovered
that she hadn't fully reckoned
On the vaunted expertise
of Mrs. Withington II.

So if you need some super hardy azaleas or want to indulge yourself with some colors that aren't available in the evergreen azaleas, I would urge you to consider some of these deciduous azaleas. First some of our own selections:

- 'Carlson's Coral Flameboyant' is an early blooming form of *calendulaceum* that appeared in both *Flower & Garden* and *American Horticulturist* this spring.
- 'Janice Monyeen' is a soft scrumptious soft fragrant yellow Exbury hybrid that I named for my wife, Jan.
- This is 'Susan Monyeen', a lovely pink Mollis hybrid named for my daughter, Sue.
- This delicately shaded pink Ghent hybrid is also named for Sue. We call it 'Mlle. Sue'.
- This intensely fragrant Exbury hybrid is appropriately named 'Heaven Scent'. Fred Galle describes it as "white, flushed pink, light yellow on upper lobe."
- This is 'Sunny-Side-Up', a white Exbury with a yellow yolk, and nicely fragrant.
- This is a new soft colored Ghent that we call 'Creme Fraiche'.

Since we've been known to refer to ourselves as "Your Fragrant Yellow Azalea Seller" I thought I would show you two more of our new yellow hybrids.

- 'Carlson's Gold Nuggets' is a fragrant vivid yellow Exbury.
- 'Moon Melons' is a very large flowered yellow hybrid of *calendulaceum* by *flavum* that blooms as late as mid-June.

Now for some of my favorite named deciduous azaleas from other hybridizers:

- This is Orlando Pride's 'Peach Sherbert' with a name that described it beautifully.
- This is Art Knuttle's 'Banana Split' - also appropriately named.

Now for some beauties named for the ladies:

- 'Annabella' - a very fragrant deep golden yellow with dark bronze foliage.
- 'Barbara Jenkinson' is a tall growing soft orange.
- This luscious soft pink is the variety we know and love as 'Cecile'. It is obviously not the 'Cecile' sometimes described as a vivid red with a vivid orange yellow blotch.
- 'Norma' is a late blooming double rose red with a salmon glow.
- 'Gallipoli' is a large flowered watermelon red Exbury.
- 'Golden Eagle' is a bright orange Exbury with a yellowish-orange flare.
- Now one of my favorite Mollis Hybrids, 'Samuel T. Coleridge'. It is a lovely soft pink that is almost translucent when the sun is behind it. This is another view of 'Samuel T. Coleridge'.
- 'Golden Oriole' is a brilliant yellow Exbury with a deep orange blotch.
- This picture of the Exbury, 'Iora', was taken by Sue and is one of our favorite slides. It carries in the garden as a creamy white.
- 'White Cap' is one of the best llams we know. Unfor-

tunately it is difficult to find commercially.

- And 'Sunrise' is also one of the best orange flams, but like 'White Cap' seems to have been dropped by wholesale growers.
- 'Cannon's Double' is a new double pale pink that we like very much.
- 'Evening Glow' is a frilled soft pink tinged with light yellow. Like 'Norma', it changes color as it ages.
- 'Sham's Yellow' is a frilled lemon yellow that is deservedly fairly widely available.
- 'Royal Lodge' is probably my favorite of all the Exburys. A large deep red that is later than most Exburys, the eight foot plant of 'Royal Lodge' that is at the end of our terrace perfumes our yard with an intense clove scent from late May into early June. A real treat!

I'm afraid time doesn't permit me to show you most of the native azaleas of which we're particularly fond. But I'd like to close by relating to you one person's experience with one of our favorite species. Again it concerns our old friend Mrs. Withington, who I should probably explain is a composite of some of our favorite customers. Incidentally, I'm told this verse will be reprinted in the near future in *The New England Farm Bulletin*. And hopefully it will prompt some of you to try this species, if you haven't already.

Mrs. Jeremiah Aloysius
  Withington III
Always leaves for Maine each year
  about June 23rd
With several cats and dogs, the cook,
  and just a maid or two—
"It's still a trifle chilly,
  but one does what one must do!"
A single day of summer
  south of Maine is quite unheard
Of, when you have a pedigree
  like 'Withington III'.

Meanwhile back in Upper Crust
  her garden scene is quiet,
Since plants are only authorized
  to hold a Springtime riot.
"What's the use of summer blooms
  that I'm not there to see?"
But can you guess whose gardener
  left behind did not agree?
Who after many bloomless summers
  went June 24th
And bought azaleas that would bloom
  while Withington was North?

But is so happens that he chose
  some fragrant arborescens,
Which next year were the source of
  one of Nature's harsher lessons—
That trips are more precise than blooms,
  he hadn't fully reckoned,
For arborescens in full bloom
  on June the 22nd
Not only got the trip to Maine
  historically deferred,
But got him three more weeks that year
  of Withington III.

Robert L. Carlson is a veteran member of the Azalea Society of America and one of our most northern members with extensive experience in the growth and propagation of deciduous and evergreen azaleas. Well known for his horticultural rhymes and anecdotes Bob has raised the culture of azaleas to a new art.

ASA NEWS AND VIEWS

PRESIDENT'S COLUMN

Some of our members recall a time when *THE AZALEAN* consisted of a small number of photocopied pages prepared from the input of a very few individuals. Once prepared, those pages were assembled, folded, addressed and mailed by another small group, sometimes by one dedicated member. Our present quarterly journal is built upon the efforts of such enthusiasts as early editors Nathan Fitts and Jack Shaffer and those who served in supporting roles, as well as on the dedicated efforts of the current Editor and his supporting staff.

It is obvious that a great deal of work goes into creating, producing and mailing each issue of *THE AZALEAN*. We are indebted to the present Editor both for his expertise and the substantial workload he carries in getting the journal out to each member.

As ASA members, we can assist the Editor and his staff in continuing to produce a quality journal by providing candidate items, short or long. In-depth articles from professionals and specialists are always welcome, but backyard gardeners can and need to contribute as well. Information that seems commonplace in one area of the country can be highly interesting in another. Your experience on hardiness levels or peculiarities of and growing conditions tolerated by a given clone will be informative to others. And members from one area to another need to be better informed than they presently are on chapter and other local azalea activities. We may each help as well by suggesting to those with specialities bearing on the azalea world that they present articles to the Editor for consideration.

We, as ASA members, have the means for contributing to the further success of *THE AZALEAN* by supplying or promoting candidate articles. It is perhaps incidental, though important, that in so doing we will be easing the lot of the Editor.

Ryon Page

DISTINGUISHED ACHIEVEMENT AWARD

Earlier this year, the society's awards committee, under the chairmanship of Mal Clark, recommended to the Board of Governors that the society establish a Distinguished Achievement Award to recognize truly exemplary contributions to azalea horticulture by an individual or group of individuals. The Board approved the establishment of the award to be presented as deemed deserving at annual meetings of the Society.

The first Distinguished Achievement Award of the Azalea Society of America was presented by President John Rochester at the 1986 annual meeting of the Society to George W. Harding, past governor and a founder of the Society. The award was accompanied by a framed hand calligraphed certificate which carried the following inscription and citation:

Azalea Society of America
1986
Distinguished Achievement Award
George W. Harding

"Few fields have enjoyed so powerful a positive force as you George. In the azalea community authors, breeders, collectors, growers, organizers, managers, all must enlist your aid to succeed. And so it has been for well over a quarter century. You and your garden have been our school.

As the preeminent collector of our time, the excellence of your work has redefined collecting itself, legitimized the endeavor, and spawned a new generation dedicated to bearing your torch into the next century.

Though countless anonymous gardeners have you to thank for both great variety and accurate labels, those in the colder climates have a special debt. Your study of azalea hardiness has, in its diligence and imagination, both extended and enriched azalea country. In this, few breeders are your peer.

The Society, too, has a special debt. The record shows "founder and three-term governor," but this is a pitifully inadequate description of the service you have so selflessly rendered. Our growth, our very existence, has relied on your principled humanity and wise counsel. Thank you."

signed: Ryon A. Page, Chairman of the Board. John U. Rochester, Jr., President.

CHAPTER NEWS

The Brookside Gardens Chapter has had a very active year. At the annual meeting in January 1986, Buck Clagett was elected president, Warren Groomes vice-president, and Charlie Evans secretary-treasurer. Buck Clagett also was awarded the fourth Frederic P. Lee Commendation by the chapter for his outstanding service to furthering the horticulture and appreciation of azaleas. In March, Tony Dove, past Society president and horticulturist at Londontowne Publik Gardens in Edgewater, Maryland described his visit to some of the gardens in England and some of the ideas he had gathered for future implementation at Londontowne. In April, Mrs. Frances Patterson-Knight who, has judged many of the chapter's azalea shows, demonstrated to the members how to groom an azalea spray for display and shared some of her experiences with Ben Morrison and her slides of good and bad home garden designs.

The chapter's seventh annual azalea flower show under the leadership of Denise Stelloh was held during May 2-4 as part of the Landon Azalea Garden Festival in Bethesda, Maryland. Over 200 azalea sprays and plants were exhibited with Bill Miller winning best in show for 'Rivermist' and Heather Evans receiving the sweepstakes award for the most points from ribbons in horticulture. The show also included a marvelous display of artistic designs and a number of educational exhibits including an outstanding display of companion plants synthesized by Anne Brooks. The following week, the chapter held its eighth annual Azalea Mart where hundreds of azaleas were sold by the chapter and by Society members. The spring season concluded with our eighth annual azalea auction at which more than 280 plants as well as rooted cuttings from the chapter's azalea plant testing program were transferred to new owners.

The Delmarva Chapter was established this spring, has more than 61 members, and holds its meetings at the Rehoboth Art League in Rehoboth, Delaware. Gardon W. Severe is the first chapter president, and William B. Holman is the treasurer. The chapter has had several meetings and activities including a plant sale and a raffle for the painting "Azalea 'Ben Morrison' ". The painting was donated by the artist Jack Murray and the raffle was won by outgoing Society president John Rochester. The proceeds from the plant sale and raffle are to be applied to establishing new azalea and companion plant gardens at the Rehoboth Art League to preserve specimen and threatened plants, and to provide cutting and hybridizing stock. Plans have also been made to conserve and revitalize the old formal gardens outside the Art League buildings and hopefully to develop outstanding public gardens on the site. The chapter also plans a testing program for new azalea varieties in the spring of 1987.

Members were shown how to propagate azaleas from cuttings at the July meeting, at which plans for a solar cold frame were also distributed. The next meeting of the chapter will be a special event. On October 11th at 1 p.m. Ms. Polly Hill will speak to the chapter on Azaleas and Companion Plants. The chapter plans to videotape the session and make the tape cassette available to interested ASA members.

TRY THIS IDEA FOR ROOTING AZALEAS

David Logan

Anyone who grows azaleas has found that lower branches may take root where they touch the ground.

New plants are obtained this way. Using the basic idea, I have worked out a refinement that gets sure success with new plants while avoiding any root disturbance to the parent plant.

A plastic milk jug, knife, pruners, and trowel are the only tools you need, plus some moistened potting soil. Cut the top off the jug, leaving the handle intact. Near the base, slash four horizontal cuts (one at each corner) for drains. On the corner opposite the handle and two inches up from the base cut a two-inch cross that can be pushed in to make an opening.

Select a low limb on your azalea. Pinch side branches together and push the stem from the outside through the opening in the jug and upward until it protrudes well out above the top. Stand the jub upright and fill it with soil. The weight, when soil is filled in and moistened, will hold the jug on the ground and upright.

Keep soil in the jug damp and let nature take its course. After four to six months, roots should have formed along the stem inside the jug. When you think that the new plant is ready to move, take pruners and cut the parent stem near the jug opening. You now have an independent plant in its own pot, with handle for carrying it. You can hold it thus for a few months or put it in a coldframe for wintering, then plant it in its permanent spot the next season.

Reprinted from *Flower and Garden* 30:12, (June-July) 1986.

ROOTING CUTTINGS AND pH

Ninety percent of microcuttings of hardy azaleas root best in media having a pH of 4.0, 4.6 and 5.5 but shoot height and quality rating of tops and root length and quality rating of roots were superior in medium with a pH of 4.0. Rooting was also superior in media of 50 percent peat/vermiculite or perlite than in 100 percent peat. (Adapted from *J. Amer. Soc. Hort. Sci.* 111:181-184, 1986 and reprinted from the March-April 1986 issue of *Nurserymen's News* published by the Cooperative Extension Service of the University of Maryland.)

PRUNING PLANTS AND ROOT GROWTH

Pruning plants following transplanting may delay root growth. Auxins that influence root growth are produced in buds. Pruning away these buds appears to temporarily reduce root growth following transplanting. Based on studies conducted by C. H. Gillian and G. C. Cobb at Auburn University in Auburn, Alabama do not severely prune newly transplanted container grown plants and delay pruning leggy liners 4 to 6 weeks following transplanting in order to allow for good root development. (Adapted from *Growing Points*, Volume 22 (7), February 1985 published by the Cooperative Extension Service of the University of California and reprinted from the March-April 1986 issue of *Nurserymen's News* published by the Cooperative Extension Service of the University of Maryland.)

NEW MEMBERS

Ben Morrison Chapter

Robert G. Benbow
Box 1311 E
Port Tobacco, MD 20677

Audrey Mae MacWilliams
PO Box 8
Churchton, MD 20733

Brookside Gardens Chapter

Fernwood Garden Club
c/o V. A. Lente
10627 Muirfield Dr.
Potomac, MD 20854

Dr. Harry S. Galblum
7116 Crail Drive
Bethesda, MD 20817

Thomas Q. Garvey, III, MD
10125 Gary Road
Potomac, MD 20854

Gilbert S. Jackson
5730 26th St. NW
Washington, D.C. 20015

Eugene Kaplan
8795 Oxwell Lane
Laurel, MD 20708

Mary M. King
11530 So. Glen Rd.
Potomac, MD 20854

Mr. & Mrs. R. G. Leary
6401 Winston Drive
Bethesda, MD 20817

Adeline Mazur
4913 Morning Glory Ct.
Rockville, MD 20853

Joan & Dave Miller
17 Pipestem Court
Potomac, MD 20854

Barbara Murray
907 Roswell Dr.
Silver Spring, MD 20901

Ned & Grace Ostenso
2871 Audubon Terrace, NW
Washington, D.C. 20008

Elise LeMaine Payne
4109 Landgreen St.
Rockville, MD 20853

Minna Rosenbaum
14790 Bushy Park Road
Woodbine, MD 21797

Ingeborg K. Silton
11105 Smokey Quartz Ln.
Potomac, MD 20854

R. J. Smetavick
4273 Charley Forest St.
Olney, MD 20832

Mr. & Mrs. Aaron H. Woodard
14800 Carrolton Road
Rockville, MD 20853

Delmarva Chapter

Martha Jean Addy
PO Box 86
Bethany Beach, DE 19930

Mr. & Mrs. James Alderman
RD 2, Box 161-1/2
Lewes, DE 19958

Marta L. Atchison
PO Box 434
Bethany Beach, DE 19930

Lorna Baumann
Rt. 4 Box 125 O.M.
Millsboro, DE 19966

David B. Clark
1090 Hessian Ave.
Westville, NJ 08093

Thomas E. Ellingsworth
Rt. 4 Box 173A
Millsboro, DE 19966

Gilbert F. Hartman
52 Oak Meadows Drive
Millsboro, DE 19966

Edward J. Henriksen
PO Box 1553
Mitchellville, Md 20716

Larry M. Hickman
13811 Crested Rise
San Antonio, TX 78217

William B. Holman
104 Beachfield Drive
Rehoboth Beach, DE 19971

Ernest H. Hosse
PO Box 466
Georgetown, DE 19947

Harold Jabloner
527 Cherry Street
New Castle, DE 19720

Michael Kertis
12 Camille Lane, Orchard Manor
Millsboro, DE 19966

Mr. & Mrs. Richard Kilpatrick
103 Clover, O.M. Rt. 4
Millsboro, DE 19966

Virginia R. Koier
32 Sabrina Drive
Rehoboth Beach, DE 19974

Milo J. Lessig
RFD 4 151 O.M.
Millsboro, DE 19966

Jack H. Murray
RD 4, Box 173A
Millsboro, DE 19966

Nels P. Nelson, III
PO Box 72
Millsboro, DE 19966

Mr. & Mrs. John H. Parker, Sr.
140 Jersey Road
Millsboro, DE 19966

Mr. & Mrs. Edward L. Rush
303 Salisbury St.
Rehoboth Beach, DE 19971

E. D. (Don) Schive
RFD 4 Box 96
Seaford, DE 19973-9606

Dr. C. A. Schulman
3208 Ellicott St. NW
Washington, D.C. 20008

Myrtle L. Shaw
Rt. 4. Box 133, Oak Meadows
Millsboro, DE 19966

Nancy Union & Tom Stumpf
240 Second Street
Lewes, DE 19958

Alex Summers
PO Box 430
Bridgeville, DE 19933

John E. Tankard, Jr.
Exmore, VA 23350

Mark Van Lunen
1008 W. Central Ave.
Davidsonville, MD 21035

Carolyn O. Wright
RD 2 Box 148-U
Lewes, DE 19958

Flame Azalea Chapter

Harold Chandler
720 Boling Road
Taylors, SC 29687

M.F. Haywood, Jr.
Rt. 10 Miller Road
Greenville, SC 29607

Louisiana Chapter

William F. Bode
235 Robinhood Rd.
Covington, LA 70433

Mr. & Mrs. Phelan A. Bright
2308 Highway 22 East
Ponchatoula, LA 70454

J. R. Cody, M.D.
3901 University Blvd.
Houston, TX 77005

Howard R. Goldberg
Rt. 1, Box 152 H 2
Bush, LA 70431

Longue Vue House & Gardens
7 Bamboo Road
New Orleans, LA 70124

Harley McElroy
105 Norman St.
Lafayette, LA 70508

J. H. (Buddy) Miller, Sr.
Rt. 1 #3 Merry Oak Trail
Piedmont, SC 29673

Mrs. J. R. Monroe
1424 Louisiana Ave.
New Orleans, LA 70115

Mobile Chapter

The Azalea Company
Pam Blackwell
PO Box 316
Semmes, AL 36575

Jennings W. Warn, Sr.
Rt. 1. Box 277
Monroeville, AL 36460

Northern Virginia Chapter

Christian K. Arnold
2405 Brentwood Place
Alexandria, VA 22306

Alle L. Cogdell
8214 Dabney Ave.
Springfield, VA 22152

Peggy G. Freund
3406 Wessynton Way
Alexandria, VA 22309

John C. Krogmann
9317 Georgetown Pike
Great Falls, VA 22066

Larry & Kris Laub
432 N. Nelson St.
Arlington, VA 22203

Mrs. James G. O'Hara
2115 White Oaks Dr.
Alexandria, VA 22306

Raymond V. Olszewski
8080 Counselor Rd.
Manassas, VA 22111

Deborah Regnier-Hutton
620 Beverley Dr.
Alexandria, VA 22305

Mr. & Mrs. Edgar A. Smith
8800 Stockton Pkwy
Alexandria, VA 22308

Northwest Chapter

Clarence Costa, Jr.
PO Box 267
Mt. View, HI 96771

Ralph Gartrell Chapter

Jacqueline G. Herterich
5 Rosemilt Place
Morristown, NJ 07960

Ralph Pennington Chapter

Ron Smith
111 Emily Dr.
Anderson, SC 29621

L. Clarence Towe
PO Box 212
Walhalla, SC 29691

Richmond Virginia Chapter

Thomas M. White
Rt. 6 Box 235-V
Richmond, VA 23231

No Chapter Affiliation

Robert & Cynthia Grant
197 North Street
Hingham, MA 02043

Margaret M. Boehm
5 Holly Pl.
Wilton, CT 06897

Michael McGeever
28 Crest Drive
E. Northport, NY 11731

Morton A. Alterman, M.D.
9 Kingwood Dr.
Poughkeepsie, NY 12601

William N. Valavanis
412 Pinnacle Road
Rochester, NY 14263

Joe Carstens
Longwood Gardens
Kennett Square, PA 19348-0501

Jean E. Richardson
2905 Fairview Road
Raleigh, NC 27608

C. J. Albright, Sr.
608 7th Street
Spencer, NC 28159

James Hendrix Kyzer
214 Alexandria Street
West Columbia, SC 29169

Louis Sordian
776 Larkwood Road
Charleston, SC 29412

William A. Crisp
PO Box 393
Athens, TN 37303

Richard L. & Elissa Armour
765 Yager Rd.
Clinton, Ohio 44216

Jeri L. Kiel
12921 Filmore St.
West Olive, MI 49460

Lavina A. Sheetz
5215 Beaumont Way
Santa Rosa, CA 95405

Arthur O. Boudreaux
8912 Waller Road
Tacoma, WA 98446

Rodger M. Davidson
11/17 Knights Rd.
Galston, N.S.W.
Australia 2159