THE Azalean

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Journal of the Azalea Society of America

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Azalea Society of America

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Letter to the Editor

Here is a review of "Azalea Happenings" on the west coast recently. I've been fairly busy promoting azaleas around this part of the country.

I presented a slide program with cultural information to the Portland Bonsai Society two years ago and was asked to do it again this spring. For the slides, I was able to borrow a book that Bob Ticknor brought back from the 10th International Azalea Bonsai Conference in Osaka, Japan in 1989 with pictures of the winning entries. They have azaleas like you wouldn't believe! It really stirred up a lot of interest. Suggest it might be worth someone's time to do the same kind of thing in your area. For the Bonsai Society we also provided many azaleas for their auction at their August convention.

I've also given programs about azaleas to the Portland and Olympia Chapters of the ARS. Last fall, in Olympia at our ARS Western Regional Conference, I gave two workshops on the Robin Hill azaleas with special family pictures provided by Don Voss. They were quite hits because I also had the plants along to illustrate. Most of the audience had no knowledge of the Robin Hills, so it was fun to relate information.

I did not do the presenting, but at this fall's Western Regional ARS Conference at Newport, Oregon, Betty Spady (program chairman) had two programs on azaleas—one was a workshop-type program given by Sharon Leopold of Westside Ornamentals in Salem and Linda Rumgay of Wil-Chris Acres on "Growing the Best Evergreen Azaleas." A featured evening speaker was Dr. Len Miller of Grove, Oklahoma, who told how he built a Japanese garden filled with spectacular azaleas and rhododendrons around his office and home. Also, at the same conference, Harold Greer conducted a "clinic" on "Deciduous Azaleas, Their Use in Your Garden."

Following the conference, Art and I drove south to Fort Bragg, CA, where I gave another program on azaleas for the Noyo Chapter ARS. I showed slides illustrating the results of our disastrous winters and how the plants have bounced back. I then took them through a blooming year of azaleas at our home. (One thousand miles for a half-hour program!) It was the second time I had given a program there; the other one was on the Robin Hills, but I couldn't go because of the weather and the flu. However, the script was read by Eleanor Philp of the Trillium Lane Nursery.

Although we don't have a chapter out west anymore, azaleas are "getting around." We are finding much more interest in the plants and different varieties. Piero Sambucci from Velletri, Italy, came into our nursery one day last August and joined not only the Portland Chapter of the ARS, but also the Azalea Society. He now has over 6,000 cuttings of 284 varieties of azaleas which we shipped to him at his nursery just south of Rome!

Eleanor Stubbs

On the Cover: 'Luna'

Photographer: William C. Miller III

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).

Regular membership is open to all interested parties for an annual contribution of $20.00. Life membership is $300.00. Members receive **THE AZALEAN** and are eligible for participation in all activities of the Society including those of the chapter with which the member affiliates. For information and membership application, write to the Secretary, Azalea Society of America, P. O. Box 34536, West Bethesda, MD 20827-0536.

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An Azalea Project at the Wakeman Center Greenhouse

Margaret L. Sibert and Polly Hill

Introduction
Polly Hill

The Wakeman Center on Martha's Vineyard was begun seven or eight years ago as headquarters for five conservation groups on the island: Trustees of Reservations, Sheriff's Meadow Foundation, Open Land Foundation, Vineyard Conservation Society, and the Martha's Vineyard Garden Club. The greenhouse is owned by the group, and is used by the Garden Club. The ladies greenhouse committee had undertaken to use the greenhouse for the months of October to May. Summers are for out of doors, so it must be closed down from June to September.

On September 16, 1991 Maggie Sibert and Mary Cressy had come to my Play-Pen to take cuttings of some North Tisbury azaleas to root. On May 6, when I had returned from our winter home in Delaware, Maggie invited me to see the results.

When we opened the door of the greenhouse we entered an enchanted spot. A perfectly grown *Streptocarpus* 'Good Hope' in full bloom hung from the roof at eye level. On benches in the center and right were row upon row of rooted evergreen azaleas in three- and four-inch pots; many were sporting pink or red flowers. They were only a few inches high. The place was immaculate and tidy, and we breathed happily the warm air.

Martha's Vineyard in early May seems like deep winter still, and that day was no exception. The temperature was 40 degrees F, a misty rain falling and a stiff breeze blowing. Inside the greenhouse the ladies had rooted and potted 396 out of 429 of the cuttings they had gathered. They had reason to be proud. Maggie grows plants like a pro and she must have been a good teacher, for most of the ladies were entirely new at the process.

What a splendid chance she gave me to learn a new aspect of my introductions. Which ones rooted with difficulty? Could I identify them by foliage only? It was a chance to see the flowers side-by-side for comparisons. I looked for 'Mount Seven Star', my *nakaharae* seedling from Taiwan. Its close-clustered furry leaves were a good rich green, but had no bloom as yet. It is often reluctant to start into growth in spring, I am told, though it roots readily. The favorite of the group was 'Bartlett', a lovely pink. Everyone wanted a 'Bartlett', Maggie told me. 'Hot Line' was also popular. It made a beautiful showing in a tiny pot with its large crimson flower. 'Corinna Borden' the palest of pinks, was enchanting with its three-flowered truss blooming in a three-inch pot.

Since 'Bartlett' is a new introduction, I only had the one original plant in my Play-Pen. I had asked Maggie in October for a 'Bartlett' if she should have one to spare. So when we left I was carrying not only two 'Bartletts', but also 'Andante' and 'Midori' as a bonus. They were most welcome extras. That wonderful horticultural merry-go-round of generosity!

As we walked out again into the raw blustery morning, I wondered what would have been the favorite azaleas of a like group of men? Maybe 'Joseph Hill' or 'Trill'? Both are red-red. One man, my father, had a direct approach to color. He always said, "I like any color so long as it is red.".

This is really Maggie's story and she tells it all.

Martha's Vineyard Garden Club
Margaret L. Sibert

Last winter, the Greenhouse Committee of the Martha's Vineyard Garden Club had the unique opportunity to try their luck at growing many of Polly Hill's much admired North Tisbury azaleas. Thanks to Mrs. Hill the committee was given a chance to propagate many of her much sought after *nakaharae* and Satsuki azaleas. This was strictly an amateur endeavor. Only one member of the committee had previous experience.

On September 26, in the pouring rain, Mrs. Hill walked around her well known Play-Pen with members of the club to help them select and take cuttings of many of her prized plants. Without waiting to dry off, members of the club hurried to the Garden Club greenhouse where 429 cuttings were made.

The cuttings were treated with Rootone F and placed in a medium of peat and sand in the propagating bench, which was equipped with heating cables and an automatic misting system.

Two days later, a disaster in the making was discovered. The greenhouse temperature had risen to over 100 degrees F. The mister was off and the fans and vents were not functioning. Husbands rushed to the rescue. Vents were pried open, thermostats reset and the misting mechanism rebalanced. The drooping cuttings began to revive.

On November 4 the first five cuttings had rooted. They were removed from the bench and potted up into three-inch pots in Pro-Mix. Two weeks later 116 rooted cuttings were removed from the bench and potted. The root systems on some were so large that they had to be put into four-inch pots. By February 3, 89% of the azaleas had rooted.

In early winter, mice took up residence in the greenhouse. Husbands were again called upon, and mouse traps were set. Fortunately, the mice had passed up the azaleas preferring

the pyracantha instead—a strange choice.

Encouraged by our success, in December, we went back to Mrs. Hill's and took cuttings of her named varieties of *Ilex opaca*. These rooted rapidly and had put on a great deal of new growth more than doubling in size.

In mid-February, there was much excitement when the first azalea, 'Hot Line', came into bloom. It was a real show stopper with its large size and hot pink color. On March 3, 'Corinna Borden' with its soft lavender flowers was in bloom. A vibrant light red, 'Jeff Hill' came next soon followed by 'Pink Pancake' with its two-inch pink blossoms—and so it continued. When 'Bartlett' bloomed, it became an instant favorite. The sequence of blooms in the greenhouse appeared to have nothing to do with their sequence in the garden. In a commercial operation it is probable that the flower buds would have been removed. Leaving them on, however, did not seem to slow down the new growth and it gave a great deal of pleasure to all who saw them.

In April, the small plants were potted on into four-inch pots in Peters Potting Soil where they have flourished and put out new growth. Three hundred plants are now ready for sale to the members at $4.00 for the larger ones and $3.00 for the smaller.

Committee members have been allowed first choice and 'Bartlett' remained the favorite. 'Louisa', a sister seedling, had not yet bloomed; otherwise it would have given 'Bartlett' lots of competition. 'Yaye', although it has yet to bloom, was second choice due to its lovely foliage and vigor. 'Pink Pancake', 'Jeff Hill', 'Alexander', and 'Andante' were not far behind. In fact, we all had our favorites.

The cutting bench is now filled with *Camellia oleifera* which we found blooming in Mrs. Hill's garden in December. Only four have rooted so far, but the rest have callused and should root before we close the greenhouse at the end of May.

It was been an exciting and stimulating year. We have learned a lot. Our gratitude goes to Polly Hill who has shared not only her plants but also her knowledge and enthusiasm and to Dot Howard, our chairman, who encouraged us to try something new.

Notes

A disproportionate number of cuttings made on December 2 did not survive. Nineteen percent of those potted up on December 2 did not survive compared to a total loss ratio of 12%. If you were to discount the loss ratio on December 2, our losses would have been 9%. I feel even this number is high.

There may be two problems. The first is that there is a tendency to plant the azaleas too deeply when they come out of the cutting bench. Second, our biggest losses were among 'Mount Seven Star', 'Corinna Borden' and 'Flaming Mamie'. These three azaleas shared the coldest corner of the greenhouse where there is considerable draft. We plan to remedy this condition.

'Gabrielle Hill' was very slow to root, although once rooted it seemed to do all right. The 'Gabrielle Hill' cuttings were the smallest of those we had taken.

It was evident that those cuttings that were directly over a heating cable rooted the fastest and had the most roots. Being directly under the mister and not at a corner of the cutting bench was also beneficial. The corners tended to dry out.

As this is a club greenhouse, members take turns watering. It is possible that pots were allowed to dry out or over watered. The pots in the back of the benches over the heating pipes dried out rather rapidly.

The following table identifies the azalea cutting, date taken, how many rooted and how many were distributed:

Martha's Vineyard Garden Club Greenhouse

	Cuttings Made September 26, 1991	*Rooted*	*Distribution*
'Andante'	3	3	3
'Alexander'	46	46	44
'Balsaminaeflora'	15	14	8
'Bartlett'	20	20	19
'Corinna Borden'	11	9	5
'Flaming Mamie'	13	13	5
'Gabrielle Hill'	28	21	21
'Hill's Single Red'	17	12	12
'Hotline'	23	23	23
'Jeff Hill'	32	32	27
'Joseph Hill'	19	19	19
'Ladylocks'	9	8	8
'Libby'	16	14	14
'Louisa'	5	5	5
'Marilee'	31	29	28
'Midori'	6	4	4
'Mount Seven Star'	21	19	7
'Pink Pancake'	22	22	21
'Red Fountain'	9	9	9
'Susannah Hill'	28	27	25
'Trill'	18	16	15
'Wintergreen'	17	13	10
'Yaye'	20	18	16
TOTAL	429	396	348
	92%	81%	

We have decided to hold out 48 of the smallest and put them in a nursery until next year. ❑

Health Hazards in the Nursery and the Landscape

Dr. Russell Balge
Area Extension Agent
Agricultural Science/Commercial Horticulture
Cockeysville, MD

Whether it be as a nurseryman, landscape contractor, grounds manager, or homeowner, working with plants and pesticides presents certain health hazards. Among these hazards, either directly or indirectly, are plant and pesticide induced dermatitis, cutaneous sporotrichosis, "atypical mycobacterium type IV", and eczema.

Plant and Pesticide Induced Dermatitis

Agriculture has the highest occupational skin disease risk of all major industrial classifications, including manufacturing and construction. In a recent survey, nursery workers were part of the highest risk group of all agricultural workers that may develop skin disease. This high risk is the result of their occupational exposure to plants and pesticides. Symptoms range from simple allergies to skin cancer.

When the records of those instances in which nursery workers in California filed workman's compensation claims for allergenic skin reactions were examined, it was found that plants caused three times more skin problems than agricultural chemicals. It would seem that, since landscape contractors, grounds managers, and gardeners handle plants and sometimes apply pesticides, they are equally at risk to plant and pesticide induced dermatitis as nursery workers.

Among the types of plant induced dermatitis and some plants that are to blame are:

- **Primary irritant dermatitis**, or direct irritation caused by chemicals in plants such as alstromeria, buttercup, carrot, castor bean, celery, cucumber, cowslip, dieffenbachia, foxglove, milkweed, mushrooms, narcissus bulbs and plants, parsley, parsnip, rubber tree, tomato, tulip, and turnip.
- **Allergenic contact dermatitis**, in which the skin becomes sensitized to chemicals in plants such as cedar, English ivy, garlic, lichens, liverwort, onions, pine, poison ivy, poison oak, poison sumac, and primrose.
- **Photosensitive dermatitis**, in which the chemicals from plants are activated by exposure to sunlight in plants such as buttercup, carrots, celery, dill, figs, Klamath weed, limes, mustard, and parsley.

While not all of these plants are found in the nursery or landscape, many are found in vegetable gardens and homes. Plants capable of causing dermatitis in these environments may exacerbate dermatitis problems caused by plants in the nursery or the landscape.

Exposure to pesticides can cause two of the above three kinds of dermatitis.

- **Primary irritant dermatitis**, or direct irritation of the skin may be cause by benomyl, captan, chlorothalonil, Dacthal, endosulfan, glyphosate, Kelthane, lindane, maneb, many organophosphates, methomyl, propargite, sulfur, thiram, weed oil, zineb, or ziram.
- **Allergenic contact dermatitis**, in which the skin becomes sensitized to the pesticide, can be caused by benomyl, captan, cresol, dichlorvos, formaldehyde, malathion, maneb, naled, parathion, PCNB, thiram, triazines, and zineb.

In response to the twin dangers of allergenic plants and pesticides, the Environmental Protection Agency is due to release changes in the laws governing worker health and safety guidelines as early as this spring. Most of these changes will be aimed at circumventing problems with pos-

Pesticides that may cause dermatitis by category include:

Fungicides	Insecticides	Herbicides	Miticides
benomyl	chloropicrin	Dacthal	dicofol
captan	cresol	glyphosate	endosulfan
chlorothalonil	dichlorvos (DDVP)	triazines	Kelthane
cresol	endosulfan	weed oil	naled
folpet	lindane		propargite
mancozeb	malathion		sulfur
maneb	methomyl		
PCNB	naled		
sulfur	organophosphates		
thiram	parathion		
zineb			
ziram			

sible pesticide contamination. Meanwhile, the easiest way to prevent dermatitis and other skin problems is to wear hats, gloves, and long-sleeved shirts when working with pesticides and among those plants that can cause dermatitis. Use standard leather or cloth gloves for most situations. If dexterity is needed, such as in plant propagation, use surgical gloves.

Poison Ivy

Perhaps the most commonly encountered dermatitis-causing plant in the nursery and the landscape is *Rhus radicans* L., poison ivy. Despite its lovely fall color, poison ivy is no friend of man. Anybody who has ever experienced the itching skin rash, pain, or actual illness that poison ivy can cause, will want to avoid the plant or eliminate it from the nursery or landscape.

The actual skin-poisoning element, urushiol, is contained in the leaves, stems, roots, and fruit of poison ivy. Urushiol is potent the year round. Even plant fragments such as roots that have been dead for a long time retain their potency.

Most poisoning occurs from direct contact with the plant. Handling clothing that has been worn while walking through poison ivy, petting a cat or dog that has come in contact with the plant, or inhaling the fumes from burning brush which includes poison ivy can also cause infection.

The surest way to avoid contamination from poison ivy is to be able to recognize the plant and avoid contact with it. Poison ivy grows as a low shrub or a climbing vine. Each leaf has a slender stem (petiole), often 10 to 20 cm (6- to 8-inch) long, attached to a woody stem. The three individual leaflets of each leaf are 5 to 10 cm (2- to 4-inch) long. The leaflet margins may be smooth, toothed, or somewhat lobed. All of these variations may occur on the same plant.

The leaves are a reddish tint when they unfold in spring, but shortly thereafter become a glossy to dull green. In early fall, the leaves become yellow, scarlet, and red. Loose clusters of small, waxy, white berries follow the greenish-white spring flowers.

Herbicides offer the best means of controlling poison ivy, as it is difficult to eliminate by digging. Use 2,4-D or glyphosate according to the manufacturer's directions. Be sure to apply the herbicides before the leaves begin to color or the leaves will simply absciss, or drop before the herbicide is translocated to the root system of the plant. An easy way to eliminate poison ivy that is growing among desirable plants is to use a sponge brush and wipe the poison ivy leaves with a solution of glyphosate without getting any of the mixture on the desirable plants. It may be necessary to retreat the site with either of these methods. Wear a long-sleeved shirt and gloves whenever working around poison ivy.

Several products already on the market to aid persons likely to be exposed to poison ivy include protective ointments to coat the skin that may be exposed to poison ivy and an orally administered product that imparts resistance to poison ivy. Physicians can also assist people in developing resistance to poison ivy through a series of injections of a weakened form of the toxic substance itself, urushiol. More recently, researchers at the University of Mississippi have developed a vaccine that will prove a boon to anyone working or playing outdoors where there is poison ivy. The vaccine is effective for a year with a single annual vaccination. The vaccine may also give relief with a single post-infection treatment. The vaccine, like the series of injections in current use, consists of a very weakened form of the oily urushiols that cause the immune-system response in most people. The vaccine is still being tested and may not be available until the end of the decade. Once it is released, the vaccine is expected to beget a $200 million annual market. The vaccine is equally effective against poison oak and poison sumac.

Cutaneous sporotrichosis

Cutaneous sporotrichosis is a serious lymphatic disease occurring in people and animals throughout the United States most frequently in the Midwest, and especially in Wisconsin. The disease occurs primarily among greenhouse workers and nurserymen, tree planters, grounds maintenance workers, and more recently, home gardeners. In fact, of 84 people afflicted by cutaneous sporotrichosis in 1988, over 50% of the victims were home gardeners.

The causal fungus organism, *Sporothrix schenckii*, is most frequently found in sphagnum peat moss. While the fungus has never been isolated from native peat bogs, it is found in fresh peat bales, especially those bales stored where they remain moist. Researchers have no idea of how the fungus is introduced into the sphagnum peat moss. Outbreaks of cutaneous sporotrichosis throughout the United States are often traceable to sphagnum peat moss originating in Wisconsin.

S. schenckii has also been found in nursery soil, flowers, hay, lumber, and prickly shrubs like roses and conifers. In New York, all of the individuals contracting cutaneous sporotrichosis following Arbor Day in 1988 had handled Colorado Blue Spruce.

The fungus is introduced into its victims through cuts, abrasions, and puncture wounds on unprotected hands, arms, and legs. The infection is usually confined to the skin and begins as a small blister within one to four weeks of introduction. The blister becomes inflamed and slowly enlarges into boil-like abscessed ulcerations.

If the disease is untreated, it spreads into the lymph vessels, developing nodules there and in the lymph glands of the armpit and elbow. With

time, cutaneous sporotrichosis spreads into the bones, abdominal organs, and the lungs. Ultimately the disease can result in death, making proper early diagnosis imperative.

Treatment consists of taking saturated solutions of potassium iodine orally several times daily. The lesions usually disappear within two months, but treatment must continue for another three months. Ingestion of potassium iodine may lead to an upset stomach during treatment and some digestive problems after treatment. Antibiotics are ineffective against cutaneous sporotrichosis.

The easiest way to avoid contracting cutaneous sporotrichosis is to avoid contacting sphagnum peat moss, especially that from Wisconsin. The State Forest Tree Nurseries in Wisconsin and the Department of Agriculture Forest Service Nursery in Michigan discontinued using sphagnum peat moss. Since that time, no cases of cutaneous sporotrichosis have occurred in those nurseries. Another way to reduce the chance of contracting cutaneous sporotrichosis, and one that is environmentally conscious, is to use composted municipal sludge, paper mill sludge, yard waste, or garbage, as a substitute for sphagnum peat moss. The risk of contracting cutaneous sporotrichosis when sphagnum peat moss must be used, can be reduced by:

- Storing sphagnum peat moss under dry conditions.
- Disinfecting those areas where sphagnum peat moss is stored.
- Wearing protective clothing like rubber gloves, long-sleeved shirts, and long-legged pants when working with sphagnum peat moss.
- Thoroughly washing hands and arms with soapy water upon completion of working with sphagnum peat moss.
- Seeking immediate help for any lacerations or abrasions.
- Informing a doctor of the possibilities of cutaneous sporotrichosis if the wounds do not heal in a reasonable time.

An accurate diagnosis for cutaneous sporotrichosis has been developed by: **Dr. Michael W. Rytel**
Medical College of Wisconsin
Department of Medicine
Division of Infectious Diseases
8700 West Wisconsin Avenue
Milwaukee, Wisconsin 53226

"Atypical Mycobacterium Type IV"

Another little gem waiting out there in the nursery and the landscape is "atypical mycobacterium type IV". One gardener who punctured his finger while pruning a rose bush developed a cramp in his finger by the evening of the day that he punctured his finger. By the morning of the next day the finger was inflamed. The gardener ended up in emergency surgery as the infection spread from the finger to the entire arm. The surgeon had to open an incision from the index finger to midforearm and administer antibiotics. It took two additional operations to save the hand. It was speculated that the microorganism, "atypical mycobacterium type IV", might have been contracted from a wet compost mixture containing poultry manure that lay beneath the rose bush. The microorganism may enter through any break in the skin.

Wear gloves when performing all landscape functions. If a surface wound occurs, wash it thoroughly with soapy water. Consult with a physician if a deep cut, one that penetrates to tendons or joints, occurs.

Eczema

There is a certain irony in that one of the recommendations to help avoid plant and pesticide induced dermatitis and to protect against infection by cutaneous sporotrichosis and "atypical mycobacterium type IV" through the inevitable cuts and punctures due to thorns, splinters, and tools, washing thoroughly with soapy water, may present its own problem. The practice of washing hands and arms frequently with strong soapy water may cause eczema. Eczema is characterized by red, tender, cracking, peeling, or blistered skin. The skin is irritated by the soap and the friction of drying the skin. On the job, the skin is irritated by wind chapping and soil abrasion. To reduce the chance of having eczema, use a skin moisturizer upon completion of washing your hands.

Pesticide Safety

No discussion of pesticides would be complete without discussing pesticide safety. To safely use pesticides to prevent or control pests and pathogens in the nursery and landscape:

- Store pesticides away from dwellings and work areas.
- When opening packages and pouring powders or liquids into the tank, handle them carefully to prevent billowing of dust or splashing of liquids.
- Follow all safety directions on the label.
- Do not breathe dust or vapor, or get pesticides in eyes, on skin, or on clothing.
- Wear a gas mask or respirator that has been tested and found safe by the United States Department of Agriculture.
- Wear clean natural rubber gloves and clean protective clothing.
- Wash hands and face thoroughly before eating and smoking.
- Avoid contamination of streams, ponds, and water supplies.
- Wrap empty containers in newspaper and place them in the trash just before trash pick-up.
- If you get any of the warning signs of pesticide poisoning such as headaches, giddiness, vomiting, and contraction of the eye pupils, get away from further exposure at once and seek medical aid. ❑

Introduction of the Princess Azaleas

James B. Shanks
Beltsville, MD

Andrew N. Adams, Jr.
Clarksville, MD

A unique group of azalea cultivars for efficient greenhouse forcing and landscape planting has been developed at The University of Maryland, College Park. The new hybrids are characterized by medium-to-large, double and hose-in-hose double flowers of clear colors on compact hardy plants. Named the Princess Azaleas, the first selections will be made available in spring 1993.

Background

The evergreen or persistent-leaved azaleas of greenhouse and garden have been derived from several species of *Rhododendron* in the Obtusum subseries: *Rhododendron indicum, R. linearifolium,* 'Mucronatum', *R. obtusum, R. pulchrum, R. scabrum, R. simsii, R. tschonoskii, and R. yedoense*. Many groups of hybrid azaleas have resulted from breeding programs for outdoor landscape use and for pot forcing in the greenhouse. Common types for outdoor planting in the middle Atlantic area have been such groups as the Kurume hybrids with dense growth and many small flowers, eventually becoming medium height plants, and the Glenn Dale hybrids, which are characterized by larger flowers and tall vigorous growth. Types suitable for greenhouse forcing have included the Kurume hybrids, the Belgian or Indian types with large flowers, tall unbranched growth, and hardy only in the deep south, and a group known as Rutherfordiana hybrids originating at the East Rutherford, N.J., nursery of Bobbink and Atkins. Many azaleas have received the protection of U.S. Plant Patents.

Development

William H. Preston (now retired from the U.S. Department of Agriculture) made a number of azalea crosses in the spring of 1950 while working on his masters degree at the University of Maryland for the purpose of producing larger flowers on the popular Kurume and other azaleas having a fairly compact growth habit. The large-flowered Belgian variety 'Vervaeneana' as the seed parent was pollinated with 'Amoena', 'Coral Bells', 'Hexe', 'Hinodegiri', 'Mucronatum', *R. kaempferi*, 'Pink Pearl', *R. simsii*, and two azaleas of unknown origin, one pink and one white. The progeny flowered in 1953, and one self- and several cross-pollinations were made.

From 1954 until 1977, controlled crosses were made of selections from this group of plants and their progeny with additional cultivars being included in the program beginning in 1958. These were both greenhouse and outdoor types, including a number plants of U.S.D.A. origin such as P.I. 226144, and B.44838 [1].

Pollination was done in the greenhouse in January-February with the seed pods harvested in July as the fruits formed an absciss layer and could be picked, but before the capsules had opened. Seed was then sown in September and the young plants grown on for two years. Plants were flowered and selections made in the greenhouse the following winter. Plants not flowering at this time were discarded. Selection was made for plants with a moderately vigorous, but compact and free-branching growth habit with medium-to-large size flowers of clear colors. Other characteristics looked for were early flower initiation, early flowering, floriferousness, and long-lasting flowers.

While the initial emphasis was on selections for outdoor planting in the central Maryland area (U.S.D.A. plant hardiness zone 6B, 0 to -5 F.), the major emphasis from 1960 to 1977 when the last crosses were made was to produce types suitable for greenhouse forcing. All seedling plants were eventually planted out-of-doors to ascertain their winter survival characteristics.

Because of their unique growth habit and distinctive flower color and size, selections are being made and designated the "Princess" series. They are being propagated and introduced by Andy Adams, Jr., of Ten Oaks Nursery, Clarksville, MD, whether to be used for landscape or greenhouse forcing. Five selections are named and introduced at this time: 'Princess Andrea', 'Princess Deborah', 'Princess Megan', 'Princess Ruth', and 'Princess Sharon'.

[The following descriptions are based on the Royal Horticultural Society (RHS) Colour Chart of 1966. Unless stated otherwise, the azaleas bloom the first week of May at Beltsville, Maryland.]

'Princess Andrea'

Early blooming, light red (RHS 52B), open face (6 cm dia.), hose-in-hose double flower. Plant semi-dwarf with small leaves (1 x 3 cm.). Height and diameter of plant similar; size at 3 years is 25 cm.

Pedigree

Year	Cross	Progeny designation
1950	'Vervaeneana' x 'Coral Bells'	MD 50-2-3
1950	'Vervaeneana' x 'Pink Pearl'	MD 50-7-44
1957	MD 50-7-44 x MD 50-2-3	MD 57-1-3
1960	'Chimes' x 'Crimson Glory'	MD 60-3-2
1960	'Chimes' x MD 57-1-3	MD 60-7-4
1960	U.S.D.A. B.44838 x MD 50-7-44	MD 60-11-1
1961	'Chimes' x U.S.D.A. B.44838	MD 61-10-1
1964	MD 60-7-4 x 'Dr. Alderfer'	MD 64-39-1
1965	MD 60-3-2 x MD 64-10-1	MD 65-17-1
1968	'White Christmas' x MD 65-17-1	MD 68-13-3
1968	MD 60-11-1 x MD 64-39-1	MD 68-46-5
1977	MD 68-13-3 x MD 68-46-5	MD 77-8-1 'Princess Andrea'

'Princess Deborah'

Large hose-in-hose double flower (to 7 cm dia.), salmon pink (RHS 50C) with darker spots in throat (RHS 51A). Leaves 1.25 x 4.5 cm. Plant vigorous but with low spreading habit; plant canopy at 3 years is 32 cm. diameter x 22 cm. high.

Pedigree

Year	Cross	Progeny designation
1950	'Vervaeneana' x 'Coral Bells'	MD 50-2-3
1950	'Vervaeneana' x 'Pink Pearl'	MD 50-7-3, MD 50-7-41
1957	MD 50-7-3 x MD 50-2-3	MD 57-1-3
1959	MD 50-2-3 x U.S.D.A. PI 226144	MD 59-21-1
1959	'Triumph' x MD 50-7-41	MD 59-4-11
1960	'Chimes' x MD 57-1-3	MD 60-7-4
1960	'Chimes' x 'Crimson Glory'	MD 60-4-4
1960	'Chimes' x MD 57-1-3	MD 60-4-7
1966	MD 59-4-11 x MD 60-7-4	MD 66-17-1, MD 66-17-2
1966	MD 60-4-7 x MD 59-21-1	MD 66-43-1
1967	'L.C. Bobbink' x MD 60-4-4	MD 67-9-3
1970	MD 67-9-3 x MD 66-43-1	MD 70-29-2
1972	MD 66-17-1 x MD 66-17-2	MD 72-5-1
1977	MD 70-29-2 x MD 72-5-1	MD 77-16-17 'Princess Deborah'

'Princess Megan'

Clear light pink (RHS 62A) hose-in-hose double flower (6.5 cm. dia.) with few to no stamens and slightly reflexed petals. Leaves dark green, 1.5 x 4 cm. Plant habit broader than high; plant canopy at 3 years 28 cm. diameter x 22 cm. high.

Pedigree

Year	Cross	Progeny designation
1950	'Vervaeneana' x 'Amoena'	MD 50-1-1
1950	'Vervaeneana' x 'Coral Bells'	MD 50-2-3
1950	'Vervaeneana' x 'Mucronatum'	MD 50-5-7
1950	'Vervaeneana' x 'Pink Pearl'	MD 50-7-41, MD 50-7-44
1953	MD 50-1-1 x MD 50-5-7	MD 53-5-1
1957	MD 50-7-41 x MD 50-2-3	MD 57-1-3
1959	'Triumph' x MD 50-7-41	MD 59-4-11, MD 59-4-12, MD 59-4-20
1959	U.S.D.A. PI 226144 x MD 53-5-1	MD 59-14-2, MD 59-14-3
1960	'Chimes' x MD 57-1-3	MD 60-7-4
1960	U.S.D.A. B.44838 x MD 50-7-44	MD 60-11-1
1961	'Chimes' x U.S.D.A. B.44838	MD 61-10-1
1962	MD 59-14-2 x MD 59-14-3	MD 62-30-1
1964	MD 60-7-4 x MD 59-4-20	MD 64-39-1
1966	MD 61-10-1 x MD 62-30-1	MD 66-51-2
1966	MD 59-4-11 x MD 59-4-12	MD 66-17-1
1968	MD 60-11-1 x MD 64-39-1	MD 68-46-4, MD 68-46-5
1969	MD 66-51-2 x MD 66-17-1	MD 69-41-1
1973	MD 69-41-1 x MD 68-46-5	MD 73-13-2
1977	MD 68-46-4 x MD 73-13-2	MD 77-13-2 'Princess Megan'

'Princess Ruth'

Red-pink (RHS 57C), slightly ruffled, partially double flower. Leaf 1.25 x 3.5 cm. Low spreading growth habit; plant canopy at 3 years 28 cm. diameter x 23 cm. high.

Pedigree

Year	Cross	Progeny designation
1950	'Vervaeneana' x 'Amoena'	MD 50-1-1
1950	'Vervaeneana' x 'Coral Bells'	MD 50-2-3
1950	'Vervaeneana' x 'Mucronatum'	MD 50-5-7
1950	'Vervaeneana' x 'Pink Pearl'	MD 50-7-41, MD 50-7-3
1953	MD 50-1-1 x MD 50-5-7	MD 53-5-1
1957	MD 50-7-3 x MD 50-2-3	MD 57-1-3
1958	U.S.D.A. B.44837 x MD 50-7-41	MD 58-13-3
1959	U.S.D.A. PI 226144 x MD 53-5-1	MD 59-14-4
1959	'Triumph' x MD 50-7-41	MD 59-4-2, MD 59-4-11
1960	'Chimes' x MD 57-1-3	MD 60-7-4
1961	'Chimes' x MD 58-13-1	MD 61-13-3
1962	MD 59-14-4 x MD 59-4-2	MD 62-31-1
1966	MD 59-4-11 x MD 60-7-4	MD 66-17-1

Red-pink flowered azalea: 'Princess Ruth' (MD 71-17-8)

White-flowered azalea: 'Princess Sharon' (MD 68-13-3)

1966	MD 61-13-3 x MD 62-31-1	MD 66-54-1
1971	MD 66-17-1 x MD 66-54-1	MD 71-17-8 'Princess Ruth'

'Princess Sharon'

Clear white slightly double flower, slight greenish throat (RHS 145D), petals open to slightly reflexed. Leaves glossy green 1.5 x 3.5 cm. Plant habit broader than high; plant canopy at 3 years 30 cm. diameter x 25 cm. high. Extensive root system imparts some drought resistance and permits planting in sun or shade.

Pedigree

Year	Cross	Progeny designation
1960	'Chimes' x 'Crimson Glory'	MD 60-3-2
1961	'Chimes' x U.S.D.A. B.44838	MD 61-10-1
1965	MD 60-3-2 x MD 61-10-1	MD 65-17-1
1968	'White Christmas' x MD 65-17-1	MD 68-13-3 'Princess Sharon'

Additional selections will be made in the coming years for inclusion in the Princess series. At present, seven hybrids are being evaluated as possible selections.

One-year old plants of the five selections named and introduced will be made available to the public for the first time at the 40th Annual Landon Azalea Garden Festival, April 30 - May 2, 1993, in Bethesda, MD. Twenty-five cents from the sale of each plant will be donated to the Horticulture Research Fund at the University of Maryland at College Park.

References

1. P.I. 226144 is 'Miyuno no Tsuki', an azalea introduced in 1955 probably incorrectly as a Satsuki hybrid (see Lee, *The Azalea Book*, 1980, page 296, and Galle, *Azaleas*, 1985, page 221). B.44837 and B.44838 are Belgian-Glenn Dales, but only B.44838 was named and introduced, first as 'Limelight' under the Bell number and then as 'Green Mist' (P.I. 279406) (see Miller's June 1984 article in **THE AZALEAN**, page 33-35, and Galle, page 255).

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'Luna' Found

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The azalea cultivar 'Luna' is widely regarded as one of the rarest of the Glenn Dale hybrids. It seems to have been lost since shortly after it was distributed by the U. S. Department of Agriculture in 1952. In the survey of old plantings of azaleas at the Ten Oaks Nursery complex in Clarksville, Maryland, it has been the most important cultivar found. An azalea has been identified as 'Luna' at Ten Oaks; the flowers are shown on the cover of this issue of **THE AZALEAN**.

Because 'Luna' is so rare, almost everything about it is unknown to azalea enthusiasts. Indeed, a significant problem in the search was learning exactly what 'Luna' looked like in order to find it. In the following paragraphs, what was discovered about the history of 'Luna' is presented as well as how it was found. In the conclusion I discuss some of the implications of finding this rare cultivar.

History of 'Luna'

'Luna' is one of the 454 Glenn Dale azaleas that resulted from the extensive hybridizing work of B.Y. Morrison. It is listed in U.S.D.A. Monograph 20, *The Glenn Dale Azaleas*, with the official description:

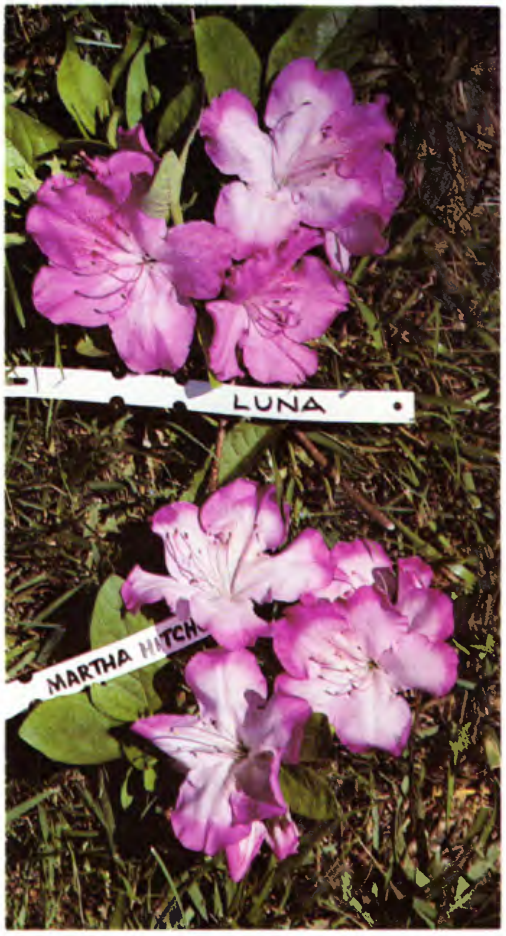
> LUNA (P.I. 201896)—*kaempferi* x Shinnyo-no-tsuki.
> Plant spreading rather than tall, eventually to 5 feet. Leaves dark green. Flowers 3-1/2 inches across, 2 to 3 in head, after the style of Alight and Welcome, but with darker rose margins (almost Tyrian Rose), with darker blotch and white eye. Mid- to late-May [1].

Before being named and introduced, 'Luna' was assigned the identification or "Bell" number of B.42495 at Glenn Dale [2]. The record for the number stated:

> B.42495 B.Y.M.'s Special. Cuttings taken from plant growing in Green House #6 east bench, origin undetermined. Large flower to 4"—very fine white center Rose margins. Bell # assigned 12-12-50

Despite the Monograph 20 text, I remain unsure about the parentage of 'Luna'. Why Morrison stated the parentage was undetermined in the Bell record of 1950, but was able to give it two years later when he developed the Monograph 20 manuscript is not obvious. The hybridizing crosses involving Satsuki azaleas took place in 1939 and 1940. Glenn Dale records show that Morrison made numerous crosses with various *kaempferi* (red, rose-pink, etc.) and Satsuki azaleas, but no record can be found for a *kaempferi* x 'Shinnyo-no-tsuki' cross, although all of the other Glenn Dale crosses given in Monograph 20 are recorded.

One possible explanation, or partial explanation, may relate to forgetfulness or incomplete personal records. According to records at Glenn Dale three crosses were done in 1939 that involved the Glenn Dale hybrid 'Ivory' ((*kaempferi* x 'Mucronatum') x 'Mucronatum'), and the Satsuki azaleas 'Shinnyo-no-tsuki', 'Keisetsu', and 'Kagetsu'[3]. From these crosses, 29 cultivars were named as Glenn Dale hybrids, but the seed parent of 'Ivory' for each of the 29 cultivars is stated incompletely in Monograph 20 as "*kaempferi* x *mucronatum*", for example, see 'Shimmer'. This error of incomplete parentage was made as early as November of 1951 by Morrison in a letter to his U.S.D.A. colleague Frank Dowdle in which Morrison stated, "Herewith as I copy them are the records on the complete...Glenn Dales. ...this should be as nearly type perfect as I can manage." So Morrison made a mistake about the formula for 'Ivory', and I wonder if he might have erred also in the parentage for 'Luna'. If he did, what the correct parentage was we can only guess.



***Above:** 'Martha Hitchcock' and Luna'*
***Right Top:** 'Alight' from USNA, 1970*
***Right Bottom:** 'Welcome' and 'Luna'*

'Luna' was one of the last Glenn Dale hybrids selected, introduced and distributed. Nearly 400, or the great majority of the hybrids, were distributed before 1952, most between 1948 and 1951. In 1952, ten new hybrids were made available: 'Bravura', 'Carbineer', 'Cinderella', 'Luna', 'Marionette', 'Presto', 'Quakeress', 'Satrap', 'Vanguard', and 'Vestal'. The twenty recipients of the distribution were primarily nurseries, such as Ten Oaks, and arboreta. By 1952, however, there is evidence that many recipients had received quite enough of the Glenn Dales, and 'Luna' may have been less than welcomed [4]. It is not known whether any recipient propagated 'Luna' and offered it for sale; Ten Oaks did not. It is not known to exist at any arboretum or in any major collection, and others have searched for it without success.

The Search for 'Luna' at Ten Oaks

As has been explained previously in **THE AZALEAN**, the Ten Oaks Nursery was a recipient in the Glenn Dale azalea distribution program [5]. Azaleas obtained by Ten Oaks were planted in an azalea arboretum and a display garden, and carefully tagged for identification. A survey of the contents of the arboretum and garden has been underway since 1987 [6]. A major motivation for the survey is to find rare azaleas, and the number one azalea to find has been 'Luna'.

Ten Oaks records showed they received all of the 1952 distribution, but where the plants were located was not known. The arboretum had plants arranged by hybrid groups and, for the Glenn Dales, also by year of distribution. In 1990, a small group of 1952's was found, but it did not include any tagged as 'Luna'. My search for 'Luna' was known to Mrs. Roberta Adams, widow of the Ten Oaks founder, and to her son, Andy Adams, Jr., but neither of them could remember the where it was located.

A significant problem in the search was knowing what to look for exactly. There is the statement in Monograph 20 that, "Every effort has been made to choose clonal names...that are suggestive, if possible, of some characteristic of the plant or flower" (p. 18). Knowing this, my first guess was a large white flower with a lot of light green in the throat and blotch, but that did not make any sense at all in terms of the official description for 'Luna'. With very few exceptions, the descriptions of Glenn Dales given in Monograph 20 are complete within themselves without reference to any other azalea. For example, most read like the description for 'Effective': "Moderate, upright growth to 4 feet. Leaves medium green. Flowers usually 2 to 3 in head, 2-1/2 to 3 inches across, Rose Color with very little suggestion of blotch, form rounded and substance very good." A few descriptions do refer to another azalea: for 'Helen Fox' it is stated, "Flowers...much like those of Surprise but paler in effect." The description for 'Luna' is unique in the statement of "...after the style of Alight and Welcome..." One wants to be careful when guessing why people use particular words, but the use of the word "style," as opposed to "much like," implied to me a characteristic that changed and was not constant. Unfortunately, the descriptions for 'Alight' and 'Welcome' were not too helpful for knowing what 'Luna' looked like or how it was changeable, if it was:

> Alight (P.I. 163942)—*mucronatum* x Kagetsu
> Bush habit broad spreading, but probably not more than to 5 feet in height. Leaves medium green. Flowers 1 to 3 in head, 2-1/2 inches across; Spinel Pink with blotch of Rosolane Purple on upper lobes. The ground color carries as orange salmon, accentuated by the purplish color of the blotch. May throw striped sports. Early to mid-May.
>
> Welcome (P.I. 163886)—(Vittata Fortunei x *mucronatum*) x Shinnyo-no-tsuki
> Bush habit broad spreading, possibly in time up to 5 feet. Leaves medium green. Flowers 1 to 3 in head, 2-1/2 to 3 inches across, Mallow Pink shading to Amaranth Pink in center of petals; white in throat of flower on four lower petals, Tyrian Rose dots in blotch. There are occasional sports that show whitish centers. Mid- to late May.

'Alight' seemed to be a pink flower that had a striped sport. 'Welcome' was a pink flower with a white throat and occasional white centers. If something was changeable, it wasn't apparent, and the descriptions suggested 'Luna' was merely a pink flower, but with some kind of rose margin, according to the official description.

In early 1991 Bill Miller sent me a copy of a communication he received from Dr. John Creech, a later Director of the National Arboretum after Morrison, which included a copy of a note from Morrison to Creech written in 1963 about his recollection and value of certain crosses he used in the Glenn Dales. For 'Luna' Morrison stated, "Excellent but bad in propagation,

roots badly, waits years to give typical flower pattern. I suspect should be heavily pruned to induce twigginess for decent bloom." So, there was some sort of change from an early or first flower to the "typical" pattern, whatever that was.

The key to solving the problem came with seeing 'Welcome' in bloom in 1990 and 1991: the mature 'Welcome' at Ten Oaks was completely covered with a bordered flower; that is, a very pale pink center with a pink border. The appearance of 'Welcome' suggested the hypothesis that 'Luna', 'Alight' and 'Welcome' all began as a more or less solid pink flower that became a bordered flower in time, and I should search for a white flower that was bordered in Tyrian Rose for 'Luna'. The hypothesis was strengthened when a Ten Oak's record was found that stated 'Luna' was "rose-pink with a white center." Also, a slide was found at the National Arboretum which showed the white throat and center for 'Alight' (see picture p.13). Re-reading the various descriptions and references for "white throat," "white center," and margin of color, the idea of a bordered flower made sense. The problem, I realized, was that I had been focusing on the outer edge of color and thinking of a border; whereas, Morrison and the Monograph 20 descriptions had been interested in the appearance of the inner whiteness and, hence, all the words about white center and throat.

One Saturday in May of 1990 as I was driving to the Ten Oaks azalea arboretum to continue survey work, I slowed down as I passed the display garden to see what was newly in bloom. Some sort of bordered flower caught my eye, and I went back and parked to inspect. It was a flower that fit the hypothesized description for 'Luna' and it was a plant that I had been unable to identify, but it looked very much like 'Martha Hitchcock'. I put a ribbon on it and immediately went to see Andy Adams to ask about the find. When I met him and before I could ask, he said to me, "Luna is in bloom in the display garden." We went to see and it was the same plant. I found out also that two days earlier Mrs. Adams had taken cuttings from the same azalea, marked them with a tag that said 'Luna', and put them in a vase in the Ten Oaks Nursery office for me to see. Foolishly, I had never thought to ask them what 'Luna' looked like, but my questions about location and the interest in finding it had alerted them to watch for it.

Although here was identification from people who should know, I sought other confirmation of the azalea as 'Luna' because it looked so much like 'Martha Hitchcock'. As this similarity was not mentioned in the official description, I was concerned that somehow 'Martha Hitchcock' had been mixed up as 'Luna' and I wanted to be able to prove they were different. A metal tag of the kind used at Ten Oaks for identifying the azaleas could not be found on the plant, but the remains of an old wooden label like those used by Glenn Dale was found. Unfortunately, it was not readable.

Comparison of the coloring of the tentative 'Luna' with the tagged 'Martha Hitchcock' in the Ten Oaks arboretum did show some differences. As seen on the cover of this issue and in the photograph of 'Luna' and 'Martha Hitchcock' together, the flower coloring of 'Luna' can cover anywhere from the outer one-half, to three-quarters, to almost all of the petal, but always retaining the whitish throat. Additionally, the color of the inner side of the petal near the flower center is a pale version of the color of the outer side and not pure white. 'Martha Hitchcock' is a bordered or margined flower where the color may cover up to one-half of the petal, but never more on a mature plant. The inner side of the petal and the center appear as pure white. No colored selfs (solid color) flowers were observed on the Ten Oaks plants. Although the difference in outer side color of petals between the tentative 'Luna' and 'Martha Hitchcock' is subtle and difficult to perceive, the color of 'Luna' is "almost Tyrian Rose"—that is, purplish-red (RHS86 74B)—while the color of 'Martha Hitchcock' is quite similar, but with more purple: a reddish purple (RHS86 78A) [7]. Putting the flowers side-by-side, it is hard to see the difference, but looking at the plants from a distance, one can see the overall effect of 'Luna' is slightly redder.

The placement of the azalea at Ten Oaks also suggested it might be 'Luna'. As both the azalea arboretum and the display garden were planted in 1950 and 1951, azaleas from Glenn Dale distributed in 1952, 1953, and 1954 tend to be placed everywhere. Thus, while some order of placement for some of the later distributions was found in the arboretum, other cultivars have been found by tag in the display garden only. The tentative 'Luna' is first in a row of four plants. The last plant is tagged 'Sambo', distributed in 1953. The plant next to 'Luna' has white-centered, pink flowers; it has been identified as 'Bravura'. The remaining plant is a white single that has not yet been identified. Another plant very nearby is believed to be 'Muscadine', distributed in 1953. This arrangement of late distributions in the display garden was checked with the Adamses, and they confirmed that later plants were so placed to show the new offerings and to fill in gaps where other plants had died.

A small point of further evidence in the identification of the tentative 'Luna' is that it has many more flowers in the head than 'Martha Hitchcock', even to the point of appearing as trusses of flowers. Monograph 20 says 'Luna' has two to three flowers in head; 'Martha Hitchcock' has one to three. Leaf and blotch descriptions in Monograph 20 were not helpful for differentiation.

The final piece of evidence to support, and indeed confirm, the identification of 'Luna' came from Morrison himself. In the 1951 letter to Dowdle mentioned earlier, he concluded the list of named and introduced Glenn Dales with a short list of hybrids under Bell number entitled, "Possibly still for numbering and naming." The

number for 'Luna' gave the descriptive statement:

> B.42495 BYM-special, probably same as Martha Hitchcock

With these words, the ambiguity of the Monograph 20 description is resolved, and the observed close similarity to 'Martha Hitchcock' substantiated, thereby identifying the two plants as much the same in appearance, but as different cultivars. Based on observations in 1992, a fuller description of the flower of 'Luna' is as follows:

> Flower 3 to 3-1/2 inches across, two to three in head, purplish-red (RHS 74B) with a whitish center. The center color is a pale tint of the purplish-red color of the outer side of the petals, not pure white. The amount of center coloring ranges from a small whitish throat or "eye" to covering half of the petal which results in a border or margin of color. A darker blotch is only readily evident on the more colored flowers. The bordered flower closely resembles 'Martha Hitchcock'.

This description could be made even more precise if the variability in the center coloring was known to always exist flower-to-flower, and/or year-to-year.

Discussion

'Luna' may be rare because it was distributed to only a few recipients and was apparently little propagated. It may be lost because it is both rare and looks very similar to 'Martha Hitchcock'. It could be mixed-up and mislabeled in some azalea plantings. Although some differences have been reported here, not enough is really known about bordered flowers to make definitive statements about characteristics and ways to differentiate cultivars.

There could be as many as thirteen bordered flowers in the Glenn Dale hybrids. Bordered flowers are defined as a white flower or a white- or pale-center flower with a colored margin, border or edge. These Glenn Dales are:

'Alight'	'Picotee'
'Boldface'	'Prosperity'
'Bravura'	'Sarabande'
'Fawn'	'Susannah'
'Helen Gunning'	'Teresa'
'Martha Hitchcock'	'Welcome'
'Luna'	

The determination for a bordered flower is based on the original descriptions made when the cultivars were selected from their seedling lots. These first descriptions did not always end up in Monograph 20 for some reason. There is also some change in recommendations for what to do with a solid color or self flower on an azalea which is supposed to have a bordered-flower. Of the thirteen, five have directions in Monograph 20 that say, "Cut out all branch sports reverting to solid color," or similar language. 'Martha Hitchcock' also had such directions originally, but they were changed in Monograph 20 to, "Strongly growing shoots usually produce self-colored flowers. Do not remove, as laterals give flowers with correct pattern thereafter." Why some say to remove selfs and others do not is not understood, and I wonder if they all behave as 'Martha Hitchcock' or, if not, why not? [8]

The implication for 'Alight', 'Bravura', 'Luna' and 'Welcome', at least, is that they start off as immature plants with flowers that are mostly solid colors (some white eye) and, over time, develop more and more center whiteness or pale coloring. The large 40-year-old plant at Ten Oaks of 'Welcome' shows only bordered flowers as does 'Martha Hitchcock', but 'Luna', which has been cut-back, shows variability in the flowers. Some insight about the plant maturity issue may come from the Monograph 20 text about the *R. kaempferi* growth habit: "Its growth habits in its early years are not popular with amateurs, as it is the type of plant that tends to make most of the skeleton growth before it fills in the branches." (p. 4). This suggests some sort of relationship between skeleton and branch growth, and flowering, but it doesn't explain those cultivars with parentage other than *kaempferi*.

To further complicate the matter, the ancient Japanese text on azaleas by Ito Ihei, *A Brocade Pillow*, dating from 1692, suggests the variable of nutrition may be involved. He describes the only bordered azalea in the book thusly:

> SOKOJIRO (White Center). The margin of the flower is crimson and the center is white. Solid red flowers may also be produced. Underfed plants are the most highly regarded, because the weaker the plant, the whiter the centers of the flowers are. Sokojiro can be planted in sandy soil because it is a strong variety. If it is well fertilized, the branches become thick and, generally, red flowers are produced. Smaller plants produce red flowers exclusively, because the true nature of the selection dominates when young. Extremely underfed plants have very thin branches, like wires. The flowers of these fine plants are mostly white, with just a flush of red on the margins...[9].

I have started taking careful notes when observing bordered-flower plants at Ten Oaks, but probably the best way to answer the questions about bordering is to take cuttings from all thirteen, plant them side by side, watch them over the years and try some experimentation. Such research might also provide answers about whether bordered flowers are sports only, as Morrison and others have stated, and whether bordered flowers themselves produce sports which may resolve questions about the origins for 'Ben Morrison' as Miller has discussed [10].

Conclusion

As far as I have been able to determine, a complete collection of all 454 Glenn Dale hybrids has never been assembled. Morrison didn't have all of them for the National Arboretum

in the early 1950's, and others since then have been stymied in such a development especially because of not being able to find 'Luna'. The goal of the survey work at Ten Oaks is to develop a complete collection of Glenn Dales, and finding 'Luna' now makes the achievement of that goal much more possible. Propagations of 'Luna' have already been delivered to Barbara Bullock, Curator of Azaleas at the National Arboretum. Soon they will be available for the public to see and inspect in the Morrison Clonal Garden, although if there is truth in Morrison's statement, it may take "years to give [the] typical flower pattern."

References and Comments

(1) Morrison, B. Y. *The Glenn Dale Azaleas*, U.S. Department of Agriculture, Monograph 20, Government Printing Office, Washington, DC, 1953. Reprinted in 1978 by Theophrastus Publishers, P.O. Box 458, Little Compton, RI 02873.

(2) The "Bell" number was a working number assigned to crosses and to selections from crosses for individual plant identification before naming and introduction.

(3) Copies of old Glenn Dale records have been made available by William C. Miller III. I have copies of all of them referred to in this paper, but they are not individually cited. From these records it has been possible to trace almost all of the Glenn Dales back to original crosses and to construct a data base of crosses and sisterhood.

(4) Morrison stated in a 1962 letter to Corinne Murrah (notes taken by Roy Magruder, typed by Bill Miller in 1991) that, "My name is held in low regard by the nursery trade as having introduced too many Glenn Dales." Other documentation from recipients of the Glenn Dales confirm that there were too many azaleas distributed and interest waned as the distribution continued.

(5) West, R. T. *Distribution of the Glenn Dale Azaleas and the Ten Oaks Nursery*, **THE AZALEAN**, December 1989, 11(4), 69-73.

(6) West, R. T. *The Azaleas of Ten Oaks Nursery; A Preliminary Report*, **THE AZALEAN**, September 1992, 14 (3), 65-69.

(7) Royal Horticultural Society. R.H.S. Colour Chart, 1966, Reprinted in association with the Flower Council of Holland, Leiden, 1986.

(8) There has been debate about why Morrison advised removing sports or selfs, but the question here is about what appear to be inconsistent directions for bordered flowers.

(9) Ihei, I. *A Brocade Pillow; Azaleas of Old Japan*, translation by Kaname Kato with an introduction and commentary by John L Creech, New York: Weatherhill, 1984, 96.

(10) Miller III, W. C. *The evergreen azalea cultivar 'Ben Morrison'*, Journal of the American Rhododendron Society, Fall 1984, 38(4), 178-9, and Miller III, W. C. *More on the evergreen azalea 'Ben Morrison'*, Journal of the American Rhododendron Society, Summer 1988, 42(3), 159-161. See also **THE AZALEAN**, Spring 1982, 4(2), 9.
❑

Ten Oaks Glenn Dale Project

Richard T. West and William C. Miller III
Columbia, MD and Bethesda, MD

In response to the resurgence of interest in the Glenn Dale hybrids and in an effort to reverse the decline in their availability, we are announcing our plan to sponsor a distribution of Glenn Dale cuttings from the Ten Oaks Nursery arboretum in Clarksville, Maryland. Efforts are already underway to reconstitute the Glenn Dale collection at the U.S. National Arboretum, and we would like to establish additional reference collections in other regions of the country wherever sufficient interest, cooperation, and commitment can be found.

We would like to identify a group of individuals (cooperators) and (with the help of the cooperators) regional public gardens/arboreta around the country that recognize the importance of this opportunity and would be willing to participate in the development of collections of Glenn Dale hybrid azaleas in their respective regions. We propose, over the next several years, to provide the "cooperators" with three to five unrooted cuttings of as many as 200 or more different Glenn Dale hybrids from the Ten Oaks arboretum. We would expect the cooperators to pick up the cost of the overnight shipping (currently estimated at about $15), to root the cuttings, to grow them to sufficient size to verify their identity, and to share at least one specimen of each cultivar with at least one reputable public garden that would be willing to commit to receiving, properly labelling, and caring for such a collection.

We would like to hear from people who are interested in participating in the project. We ask that any interested individual submit a letter indicating willingness to serve as a cooperator, describing your facilities and experience (i.e., hobbyist with greenhouse and lots of time, 3000-acre 50-year-old production nursery, etc.), and identifing the reputable public garden that has agreed to receive the specimen plants that you would produce. We ask that such letters be postmarked no later than June 1, 1993 so that we can make plans for the necessary logistical arrangements. Depending on the response, it may be necessary to be selective in identifying cooperators.

Send your letters to:
Ten Oaks Glenn Dale Project
5042 Ten Mills Road
Columbia, MD 21044

After satisfying the requirement of providing one specimen of each cultivar to the collaborating public garden, the cooperator would be at liberty with respect to the balance of the material. It is hoped that the cooperators would do further propagations for the public. ❑

Drought No More

Jean and Fred Minch
Puyallup, Washington

Contrary to the belief that it rains all the time in the Pacific Northwest and that we all have web feet, we do have to water our plants, lawns and crops, and with the influx of population the water is getting scarce and expensive here just like it is all over the country.

We were persuaded by our orchardist son-in-law to try using the microsprinklers that had only been used in this area for orchards and vineyards. We installed them in our garden the same way these growers did and now over the past seven years we have added new ideas and changed the system several times; however, the little 1-1/2" sprinkler is still the same and year after year it contributes to making our three acres burst with color that is a sight to behold. One of the side benefits we especially enjoy is the beautiful effect of the fine spray that beckons the birds to take their daily bath and flutter through the foliage in an array that would thrill the most avid bird watcher.

We had an especially troublesome area, a steep hillside planted in deciduous azaleas. The display of color was enhanced by planting them on this slope, and they were able to withstand the heat of the day and the cold part of the season, unlike the rhododendrons we also grow. The drawback, however, was the watering. We tried the large impact sprinklers but the force of the water damaged the flowers, and unless we monitored very carefully the run-off tore soil from the roots. Drip systems and soakers didn't cover the rocky terrain completely enough. It was during the hottest week of the summer of 1985, with our beloved plants wilting and threatening to expire, that we installed the new system and now wonder why we didn't listen to Fritz years ago.

What we have is a system of microsprinklers that puts out a fine mist, duplicating the tropical moistness azaleas and rhododendrons like so well. It gives off a soft caressing mist that surrounds even the most delicate flower without harm. A slight breeze will swirl the mist in and around the leaves and plant and refresh the garden like a soft summer rain. The water then settles to the ground keeping the moistness on the shallow roots. Azaleas, like rhododendrons, do not wish to stand in water or in soil that is soggy, although they enjoy a cool, moist soil. Because their roots are shallow, heavy watering is a waste and takes the nutrients on down past the root system.

Since the use of these microsprinklers is relatively new in orchards and vineyards and even newer in azalea culture, we have had to rely on the experience of orchardists. Microsprinklers have reduced application rates significantly and are able to spread the available water over more acreage than impact sprinklers. An impact sprinkler primarily throws a stream of water; a microsprinkler uses a spinning head which throws a circular pattern of small droplets. Each droplet is a sphere, the surface of which is exposed to the air. With more droplets of smaller size the actual water-to-air surface is increased significantly. Increased water-to-air surface increases the amount of evaporation.

This brings up another plus, the use of microsprinklers for frost control. They are efficient at raising air humidity levels, creating a humidified "microclimate" and can provide frost protection at lower application rates. During the early spring when the delicate buds and flowers are starting to open they can be protected by a steady flow of droplets that completely and gently encircle the bud. The buds have to be protected from thawing until the temperature rises to 34 degrees F.

The volume of water used by 40 to 50 microsprinklers is similar to that of one impact sprinkler. An impact sprinkler waters a large circumference with the outer ring getting most of the spray and some of the inner circle getting little or no water. During blooming season the harsh heavy spray does little to enhance the beauty of the flower. The system of microsprinklers reduces the amount of water used, distributes it evenly and is gentle with both foliage and flowers.

With all the benefits of systemized and economical watering, freeze control, etc., it would seem almost too much to expect the installation to be comparatively simple and economical. Approximately 40 microsprinklers equal the cost of one standard impact sprinkler. Our particular garden covers approximately three acres. It is on a hill that is very steep in places, has many ridges, ledges, corners and strips along buildings and roads, but all our plants are now covered with equal care.

As mentioned earlier in this article we first installed the system the same way they were installed in orchards, which is on PVC pipe with the sprinkler mounted on a half-inch base. The basic bridge accepts any of the ten different sized nozzles, the five spinners or the seven spreaders to form the basic microsprinkler. It can then be joined to either the male base with 1/2" or 3/4" threads or as "butterfly" on tubing that connects it to poly pipe. All parts can be assembled and disassembled in the field without the use of tools, or the need to shut off the water supply. We now find the best way is to use them with black poly pipe. The most difficult part of explaining this system is trying to describe it on paper. A simple explanation is to thread the poly pipe throughout the garden like a hose. Depending on the water pressure each sprinkler will cover 15' to 20' in diameter. A small hole is punched into the pipe, and the sprinkler set-up is pushed into this (no glue). They are spaced to cover the area and other than connecting it to the water source and folding over the end of the main

(Drought No More continued)

pipe you are ready to sprinkle your garden.

Two of us basically installed all three acres, plus two lath houses in approximately one week. The micro-sprinklers have features that permit a variety of applications; for example: peripheral or sectional spray irrigation, sprinkler irrigation, misting, change of diameter coverage or change of droplet size. The same little sprinkler is equally effective in the field, greenhouse or lath house for seeds, seedlings or large established plants by simply changing the nozzle and/or spinner or spreader.

A final feature that we added to our system was some good quality, battery-operated timers. We use battery-operated timers to eliminate the expense of extensive electrical work and to allow us to have them in remote areas where electricity is not available. Routine watering for ten minutes twice a day in the early morning, about 5:00AM, and late afternoon, after 6:00PM, is most effective for our garden. However, we frequently turn them on just for the joy of watching the beautiful effect. ❑

Society News

Ben Morrison Chapter
Sue Switzer, *President*

Our last meeting was our annual Christmas Party held at the home of Bobbie and Alan Jones December 20. We had a wonderful dinner, opened exchanged gifts and Sue Switzer conducted our meeting.

The next meeting will be March 21 at the Dunkirk Library with social time starting at 2:00PM and followed by our meeting. ❑

Brookside Gardens Chapter
Bill Johnson, *President*

At the December 7 meeting the election of officers was completed with the incumbent slate agreeing to serve another year.

Bob Stelloh reported on the work done so far on the George W. Harding Memorial Garden at River Farm. He recognized the 800 hours of service given by the volunteers from the Brookside, Northern Virginia and Ben Morrison Chapters. He was waiting for pine-bark mulch to be delivered from South Carolina to be worked into the soil this winter. There is still time to volunteer, call Bob!

Barbara Bullock, Curator of the Azalea Collection at the National Arboretum, thanked the chapter for their recent donation made to FONA, designated to the Azalea Collection. This donation was made from the proceeds of the chapter's recent plant auction held at the Arboretum, an affair we hope to keep up in the future.

The speaker for the evening was Jim Plyler, owner of Natural Landscapes in West Grove, PA, where he grows many species of native azaleas. We were treated to a very informative lecture based on Jim's personal experiences as a grower. His slides were so spectacular it was difficult not to drool. Each member in attendance was given a plant of *R. austrinum*.

The speaker for the February 1 meeting was Paula Leddy. Ms. Leddy has a masters degree in entomology and is currently a graduate student at the University of Maryland working on her PhD. Paula gave a very clear and informative lecture on Integrated Pest Management (IPM) for the azalea garden. We were presented with such useful information as the number (4) of generations of lace bug per season in Maryland and why it is important to know life cycles of the pests. She covered many other common problems with azaleas in our area.

Also at the meeting we presented the Frederic P. Lee Award to Mr. Mike White. Anyone who knows Mike White will agree that recognition is long overdue. Mike has long supported the chapter with endless generosity in plants, time and information. Mike's interest in azaleas started at the age of ten, when he was influenced by his grandfather, George Harding! We are very fortunate to have Mike as a member of the chapter and congratulate him on his recent marriage and the Lee Award. ❑

Dallas Chapter
Stephen Brainerd, *President*

The Dallas Chapter is having the busiest spring of its young history. We had the cover story for "Neil Sperry's Gardens" magazine, describing how to select, plant and care for azaleas. The Dallas Arboretum asked us to provide an azalea seminar for the docents, as well as a booth to provide azalea information to the public during the spring festival. We are participating in "Neil Sperry's All Garden Show," a three-day regional event which includes a booth as well as two one-hour lectures. We will visit Frances Ware's garden in March prior the chapter meeting featuring a presentation "Designing with Azaleas". Of course, we are hosting the National Convention and Annual Meeting and look forward to welcoming you. In April we will enjoy Edwina McGaig's garden before attending the chapter meeting and a presentation on "Azalea Bonsai." In May we will visit Finch's Azalea Farm in Canton, TX. ❑

Glenn Dale Preservation Project
William C. Miller III,
Bethesda, Maryland

The ASA's national project at the Glenn Dale station is entering its 11th year. The woods area where the majority of Ben Morrison's azalea work was done is undergoing a major environmental transition from a relatively heavily wooded state to a more exposed or open condition. Many of the tall oaks that comprised the primary component of the area's canopy have failed to survive successive years of gypsy moth defoliation. While the gypsy moth burden has begun to collapse due to state and local spraying

programs and the catchup effect of the natural predators, the loss of canopy has provided improved conditions for "industrial-grade" weeds including some very pernicious members of the rose family (thorny weeds). By any standard, this is not a positive development. In several places, the paths are blocked where trees have fallen and the weeds have prospered unchallenged. It is hoped that station staff will have an opportunity to lend a hand in dealing with the downed trees as nothing short of a tractor will be effective.

One of the workdays this past year was spent exploring a structure at the Glenn Dale station called "Skeeter's House." In times past, workers lived on the station grounds in housing provided by the government. Presumably a security measure, this practice continues today but to a lesser extent. Long abandoned, "Al's House" and "Skeeter's House" have become storage facilities for agricultural supplies, surplus equipment, old file cabinets, and miscellaneous whatever. With permission, I had previously explored "Al's House" (as in Albert Close) and discovered many boxes of old and obscure journals but nothing germane to my azalea interests. The goal in such exercises is to uncover old and long forgotten, but historically useful Glenn Dale azalea files and documentation which enable us to better understand the Glenn Dale hybrid azaleas. Many of the Glenn Dale articles in **THE AZALEAN** over the last several years have been made possible by the discovery of period documents and notes from the station at Glenn Dale and elsewhere. Unfortunately, "Skeeter's House" yielded nothing historically useful.

The Glenn Dale workdays for 1993 will all be Saturdays, as is the custom. The specific dates will be April 17th, September 18th, October 16th, and November 20th. Work will commence at 9:00AM and conclude at 1:00PM or whenever we get tired. Gloves, shears, loppers, saws, and axes will be useful implements to bring. There are no rain dates, but anyone interested should check with me at the last minute. I try to confer with Dr. Parliman sometime during the preceding week to make sure that our planned presence does not present any problems for him. Occasionally, certain station activities, such as field sterilization, raise safety issues which necessitate cancellation of our plans.

All are reminded that the National Germplasm Quarantine Center (formerly the Plant Introduction Station at Glenn Dale) is not an "open" facility. ASA members wishing to visit the station on other than scheduled workdays must make advance arrangements at least two weeks prior to the desired date by contacting me at (301) 365-0692. Consistent with the terms of the permit, I will request the necessary permission from the proper authorities to make the visit possible. ❑

ASA New Members

At-large Members

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Knoxville, TN 37909
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Richmond Virginia Chapter

Mr & Mrs J. Kenneth Davis
1903 Nortonia Road
Richmond, VA 23229
PHONE: (804) 285-2825

Azalea News

American Rhododendron Society Annual Convention

The American Rhododendron Society Annual Convention will be held April 28 to May 2, 1993 with headquarters at the Sheraton Tacoma Hotel in Tacoma, Washington.

Tours will include NW Trek/Mt. Rainier, RSF/Anderson, Bainbridge Island, Morning Sun Antique Row, Olympia/Briggs, the Rhododendron Species Foundation, Anderson's, Point Defiance/Gig Harbor and Backyard Gardens.

Speakers will be Dianne Bell, Warren Berg, Bruce Briggs, Richard Brown, John Fitzpatrick, Frank Fujioka, Hans Hachmann, Dennis Hendrickson, William Hicks, David Leach, Hank Schannen, Britt Smith, Clint Smith, Jeanine Smith, William Stipe, Peter Tigerstedt, Jon Valigorsky and Allen van Veen. ❑

A New Treatment for Petal Blight

A suggestion made in the book, *Success with Rhododendrons and Azaleas* by H. Edward Reiley (Timber Press, Portland, Oregon, 1992) may be of interest to growers of azaleas this spring. "A new fungicide (triadimefon) applied just as the flower buds start to show color offers some but not complete protection. If the disease is severe and the weather remains wet, a second application may be necessary when the flower opens." ❑

Azalea Calendar

March 16	Dallas Chapter Dinner at Frances Ware's garden, 5:30PM (bring your own dinner) and Chapter meeting at Highland Park Town Hall beginning at 7:00PM
April 1-3	National ASA Convention and Annual Meeting at Doubletree Hotel Campbell Centre, Dallas, Texas; Board of Directors Meeting
April 5	Brookside Gardens Chapter Meeting at the Potomac Library, Maryland at 7:30PM
April 17	Glenn Dale Workday from 9:00AM until 1:00PM. For more information contact Bill Miller (301) 365-0692.
April 18	Ben Morrison Chapter Meeting at Dunkirk Library, Dunkirk, Maryland at 2:00PM
April 20	Dallas Chapter Dinner at Edwina McCaig's garden, 5:30PM (bring your own dinner) and Chapter meeting at Highland Park Town Hall beginning at 7:00PM
April 24	Plant Sale at the National Arboretum in Washington, D.C., sponsored by Brookside Gardens Chapter and Friends of the National Arboretum (FONA)
April 28 - May 2	Annual Convention of the American RhododendronSociety at the Sheraton Tacoma Hotel, Tacoma, Washington
April 30 - May 2	Brookside Gardens Chapter Flower Show at the Landon Azalea Festival, Bethesda, Maryland 10:00AM until 5:00PM (Princess Azaleas will be sold)
May 1	Deadline for receiving material (articles, advertisements, and chapter news) for the June issue of **THE AZALEAN**
May 1	Dallas Chapter tour of Finch's Azalea Farm, Canton, Texas
May 2	Executive Committee Meeting
May 8	Brookside Gardens Chapter Azalea Mart
May 18	Dallas Chapter Meeting, Highland Park Town Hall at 7:00PM
June 7	Brookside Gardens Chapter Meeting at the Potomac Library, Maryland at 7:30PM
August 1	Deadline for receiving material (articles, advertisements, and chapter news) for the September issue of **THE AZALEAN**
August 1	Executive Committee Meeting
September 18	Glenn Dale Workday from 9:00AM until 1:00PM. For more information contact Bill Miller (301) 365-0692.
October 10	Executive Committee Meeting
October 16	Glenn Dale Workday from 9:00AM until 1:00PM. For more information contact Bill Miller (301) 365-0692.
October 19	Dallas Chapter Meeting, Highland Park Town Hall at 7:00PM
October 30	Board of Directors Meeting tentatively scheduled at the National Arboretum
November 1	Deadline for receiving material (articles, advertisements, and chapter news) for the December issue of **THE AZALEAN**
November 20	Glenn Dale Workday from 9:00AM until 1:00PM. For more information contact Bill Miller (301) 365-0692.

Azalea Society Of America Management Calendar

The Board of Directors has approved the following calendar to guide the management of the Society. In particular the deadlines for **THE AZALEAN** are called to the attention of authors of articles, advertisers, and other contributors to the journal. Chapter officers should also note the schedule for receiving dues and for issuing dues reminder notices.

January	Executive Committee Meeting
January 15	Disburse chapter share of dues to chapters; send dues renewal reminders; provide chapters with directory information for non-renewals
February 1	Deadline for March issue of **THE AZALEAN** (including financial statement, advertisements, and articles)
March	Executive Committee meeting to prepare for Board of Directors meeting
March 1	Finalize mailing list for March issue of **THE AZALEAN** (this means that if dues have not been paid by this date a copy will not be mailed)
March 10	March issue of **THE AZALEAN** mailed (including ballot for election of officers and directors, if appropriate)
May 1	Deadline for June issue of **THE AZALEAN**
April/May	Board of Directors Meeting and Annual Membership Meeting
May 30	Prepare and print Roster
June 15	June issue of **THE AZALEAN** mailed (to include ballot for Best Article in **THE AZALEAN**)
July/August	Executive Committee Meeting
August 1	Deadline for the September issue of **THE AZALEAN** (Convention Issue)
September	Executive Committee Meeting
September 10	September issue of **THE AZALEAN** mailed with Roster inserted
October	Board of Directors Meeting; prepare budget for next year
November 1	Deadline for December issue of **THE AZALEAN** (including proposed slate for next year's election and annual index of articles)
November 10	Mail membership dues notices
December 10	December issue of **THE AZALEAN** mailed (including registration material for Annual Meeting and Convention and ballot for election of officers and directors if annual meeting is before May 1)

Azalea News

First Time Offering

The five named Princess Azaleas (see p. 9) will be sold by the Friends of the Perkins Garden during the Landon Azalea Festival. The sale will take place in the Perkins Gardens April 30 through May 2, 1993 from 10:00AM until 5:00PM.

Bobbi McCeney ❑

The photograph below shows the developers of the Princess Azaleas. From left to right are: Dr. Jim Shanks, Andy Adams, Barbara Bullock and Dick West.