THE AZALEAN

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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 Journal of the Azalea Society of America, Inc.

Dr. Charles H. Evans, Editor

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IN THIS ISSUE:

ASA'S INTRODUCTION TO THE NORTHWEST

The Northwest Chapter of the Azalea Society of America, acting as host for the Ninth Annual National Convention, assembled the first group of arriving delegates at Nendels Motor Inn in Portland, Oregon, on Monday, April 27, 1987. The bright sunshine and shirtsleeve temperatures erased our worries about the prospects of our normal blustery weather for this time of the year and set the optimistic tone for our planned agenda for the next few days.

About 45 members attended our opening ceremonies that evening in the Promenade Room at Nendels. Welcoming comments were made by Chapter President Otto Henrickson, and Eleanor Stubbs introduced our feature speaker, Bob Badger. Bob's unusual and thought-provoking presentation, entitled "In Search of the Yellow Evergreen", piqued the interest and curiosity of those attending and established the calibre of the convention events to follow.

Opening night speaker Bob Badger introduces Dr. Robert Ticknor, Professor of Horticulture at Oregon State University.

Tuesday morning members boarded the chartered bus for the beginning of our first tour. An impromptu stop was made to view the falls on the Willamette River at historic Oregon City before moving on to Arneson's Nursery in Canby. Ivan and Robertha Arneson for many years have emphasized the hybridizing of the deciduous Exbury azaleas in their ten acre nursery. A picture display allowed our group to better visualize the development of these beautiful azaleas. Refreshments were served and we strolled through the gardens before again boarding the bus.

A short stop was then made at Guttormsen's Greenwood Gardens, adjacent to Arneson's Nursery. Mr. Guttormsen paused from his very busy schedule to greet the group in the bus. It was explained that we caught him in the midst of plant shipping from the four acres of lathe houses in which he has growing 90,000 evergreen azaleas.

Ivan Arneson shows Azalea Society members around his deciduous azalea nursery.

Not wanting to unduly keep Mr. Guttormsen from his work, the tour quickly moved on to Stubbs Shrubs in West Linn. Hosted by Eleanor and Art Stubbs, this was the lunch stop for the day and allowed members time to inspect and make mental notes on how to get a large volume out of a small area. This two acre nursery has four 130 foot shade houses in which to propagate a huge variety of evergreen azaleas and to display one of their specialties—hanging baskets. Planted with selected azaleas that tend to cascade, these beautiful baskets are outstanding, especially when in full bloom. Also featured by Art and Eleanor are the "We Haus" miniatures for rock garden and Bonzai use.

"Bus tour guide" Eleanor Stubbs and hybridizer Bill Guttormsen during the brief stop at Greenwood Gardens.

The next stop on the Tuesday tour was made at the Cecil and Molly Smith Garden. Developed over a 40 year period by Mr. and Mrs. Smith, the gardens are now owned and maintained by the Portland Chapter of the American Rhododendron Society. Members on the tour

were greeted and escorted through this three acre garden by Adele Jones and others from ARS. The garden shows a mastery in the use of companion plants, such as lilies and primulas, and the use of natural land features, including old stumps and logs, for the predominant rhododendron and azalea plantings. Shade cover is provided by many varieties of trees. Prominent are the choice cherry trees, which compliment this beautifully landscaped facility.

Azalea Society Treasurer Glenn Taylor pauses to record one of the many lovely azaleas at the Cecil and Molly Smith Garden.

By early afternoon, the bus glided through the picturesque Willamette Valley, headed for Eugene and the Valley River Inn about 80 miles to the south. We passed through fields of hops, turf grass, filbert trees, and berry plants along the way.

Attendance at the evening programs at Valley River Inn swelled to nearly 70 delegates as others joined the festivities. We began with a social hour and a plant sale. Our speaker for the evening was Eleanor Stubbs, who outlined the history of the Greenwood Azaleas. Her presentation, augmented by slides, revealed the purpose and methods of development of these beautiful and unusual evergreen azaleas. Many varieties of the Greenwoods hybridized Mr. Guttormsen were available for purchase at the plant sale.

On Wednesday morning, over 60 delegates boarded two buses for the second tour. Again, the weather was in our favor as we traveled through the early morning in the lush and green farming country of the Willamette Valley. Our destination was Philomath, located about 40 miles north of Eugene.

Our first stop was made at the home and gardens of Mrs. Helen Schroyer, who welcomed us with typical western hospitality and provided refreshments under the towering oak trees adjacent to the house. From this patio area, the panorama of her garden was delightful. Several acres in size and intersected by a large stream, the rolling landscape has lawned paths separating the plantings. The garden is maintained almost single-handedly by this lady, who typifies the axiom relating to the young in heart, young in years when it comes to the love of plants and flowers. Featured in the garden are many—a variety of conifers, decidious trees, lilacs, roses, azaleas, rhododendrons, fuscias, bulbs, and numerous other plantings. All agreed that this was an unusual and beautiful place well worth the stop to stroll through.

Helen Schroyer (right) guides a group of Azalea Society members through her garden.

From here, we went down the road a few miles to arrive at Hass Nursery late in the morning. The setting—rolling hills, tall Douglas firs, wild ducks on the pond, the creek—was a perfect place to explore. Twenty acres in size, the nursery features many large shade houses, smaller greenhouses, and large open spaces to accommodate the azalea and rhododendron plantings. This was our lunch stop for the day, and it allowed all of us to relax on the deck of the home and on the lawns under the towering trees. The hospitality of Henrietta and Dallas Hass was a fitting conclusion to the tours in our convention program.

Azalea Society President Mal Clark chats with Henrietta Hass as others admire the hanging basket display at the Hass Nursery.

The evening schedule included another plant sale with a social hour before the buffet dinner featuring a prime rib and baked salmon menu. A short business meeting followed, in which the new officers for the forthcoming year were announced and introduced. They are Malcolm Clark, President, Bob Hobbs, Vice-president, Valerie Lorenz, Secretary, and Glenn Taylor, Treasurer. The speaker for the evening was Britt Smith, who was introduced by Bob Badger. The program, accompanied by slides, described explorations of the native habitat of *R. occidentale* in the coastal areas of Northern California and Southern Oregon. Hybridizing programs involving *R. occidentale* with other azaleas and rhododendrons were discussed, and an informative question and answer session developed in which Britt Smith, Bob Badger, and Robert Ticknor displayed their expertise in the subject area. The last item on our agenda before adjourning was a lively and very entertaining plant auction conducted by Nels Nelson. After acknowledgements and parting remarks were made, Bill Miller rose to issue a formal invitation for all members to attend the 10th National Meeting of the Society to be held next May in Bethesda, Maryland. The convention was then declared adjourned.

Auctioneer Nels Nelson and assistant Otto Hendrickson keep the plant auction moving briskly.

Otto E. Henrickson
Northwest Chapter President.

IN SEARCH OF A YELLOW EVERGREEN AZALEA (HOW TO HYBRIDIZE A YELLOW EVERGREEN AZALEA)

Bob Badger
Kent, Washington

In the early 1960's, at a dinner at Ivan's Restaurant in Puyallup, Washington with Augie Kehr, he made a remarkable statement, "I think it is possible to produce a yellow-flowered evergreen azalea." What a shocking statement that was! His theoretical method involved using deciduous azaleas as the source of genes for yellow flower color and the possible creation of tetraploid forms through the use of colchicine. The idea seemed plausible, yet so difficult to achieve. However, about eight years ago, in response to an article I wrote in the Seattle Rhododendron Society's newsletter, the Northwest Hybridizers Group was formed to gather amateur hybridizers together to discuss successes, failures, and the complex problems in hybridizing rhododendrons. The group now has a southern section in Tacoma, and at the two monthly meetings, as many as sixty or seventy hybridizers exchange ideas. They have learned much about color inheritance. Now, I believe it is *easily* possible to create a yellow evergreen azalea. I have certain strong ideas, so I wrote Augie to ask him of his success to date.

Notes On Hybridizing For a Yellow Evergreen Azalea From Dr. August Kehr - February 1987

What a marvelous memory you have to remember a discussion at a dinner in the 1960's! In response to your letter, I am very actively working on breeding a yellow evergreen azalea. The method being used is exactly the one I proposed in 1963, before I had even made the first cross. It was somewhat daring for me to write an article on a method that was purely theoretical. You will find the article in the publication that Mr. Leonard Frisbie published called "Rhododendron". The complete reference is: Kehr, A. E. 1963. "A Potential Method to Produce a Yellow-Flowered Evergreen Azalea", *Rhododendron* 13 (3): 4-5. In the 24 years following the original article, I have found out many things through experience. Although the method is unchanged, the choice of breeding material has changed drastically.

Now for some notes:

1. My original parents in the yellow azalea program were: *R. calendulaceum* 'Colossus' as a source of the carotinoid pigments: and tetraploid evergreen azaleas 'Wako', 'Taihai', 'Banka,' and 'Getsutoku', which genetically functions as a tetraploid.

2. Hybrids between *R. calendulaceum* 'Colossus' and the four azaleas are easily made, the cross produces lots of seed, the seed germinate readily, but the offspring are weak growers. However, at maturity the hybrids are both male and female fertile, and F2's are readily obtained (also weak growers).

3. The cross succeeds in the direction shown but not the reverse (i.e., 'Taihai' × *R. calendulaceum* 'Colossus' is unsuccessful). This is exactly the situation found in crosses with the Malesians, which I will report on at Eugene. (Did you know Malesians could be hybridized with scalies and non-scalies outside the Vireyas?).

4. My problems (unforeseen) were that the white flowered tetraploids used as evergreen pollen parents contained genes for pigment production of anthocyanins—hence the yellow was hidden by the red anthocyanin pigments. I have corrected this by using a recessive white evergreen parent. The above whites are white because of a single gene that prevents all color from showing. The recessive white is white because of the above gene plus the fact that all the anthocyanin genes are also recessive. Likewise, *R. calendulaceum* 'Colossus' is orange. The color orange comes from anthocyanin pigments (water soluble red) plus the carotenoids (water insoluble yellow). Thus both of my earlier parents carried anthocyanin pigments. For this reason all the hybrids were orange—not yellow. I failed to foresee this pitfall.

5. I have since been using several evergreen azaleas that are cream-colored because they carry water soluble flavones. These include 'Olga Niblett', Pryor 76-89, Pryor 75-305, *R. Kaempferi* 'Cream', etc. The Pryor lines are the remnant (actually the best lines) of the Beltsville program that fell under my administration as Chief of the Vegetables and Ornamentals Branch. It now appears that Bob Pryor's work could get only cream colors because the breeding material contained only flavones. I maintained two lines as indicated. Pryor 76-89 is a light cream color. It is interesting because some of the flowers lack both pistils and stamens. Even when good pistils are present, they are non-functional. The pollen, however, is fully functional. Pryor 75-305 is even more interesting. It is a dwarf with badly crinkled leaves, but is a light yellow—the best color of all the material. However, I have never been able to propagate it, and my only plant is slowly degenerating. However, Pryor 75-305 is fertile, female and male. I suspect the badly crinkled leaves come from chromosomal aberrations resulting from the initial crosses Bob made with deciduous × evergreen parents at the diploid level. I was almost dumfounded to find in some of my progenies from Pryor 75-305 the exact same crinkled leaved segregates, perhaps further evidence of the transmission of the probable chromosomal aberration.

6. The hybrids and derivations of the parental material described in (5) are all diploids. Try as I might, they do not cross with the yellow-flowered *R. calendulaceum* plants I have. Hence my efforts last year and now are to double the chromosomes. My basement is full of seedlings treated with colchicine. This year I am trying the acenaphthene method described in my chapter of Fred

Galle's *Azaleas* book. This method came from a German reference (Hans Eberhard Fischer. 1963. Tetraploide Beta-Ruben Durch Acenophthen-Applikation. *Z Pflanzeng*. 49: 91-95). If no one can find this reference, or having found it, cannot read German, I have a translation which was done by Sam Emsweller 11/14/63. I will not know the success of this method until later, but if it works, it is far less difficult than using colchicine. I don't think my 1986 efforts resulted in any tetraploids, but I am hopeful for 1987 because of the many plants and seedlings involved.

7. Upon obtaining the above tetraploids (which are improved creams) and the nice *yellow*-flowered *R. calendulaceum* plants, I will then continue as outlined in 1963!!!—24 years later.

8. For your program you should have a picture of Pryor Yellow 75-305. I am not familiar with Pryor Red 75-315 that you mentioned in your letter, and unfortunately I do not have a picture of Pryor Yellow 75-305.

9. I obtained a cutting of evergreen azalea "Creamy Perfection; a plant of unknown origin from one of the gardens in Charleston, S.C. She told me it was light yellow, but I have never seen the flower. This clone might accidentally be the same as the one described by Nuccio in his 1986-87 catalog as Kurume azalea "Mizuno-Yamabuki"—an old variety "lost" for many years. "Very, very creamy white almost yellow". I ordered this plant, but the stock was already sold.

10. I am also attempting to develop a tetraploid *R. keiskei* from a very, very yellow seedling, with the idea that *R. keiskei* might work if *R. calendulaceum* fails. Anyone who has tried to double chromosome numbers will know how difficult it is. I am also still intrigued with the note put in my 1966 article in the ARS Quarterly Bulletin (Kehr, A. E. 1966. Breeding for a Purpose. *Quarterly Bulletin of ARS* 20 (3): 130-141) that tetraploid roses are more intense yellow than diploid roses. Wouldn't it be nice to know if this is also true in azaleas and rhododendrons? I have some yellow rhododendron seedlings being treated with ACE (see (6).

I neglected to tell you the recessive white is 'Perle de Snynaerde'. I got this information by gleaning the writings of Dr. Heursel of Belgium—one of the speakers at the 1986 ARS Breeders Roundtable. We have no one in the U.S. that is doing work on genetics of flower colors comparable to what Dr. Heursel is doing. It is sad to say that probably neither the U.S.D.A. nor any state would support such work in the U.S. See pages 406-412 in *Azaleas*, by Fred Galle about Dr. Heursel's work on inheritance of flower color in azaleas.

Bob, this has been a rambling letter and I have told you all I know. Now anyone can breed a yellow-flowered evergreen azalea. As I said back in the dinner meeting at Ivan's Restaurant in the 1960's—"I think a yellow evergreen azalea can be created"—I still do.

Following is the article in the "Rhododendron , publication of the Pacific Rhododendron Society, to which Augie makes reference in the above letter.

A Potential Breeding Method To Produce A Yellow-Flowered Evergreen Azalea

August E. Kehr

A yellow-flowered evergreen azalea is the dream of many enthusiasts. As a result of the report of tetraploid forms occurring in the Satsuki evergreen azaleas, a method of transferring the genes controlling yellow flowers from deciduous to evergreen types is suggested. This present article describes the potential method and outlines the theoretical background. Although this method has worked in other plants and looks promising, it is not yet fully proven in azaleas. It presently therefore is hypothetical for azaleas. The idea is presented now only to stimulate efforts on the part of other interested persons to try their luck.

Diverse Species Crosses are Often Sterile or Abnormal

Frequently crosses between widely diverse species are sterile and useless for further breeding work. Essentially, the reasons are these: at the time of formulation of the germ cells, which later develop into pollen or ovules, the plant chromosomes in the germ cells do not divide but remain intact and pair with identical whole chromosome partners. After initial pairing, the whole chromosomes separate into two daughter cells. Thus the chromosome numbers in the germ cells are reduced to one half; in diploid azaleas the germ cells have only one complete set of chromosomes or a total of 13. At fertilization when 13 chromosomes from the pollen are combined with the 13 chromosomes of the ovules, the diploid, or 26 chromosome number, is restored. The essential requirement in the process of germ-cell formation is, therefore, that 13 chromosome partners capable of pairing must be present if the 13 pairs are not able to pair, the process breaks down and few or no pollen grains or ovules are formed. In crosses between two diverse species, such as evergreen (obtusum) and deciduous (*flavum*, also known as *luteum*) azaleas, the F1 hybrids possess 13 *flavum* chromosomes and 13 obtusum chromosomes. In the process of germ-cell formation such unlike chromosomes would not be expected to pair, and, as a result, the occasional hybrid shows the effects of genetic unbalance, often including sterility. Most rhododendron fanciers are familiar with azaleodendrons, or F1 hybrids between rhododendrons and azaleas such as 'Glory of Littleworth' or 'Broughtonii Aureum', which are sterile because of unbalance. This is also the reason that mules, so-called after the well-known breeding practice of a male horse with a female jenny, or jack with a mare. The resulting animal or plant cannot be used for further production of offspring. Plants which we call mules usually have no stamens. Such unbalances have been the barrier to many previous crosses between *flavum* and obtusum types in that the diploid F1 hybrids are albinos, virescents, dwarfs or other abnormals.

Diverse Species Crosses are Often Difficult

Anyone who has tried making crosses between obtusum and *luteum* types knows that such crosses are difficult. However, successful crosses are possible. For example, successful crosses have been made by the author as follows: 'Hinodegire × Mollis hybrid, *Rhododendron mucronatum* × Mollis hybrid, Glenn Dale 'Swansong'×Mollis hybrid, and 'Stewartstonian'×Mollis hybrid. Despite the few examples of successful hybrids, the hybridization of evergreen and deciduous types at the diploid level is far from successful from the standpoint of obtaining normal, viable hybrids.

In contrast, crosses between tetraploid types are often possible even when such crosses fail or are difficult at the diploid level. Many examples of such successful tetraploid crosses have been reported in plant science literature. However, tetraploid evergreen azalea crosses were not feasible until the discovery of tetraploid Satsuki forms. Although tetraploids of many plants have been successfully produced by artificial means, such as through the use of the drug colchicine, this method to date has not been successful with azaleas.

Tetraploid Azaleas Overcome Barriers to Inter-Specific Fertilization

In the *luteum* types there are two naturally occurring tetraploid forms, *R. canadense* and *R. calendulaceum.*

It has been reported by F. P. Lee in *The Azalea Book* that Satsuki cultivars 'Banka', Wako', and 'Taihai' are tetraploids, and there may be others. Tetraploids usually have larger flowers and anthers, as well as petals heavier in substance. The cultivar 'Gettsu-toku', for example, looks like a tetraploid. In addition, some of the Hirado hybrids are tetraploids. A few of these new types are now available in very limited quantities at some commercial nurseries.

Crosses between *R. calendulaceum* and normal diploid evergreen Obtusums are extremely unsuccessful regardless of which species is used as a seed parent. Most crosses produce no seeds. In the infrequent crosses where seed is produced, it is seldom viable; or if it is viable, the resultant plants are not true hybrids.

The author has not yet had the opportunity of making the cross *R. calendulaceum* (seed parent) with diploid evergreen Obtusums as the pollen parents. From others it is believed that these crosses are seldom successful, and no hybrids are known. However, the cross *R. calendulaceum* (female) × tetraploid evergreen Obtusum (Satsuki cultivars 'Taihai' and 'Gettsu-toku') as pollen parents (pollen received from Plant Introduction Station, Glenn Dale, Maryland), was highly successful and large amounts of viable seed were produced. The seedlings when they first appeared were normal in appearance. By the time the first leaves were formed, a small number of the seedlings developed areas of albino or virescent tissue in some segments of the leaves, but growth appeared normal even in such affected plants. In subsequent growth, about three-fourths of the plants in the cross *R. calendulaceum* × 'Taihai' were retarded in their growth, while a lesser number of dwarfed plants were found in the cross *R. calendulaceum* × 'Gettsu-toku'. The non-dwarfed plants grew rapidly and developed as normally as comparable seedlings between *R. calendulaceum* and deciduous species. It is too early to know whether these crosses will produce true, normal hybrids. Cytological work is underway to determine chromosome numbers in the hybrids and to verify their probable tetraploid nature. It will be several years before the plants reach flowering age and the nature of the flowers is known. However, if such plants prove to be true hybrids, they would carry genes for yellow flower color *and* evergreenness and would be valuable for further breeding and backcrossing even in the event they themselves do not express both evergreenness and yellow color.

The germ cells produced by tetraploids normally carry two sets of chromosomes or diploid-chromosome compliments. If further research confirms that diploid pollen from the Obtusum parent combined with diploid ovules of the *flavum* parent, the tetraploid hybrid thus formed would be essentially a combination of two complete diploids in one single parent. Such special tetraploid plants are known as amphidiploids, diploid on both sides. As a rule, amphidiploids are highly fertile and normal.

Amphidiploids Offer Opportunities for New Types

Because they are fertile and produce viable pollen and ovules, amphidiploids are useful in the development of new and unusual types. In most cases they will cross back to one or both tetraploid parents. They will also frequently readily hybridize with diploid types. The important distinction between amphidiploids at the tetraploid level and similar hybrids at the diploid level is that amphidiploids are genetically balanced and seldom show the sterilities and abnormalities that limit the value of their diploid counterparts.

Amphidiploids have another important character in producing new forms. Because they have the essential chromosomes necessary for two distinct diploids, mutations and genetic unbalances that might cause nonviable germ cells in diploids are not likely to be detrimental in formation of germ cells in amphidiploids. Thus, a lethal character in one diploid set of an amphidiploid would be compensated for by the necessary "viability" factors in the other set of diploid chromosomes. In brief, amphidiploids can act as reservoirs for maintaining untold numbers mutant and recombinant types, and hence they are a rich source of new variability. There is real hope for the development of yellow-flowered evergreen types in such a storehouse of genetic diversity and flexibility, especially in back-crosses with the tetraploid *R. calendulaceum* parent by selected amphidi-

ploids that most nearly possess the evergreen habit. The potentialities of such crosses are great and they open new avenues for arriving at the goal of many azalea enthusiasts, that of producing a yellow-flowered evergreen azalea.

The second article which Augie refers to in his letter to me about acenaphthene follows:

An Experimental Method Of Inducing Polyploidy

For the adventuresome person who likes to experiment, another method to induce polyploidy may be tried, using a substance closely related to moth balls. So far, this method has never been used on rhododendron or azalea spp., but has been more effective than colchicine on plants such as sugar beets. The method is very simple, and so there is merit in its trial.

The chemical used is acenaphthene, which comes as white crystals very similar to moth crystals.

Seedlings are grown in flats, covered with a sheet of glass. Just before the first true leaves appear, they are treated as follows:

A. Dissolve the acenaphthene crystals in acetone or ether. Place the solution on the glass cover and allow the ether or acetone to evaporate, leaving a thin film of acenaphthene adhering to the glass.

B. Replace the glass cover with the acenaphthene film side down toward the seedlings. The acenaphthene will vaporize (exactly like moth crystals) and the flat will become saturated with the vapors. Leave for three to five days, then replace the glass cover with clean glass. The temperature inside the flat is the critical factor in this method, and unfortunately no information is available on the optimum temperature for rhododendrons and azaleas. It is recommended that a good starting point is 75 degrees F. (24 degrees C.). A higher temperature increases the biochemical effect, while a lower temperature decreases it.

C. Repeat the treatment in two or three weeks, except that the second treatment should last for only two to four days.

D. If the rate of survival of seedlings is too low, decrease treatment times and reduce temperature.

This method has been successful because the vapor penetrates to the growing point so the growing apical point is affected. It also has the advantage of simplicity compared to the colchicine method. If you use this method, you are plowing new ground. Good luck!

Augie will be hosting the convention of the Magnolia Society at the same time as our Azalea Society's convention, but he will meet us at Eugene, Oregon as our convention ends and the A.R.S. convention begins. All of you azalea hybridists will have a lot of time to talk with Augie about his yellow-flowered evergreen azalea hybridizing concepts.

My Comments On Yellow Evergreen Azalea Hybridizing

I suggest hybridizers consider the following:

A. For the deciduous azalea seed (or pollen parent) use the best of the Knaphill, Exbury or Ilam clones in the intense yellow, yellow-orange or orange colors. Do not use Mollis clones. Reason: the Exbury and Ilam types, especially, contain upwards of eight to 15 species contributing to the genetic pool in the cultivars. *R. occidentale* was introduced by Anthony Waterer to the Knaphills. Some of the CW (collected wild) forms of *R. occidentale* have been preliminarily determined to be tetraploids. Azaleodendrons are easily produced with *R. occidentale* as the seed parent. I have seen such flowering plants using 'Margaret Dunn', 'Gold Mohur', 'Fabia', 'Purple Splendor', *R. macrophyllum*, 'Mrs. Donald Graham' and 'Loderi King George' as pollen parents.

Some of us in the Northwest Hybridizers Group, though not obtaining test chromosomal counts, believe many Exbury clones to be tetraploids.

I suggest that the "yellowest" clones of the forms of *R. occidentale* collected by Britt Smith and Frank Mossman on the Oregon and California coastline be used for hybridization.

Is it not possible that some species of deciduous azaleas might contain a "barrier mechanism" to prevent easy cross pollination? This barrier could be mechanical or chemical. Rhododendron cultivars that produce little or no pollen at garden temperatures will yield fertile pollen when the budded plant is brought into a greenhouse where the daytime temperature reaches 75 to 95 degrees F. It has been noted also that non-receptive pistils become more receptive to pollen at such elevated temperatures.

Some of our Northwest Hybridizers Group members report successful fertilizations with unusual pollens by first emasculating an opening flower and waiting a day or two for the pistil to become moist and receptive to pollen. Then, using a clean razor blade, the style is cut cleanly just above the ovary. The moist liquids on the stigma are deftly transferred to the clean cut area of the remaining style. The desired pollen is placed on the stigma fluids, from whence it can easily reach the ovary. This reduces the chance of the stigma or style containing mechanical or chemical blockages to pollen tube growth.

B. I have seen the bloom on an *R. kaempferi* var. *albiflorum* sent from Mr. Hideo Suzuki of Japan. It is white, but with a creamy cast to the flower's center. It may be usable.

C. Augie's suggestion of using the lepidote species *R. keiskei,* should be most carefully considered.

First, years ago during a visit to Hjalmer Larson's nursery in Tacoma, Washington, he made a comment I have never forgotten. Hjalmer told me that "when I get a new evergreen azalea cultivar cutting in the summer, I just "green graft" it on a lepidote species or cultivar such as *R. Davidsonianum*, etc. They are compatible." I

never tried it though, figuring he might be "pulling my leg".

Second, around 1969-71, I first saw blooming plants of W. H. Hardijzer's "Azaleodendrons"—'Ria Hardijzer' (*R. racemosum* (a lepidote) × 'Hinode Giri') and 'Hardijzer's Beauty' (*R. racemosum* (a lepidote) × Kurume hybrid). Now it seemed Hjalmer was quite possibly correct.

I suggest attempting using the yellowest lepidote species with selected "yellowish" or tetraploid evergreen azalea cultivars. Species such as *R. keiskei, R. valentinianum, R. hanceanum, R. xanthocodon, R. concatenans, R. lutescens, R. megeratum, R. luteiflorum, R. trichocladum, R. sulfureum* and *R. sargentianum* to reproduce Mr. Hardijzer's type of azaleodendrons. Then backcross to the evergreen azalea cultivars. Or, use Mr. Hardijzer's plants with the yellow lepidote species.

D. In the 1950 issue of "The Rhododendron Yearbook" of the R.H.S., Dr. E. K. Janaki-Ammal and her associates reported the following chromosome counts. Most species have 13 pairs, 2N= 26 (diploid=26, tetraploid=52, hexaploid=78).

R. concatenans	52
R. flavidum	78
R. ambiguum	52
R. xanthocodon	78

In other words, many yellow lepidote species in subsections Triflora, Maddenia, Cinnabarina, Lapponica and Glauca may already be natural tetraploids and can be used immediately with the tetraploid evergreen azaleas to produce our long sought after "yellow evergreen azalea" in the first crossings.

E. Last, the Robin Hill cultivar 'Olga Niblett' is one of the most yellow evergreen azalea clones I have seen, and it should be used. It contains *R. kaempferi* on both sides of its parentage and is probably quite rich in yellow flavonal pigments.

Bob Badger, a chemist by training and an avid hybridizer, operates Gnome Gardens and Landscaping with his wife, Marjorie. They are members of the Northwest Chapter. Presented at the Ninth Annual Convention of the Azalea Society of America in Portland and Eugene Oregon, April 27-29, 1987.

THE GREENWOOD AZALEAS

Eleanor Stubbs
West Linn, Oregon

In Canby, just south of Portland, Oregon, is located the Greenwood Gardens of Bill and Dolores Guttormsen. Here, Bill has hybridized hundreds of evergreen azaleas —and has named about 175 of his crosses. The hybrids are sold extensively in Northwest Garden Stores, supplied from this Canby wholesale nursery.

Although he was born in San Gabriel, California, his parents moved to Oregon when Bill was eight years old. He attended the Oregon City High School, spent time in the Service, and graduated from Oregon State University with a BA in Business. He then spent several years in business, first in the camera department at the Lipman-Wolfe Department Store in Portland and then as owner of a dry cleaning establishment in Canby. As the "coin-ops" began luring business away, he looked for a way to augment his income for his family of four. His hobby-interest in plants became a part-time occupation. He began propagating plants and soon opened a general stock nursery. Finding that he was selling more azaleas and rhododendrons than other plants, he enlarged that part of his stock. It wasn't too long before he was "into azaleas".

It was at this time that Bill found there was a very limited variety of azaleas available from the few local sources, so, in 1960, he decided to hybridize some azaleas himself. His first hybridizing plan was:

- to get more variety in evergreen azaleas than was then available,
- to produce plants that could "take" the Northwest's cool, rainy winters,
- to select compact plants for local landscapes, and
- to choose plants with "good" foliage, i.e., heavy substance, the whole year.

With these four objectives in mind, Bill studied azaleas—their characteristics and their parentages. He reasoned that using parent plants with varied backgrounds should provide many "breaks" in the progeny.

His first choice was the Glenn Dale clone, 'Helen Close', which had a compact growth habit and a leaf which was not "thin". The parentage was (*kaempferi* × *mucronatum*) × 'Shinnyo no Tsuki'. Checking further, he found that 'Shinnyo no Tsuki' should have many opportunities for varied blooms, as its parentage was 'Sakuragata', a white bloom with a pink border and 'Zetsurin' which had a Belgian Indian background of salmon pink and white borders.

In his first crosses, he used 'Helen Close' as his seed parent and as pollen parents 'Purple Splendor', the Gable hybrid (for color and hose-in-hose qualities), and two Glenn Dale hybrids, 'Glamour' and 'Madrigal' (for their color). From his seedlings he selected plants which had beautiful foliage with heavy substance on compact plants. 'Helen Close' × 'Purple Splendor' gave him several lavender/purple hose-in-hose blooms—'Jan', 'Tenino', 'Katie', 'Royal Robe', and 'Tico Tico', which is also semi-double. 'Torchlight' is a deep rose-pink hose-in-

hose, 'Sarrano' is a medium pink hose-in-hose, while 'Cayuga' is a bordered pink and white 2" hose-in-hose bloom. 'Helen Close' × 'Glamour' did produce the pinks he desired as well as some doubles! 'Tat', 'Pink Cloud', and 'Linda Jean' are from that cross. The latter he used extensively as a parent in some of his later crosses. 'Helen Close' × 'Madrigal' gave Bill a surprise—all white singles—'Cloud Cap', 'Paleface', and 'Sleigh Bells'.

The following year, 1961, he experimented with various combinations using 'Helen Close', and from this cross he selected 'Frolic', a crimson hose-in-hose, and 'Dolores', a double pink, which he named for his wife. Five doubles from the 'Louise Gable' × 'Helen Close' cross are 'Can Can', a lavender double; 'Cathy Lynn', 'Greenwood Pink', and 'Puff' are the pinks; and 'Silver Star' is a silvery lavender with a white throat. A most interesting plant, 'Clipper', is a cross of 'Louise Gable' × 'Ward's Ruby'. It produces blooms of pure white, pink, picotee, single, semi-double, and doubles all on the same plant!

Probably 'Greenwood Orange', a 1962 cross of 'Rose Greeley' × 'Ward's Ruby', is Greenwood Garden's most popular hybrid. It is a very orangy-red 2" double on a compact, but upright-growing plant. Again, with 'Ward's Ruby' as a pollen parent, he used 'Louise Gable' and selected 'Red Feather', another red-orange double which has outstanding winter foliage.

The following year, 1963, he tried many crosses using 'Coral Bells'—for its earliness. Among the crosses with 'James Gable', 'Geronimo', and 'Pequeno', he got no seeds—"Wait another year," he sighed.

Thinking over his selections, he saw a gap—no small, dwarf plants—so, in 1964 this became one of his aims. Bill used the Beltsville Dwarf 'Salmon Elf' as the pollen parent and the Kurume 'Addy Wery' for the other. The results were not dwarfs, however.

It was at this time that he stopped his hybridizing program—for three years, that is. He couldn't forget his desire to produce early blooming plants using the Kurume 'Coral Bells' as a parent. This time he used one of his own crosses, BT4 ('Rose Greeley' × 'Ward's Ruby') and it produced winners. 'Tina' blooms as early as 'Coral Bells', with a similar bloom, but on a tiny, twiggy dwarf with small, fringe-like foliage. The others selected (there were only three seeds!) were 'Annette', a deep pink, and 'Genie', a salmon red. They are a little larger plants but have the fine foliage and blossoms similar to 'Coral Bells'. That year, he also decided to try to produce a deep, dark purple bloom. From his various crosses, he selected 'Deep Purple' and its sport 'Silver Streak'—the identical bloom and foliage that is edged with a fine white line—and 'Royal Crown', which is dwarf and mounding.

Noting his successes with the purples, Bill thought he could produce a blossom with the 'James Gable' color but with a better plant. His cross using his own BV6 ('Louise Gable' × 'Ward's Ruby') had several red hose-in-hose blooms on rather upright plants—'Crimson Crest', 'Red Beauty', and 'Sherry', which all have gorgeous wine-red winter foliage. Another cross that year yielded his well-known 'Trisha'. I asked him why he chose 'Dorothy Gish' and 'Purple Splendor' to cross, and Bill said he supposed they were both in bloom at the same time and that he was probably "just mucking around!"

Finally, in 1969, he looked for fragrance, an absent quality in the evergreen azaleas. His parent choices were "Boudoir' and 'Rose Greeley', both Gable hybrids. 'Greenwood Tami', a pink hose-in-hose, and 'Susie Cook', a 3" pink single, are fragrant.

Six years elapsed in his hybridizing efforts. He said he was done...But—would you believe—he really couldn't stop! So, again, in 1975, he took two plants in bloom at the same time—his own 'Linda Jean', a pink double, and 'Hahn's Red'. He looked at them and decided he could probably find some interesting hose-in-hoses and doubles from such a cross. Results? Some of the whites are 'Snow Mound', 'Snow Bunny', and 'Ice Cap'; pinks are 'Misty' and 'Accent'; and salmons are 'Cover Girl', 'Rose Parade', and 'Rose Garden' (named to honor Portland, the "Rose City").

From one of his crosses with 'Linda Jean' and 'Santanta' is a delicate white double that he calls 'Greenwood Lace', but he is still holding it for testing before release.

'Linda Jean' and 'Springtime', a pink single he purchased from a neighborhood nursery, gave many seedlings which have become some of the best selling of the newer plants on the market. There are pink doubles—'Baby Rosebud', 'Candice', 'Rose Queen', 'Mary Allen'; white semi-doubles and hose-in-hoses are 'Greenwood Popcorn', 'North Pole', 'Snow Cloud'; a white single, 'Star', with delicate twisted petals; and 'Ruth Ticknor' (named for Dr. Robert Ticknor's wife) which is a lovely salmon, hose-in-hose, semi-double.

From his 1977 cross of 'Hino Crimson' and 'Albert-Elizabeth' (a gift plant to Dolores), Bill thought that perhaps he could obtain some bi-colors, which had eluded him to that time. Although 'Albert-Elizabeth' was rather tender, perhaps a plant could inherit hardiness from 'Hino Crimson', the pollen parent, he reasoned. The plants from this cross are proving to be hardy here in Oregon and are very lovely indeed—delicate pinks and whites—'Candy', 'Pink Petals', and 'Seashell' (not yet released) and a couple of reds—'Diable', a double, and 'Laser', a single. Bill has also spotted a sport of 'Pink Petals' which is ruffled, red picotee, double, and well worth watching!

Again, in 1982, Bill did some more crossing. He has selected several dozen plants for further observation and testing. Interestingly, among them are two that are definitely creamy in color, one is a double, and one is semi-double. Isn't that what Bob Badger said we needed to produce that yellow evergreen azalea?

Bill Guttormsen has given us some beautiful plants and blooms to add to our landscapes. Many of us in the Northwest have been fortunate enough to enjoy his Greenwood Hybrids in our gardens and hope you will

want to add some of them to your collection.

A poem appeared in the *Canby Herald* on Wednesday, December 26, 1984. I'd like to share it with you.....

It started in Gresham, back 30 years, or more.
He had just purchased the Canby Cleaners store.
Many miles he would travel, day after day,
Building his business, making it pay.

Down to the basement, on weekends he'd go.
Fiddling with plants, and making them grow.
He'd be there for hours, at least so it seemed.
That's where it all started — the birth of The Dream.

His search soon began, for his next home to be,
And it didn't take long, to move his whole family.
In quest of The Dream, to Canby they came.
It now was official, Greenwood Gardens, the name.

It started out slowly, but year after year,
The vision, The Dream, became perfectly clear.
A greenhouse, a lathhouse, a small tractor, too.
It seemed there was nothing, that he could not do.

He constructed the buildings and mixed the cement,
Wired the cables and designed the vents.
He planted the seeds where a forest now stands.
A jack of all trades — just part of the plan.

Many hours were spent under the old apple tree,
Transplanting cuttings, the whole family.
Day after day, til the planting was done,
Finally, a vacation, not two weeks, just one.

The Columbus Day storm tore their world all apart.
He watched through a window, a dull ache in his heart.
The lathhouse and greenhouse were totally lost.
But they would rebuild it — whatever the cost.

And rebuild he did, spending many late hours,
Designing a fortress to protect his flowers.
Cement the foundation, reinforce the truss,
To conquer the elements, this was a must.

And so The Dream had begun again.
"It works, I can do it", he realized when,
His hybrids began winning top prizes in shows,
And so he expanded, building row upon row.

Always up early, he'd work until dark,
Installing the sprinklers, spreading the bark.
Fertilizing, spraying, nurturing his stock.
As the sun sank low, through his kingdom he'd walk.

The finest azaleas that mankind has seen.
That's all that he wanted, that was The Dream.
The magazines laud him, the tests all prove out.
The world is more beautiful, there isn't a doubt.

His world is The Dream and his family of four,
He's never really wanted for anything more.
He toppled huge obstacles with self sacrifice,
Creating The Dream, his legacy, his life.

Yet he would never tell you, you would never know,
Of The Dream and how it started, back many years ago.
But this is how it happened, the good times and the bad.
And I know it's all true because, the "he", well... he's my Dad!

(When you can't find a gift to give to the person who has everything, you give them a part of yourself. Merry Christmas Dad!)

Jan M. Guttormsen

The Greenwood Azalea Crosses

1960 — 'Helen Close' (white single) × 'Purple Splendor' (purple hose-in-hose)

'Cayuga'	pink/white	hose-in-hose
'Concho' (dwarf)	lavender	single
'Greenwood Orchid'	lavender	hose-in-hose
'Jan'	lavender	hose-in-hose
'Katie'	lavender	hose-in-hose
'Royal Robe'	purple	hose-in-hose
'Sarrano'	pink	hose-in-hose
'Tenino'	lavender	hose-in-hose
'Pink Tenino' — sport of 'Tenino'		
'Tico Tico'	lavender	hose-in-hose semi-dbl
'Torchlight'	rose	hose-in-hose

'Helen Close' (white single) × 'Glamour' (rose single)

'Jet Fire'	crimson	single
'Linda Jean'	pink	double
'Pink Cloud'	pink	double
'Tara'	rose	single
'Tat'	pink	double

'Helen Close' (white single) × 'Madrigal' (deep salmon single)

'Cloud Cap'	white	single
'Paleface'	white	single
'Sleigh Bells'	white	single

1961 — 'Helen Close' (white single) × 'Campfire' (red single)

'Dolores'	pink	double
'Frolic'	crimson	hose-in-hose

'Louise Gable' (salmon pink semi-dbl) × 'Helen Close' (white single)

'Can Can'	lavender	double
'Cathy Lynn'	pink	double
'Greenwood Pink'	pink	double
'Puff'	pink	double
'Silver Star'	white/ lavender	double

'Louise Gable' (salmon pink semi-dbl) × 'Ward's Ruby' (deep red single)

'Clipper'	white/pink	single-dbl-semi-dbl

1962 — 'Rose Greeley' (white hose-in-hose) × 'Ward's Ruby' (deep red single)

'Greenwood Orange'	red orange	double

'Louise Gable' (salmon pink semi-dbl) × 'Ward's Ruby' (deep red single)

'Red Feather'	red orange	double

1964 — 'Addy Were' (red orange single) × 'Salmon Elf' (salmon hose-in-hose, dwarf)

'Star Ruby'	red/white	hose-in-hose
'Zig Zag'	salmon	hose-in-hose, dwarf

1967 — BT4 ('Rose Greeley' × 'Ward's Ruby') × 'Coral Bells' (pink hose-in-hose)

'Annette'	deep pink	hose-in-hose
'Genie'	salmon red	hose-in-hose
'Tina'	pink	hose-in-hose

'Violacea' (rose double) × 'Purple Splendor' (purple hose-in-hose)

'Deep Purple'	purple	hose-in-hose

'Silver Streak' sport of 'Deep Purple' with white margined leaves

'Violacea' (rose double × 'Katie' (lavender hose-in-hose)

'Royal Crown'	purple	hose-in-hose

'Violacea' (rose double) × 'Sundance' (deep pink hose-in-hose)

'Greenwood Tamara'	red	hose-in-hose

1968 — 'Dorothy Gish' (red orange hose-in-hose) × 'Purple Splendor' (purple hose-in-hose)

'Trisha'	vivid pink	hose-in-hose

BV6 ('Louise Gable × 'Ward's Ruby') × 'James Gable' (red hose-in hose)

'Crimson Crest'	red	hose-in-hose, early
'Red Beauty'	red	hose-in-hose
'Sherry'	red	hose-in-hose, early
'Showtime'	red	hose-in-hose, late mid season
'SuLin'	red	hose-in-hose, mid season

1969 — 'Boudoir' (rose single) × Rose Greeley' (white hose-in-hose)

'Greenwood Tami'	pink	hose-in-hose
'Susie Cook'	pink	single

1975 — 'Linda Jean' (pink double 'Helen Close' × 'Glamour') × 'Hahn's Red' (red single)

'Accent'	pink	hose-in-hose
'Cover Girl'	salmon	double
'Disco'	pink	double
'Greenwood White'	white	double
'Greenwood Rosebud'	pink	double
'Greenwood Yukon'	white	double
'Ice Cap'	white	double
'Misty'	pale pink	hose-in-hose
'Orbit'	rosy red	double
'Pink Rosebud'	pink	double
'Rose Parade'	salmon	double
'Rose Garden'	salmon	double
'Snow Bunny'	white	hose-in-hose
'Snow Mound'	white	hose-in-hose
'Winter Hawk'	white	hose-in-hose

'Linda Jean' (pink double) × 'Hexe' (rosy red hose-in-hose)

'Greenwood Rosy Red'	red	double
'Showboat'	pink	hose-in-hose, semi-dbl
'Hardy Hexe'	red	hose-in-hose
'Orange Sherbet'		double, dwarf

'Linda Jean' (pink double) × 'Santanta' (salmon hose-in-hose)

'Cotton Tail'	white	double
'Greenwood Lace'	white	double (not yet released)
'St. Helens'	white	double
'White Ermine'	white	single

'Linda Jean' (pink double) × 'Springtime' (pink single)

'Baby Rosebud'	pink	double
'Candice'	pink	double
'Cotton Top'	white	single
'Greenwood Popcorn'	white	hose-in-hose, semi-dbl
'Rose Queen'	pink	double
'Halo'	white	hose-in-hose
'Irene Cook'	pink	semidbl
'North Pole'	white	hose-in-hose, semi-dbl
'Mary Allen'	pink	double
'Mt. Adams'	pink	double
'Nola'	pink	double
'Robin Cook'	pink	double
'Ruth Ticknor'	salmon	hose-in-hose, semi-dbl
'Snow Cloud'	white	hose-in-hose, semi-dbl
'Snow Puff'	white	hose-in-hose
'Snowman'	white	double
'Star'	white	single, twisted petal
'Vera Cook'	pink	double
'White Splendor'	white	double

1977 — 'Albert-Elizabeth' (bicolor) × 'Hino Crimson' (red single)

'Candy'	pink	double
'Diable'	red	double
'Greenwood Wendy'	pink	single
'Laser'	red	single
'Pink Petals'	white/pink	double
'Seashell'	pale pink	single, not yet released

Eleanor Stubbs, founder and past president of the Northwest Chapter, co-operates Stubbs Shrubs with her husband, Art. Presented at the Ninth Annual Convention of the Azalea Society of America, Portland and Eugene, Oregon, April 27-29, 1987.

U.S. NATIONAL ARBORETUM KURUMES

Lisa K. Schum
Washington, D.C.

Within the world of azaleas, as with all types of plants, it is important to keep the facts straight and the plant material moving. During the Azalea Society of America Convention this past April, it was pointed out to me that there is some confusion surrounding the new Kurumes that were distributed by the U.S. National Arboretum in 1983. Questions brought up included: what are the correct descriptions and proper names and why are there two sets of NA#s (National Arboretum accession numbers) per cultivar.

The list which follows[1] contains the name of each Kurume cultivar distributed, a brief description (the Nickerson Color Fan was used to describe color), and the corresponding NA#s (two NA#s per cultivar[2], each number referring to the listed source from which the material was obtained). I hope that this alleviates some of the confusion surrounding this important group of azaleas. I also hope that a renewed interest results, aiding the willingness to beg and barter plant material, and thus enhance the distribution of these new Kurumes. To start the ball rolling, I have placed an asterisk beside the cultivars which would be most welcomed by the U.S. National Arboretum to replace lost stock plants.

[1]Rhododendron /Kurume/ 'cultivar name' is the form that the U.S. National Arboretum has adopted for identifying cultivars in the genus *Rhododendron.* All cultivar names were taken from the original collection cards to insure correctness.
[2]Numbers NA 40484-40532 indicate the Kyushu Agricultural Experiment Station, Kurume, Japan and are from a collection of Kurume azaleas. Cultivated. Collected November 19, 1976. Numbers NA 45404-45450 indicate the Kurume Vegetable and Ornamental Research Station, Kurume Fukuoka Prefecture, Japan and were collected November 24, 1978.

Rhododendron /Kurume/ 'Aratama'. NA 40486 and NA 45406
Flowers single, to 4.5cm.; vivid red, (5RP5/13) darker blotch on upper petals. Stamens as long as petals.

Rhododendron /Kurume/ 'Atsumi Zakura'. NA 40484 and NA 45404
Flowers hose in hose, to 3.5-4cm.; pale-light pink (5P7/7-5P8/5) with purplish-white throat. Stamens as long as petals.

Rhododendron /Kurume/ 'Ayahime'. NA 40485 and NA 45405
Flowers single, to 3.5cm.; strong purplish-red (7.5RP5/12) to paler throat with darker blotches on the upper petals. Stamens as long as petals.

Rhododendron /Kurume/ 'Ezonishiki'. NA 40495 and NA 45415
Flowers hose in hose, spreading to 3cm.; nearly pure white with red stripes (10RP5/12-10RP4/12). Stamens as long as petals.

Rhododendron /Kurume/ 'Fuji Asahi'. NA 40519 and NA 45438
Flowers hose in hose, to 4cm.; petals with ruffled, strong purplish-pink (10RP5/12) edges. Stamens longer than petals.

Rhododendron /Kurume/ 'Fukuhiko'. NA 40521 and NA 45440
Flowers single, to 4cm.; petal color is variable from solid strong purplish-red (2.5RP5/10-2.5RP4/10) to light purplish-pink, striated with strong purplish-red stripes. Stamens as long as petals.

**Rhododendron* /Kurume/ 'Gunki'. NA 40422 and NA 45422
Flowers single with ruffled edges, to 3cm.; petals white with deep purplish-red (7.5RP6/12) stripes on upper petals. Stamens half as long as petals.

Rhododendron /Kurume/ 'Hakuo Nishiki'. NA 40517 and NA 45436
Flowers hose in hose, to 4.5cm.; petals yellowish-white with dark red (10RP4/12-10RP3/10) stripes. Stamens as long as petals.

Rhododendron /Kurume/ 'Haru No Sato'. NA 40516 and NA 45435
Flowers single, to 3cm.; petals deep purplish pink (7.5RP5/12-7.5RP4/11) with a lighter throat and darker blotches on upper petals. Stamens shorter than petals.

**Rhododendron* /Kurume/ 'Hino Tsukasa'. NA 40518 and NA 45437
Flowers single, to 3cm.; petals vivid strong red (5R4/12). Stamens longer than petals.

Rhododendron /Kurume/ 'Ima Murasaki'. NA 40488 and NA 45408
Flowers single, to 4cm.; petals strong reddish-purple (5RP3/9) with darker blotches on the upper petals, tube lighter red. Stamens slightly longer than petals.

Rhododendron /Kurume/ 'Itten'. NA 40490 and NA 45410
Flowers single, 3.0-3.5cm.; petals white, some with purplish-pink (2.5RP6/10) edges to a white throat. Stamens very short, 2-4mm. long.

**Rhododendron* /Kurume/ 'Iwato Kagami'. NA 40491 and NA 45411
Flowers single, to 4cm.; petals deep pink (10RP6/12) throat white. Stamens as long as petals.

Rhododendron /Kurume/ 'Kagura'. NA 40499 and NA 45419
Flowers hose in hose, spreading to 2.5cm.; petals strong purplish-pink (5RP7/9) to whitish throat with darker blotches on the upper petals. Stamens slightly longer than petals.

Rhododendron /Kurume/ 'Kara Nishiki'. NA 40500 and NA 45420
Flowers single, to 4cm.; petals deep pink to strong purplish-red (10RP5/12) with darker stripes. Stamens as long as petals.

Rhododendron /Kurume/ 'Konohana'. NA 40505 and NA 45425
Flowers single, to 3.5cm.; petals deep yellowish-pink with darker purplish blotches. Stamens as long as petals.

Rhododendron /Kurume/ 'Kunimitsu'. NA 40503 and NA 45423
Flowers hose in hose to semi-double, to 3.5-4.0cm.; petals strong purplish-red (7.5RP5/12-7.5RP4/11) with white centers. Some stamens polypetaloid.

Rhododendron /Kurume/ 'Maya Fujin'. NA 40525 and NA 45443
Flowers single, to 3.5cm.; petal edges deep purplish-red (7.5RP3/9-5RP3/9) with darker blotches on the upper petals. Stamens as long as petals.

**Rhododendron* /Kurume/ 'Oogocho'. NA 40498 and NA 45418
Flowers variable hose in hose to semi-double, spreading to 4.5cm.; petals strong purplish red (7.5RP4/11) with darker blotches on the upper petals. Stamens as long as petals.

Rhododendron /Kurume/ 'Oouchi Yama'. NA 40496 and NA 45416
Flowers hose in hose, spreading to 3cm.; petals strong reddish-purple to whitish throat with darker blotches on upper petals. Stamens as long as petals.

Rhododendron /Kurume/ 'Rikyugonomi'. NA 45450
Flowers hose in hose, spreading to 2.5cm.; petals moderate red (2.5R4/10) to very pale throat with dark blotches on the upper petals. Stamens as long as petals.

Rhododendron /Kurume/ 'Shizu No Mai'. NA 40506 and NA 45426
Flowers hose in hose, to 3cm.; petals pale red (10RP5/12) with darker stripes. Stamens very short, 2mm.

Rhododendron /Kurume/ 'Tago No Ura'. NA 40510 and NA 45429
Flowers hose in hose, spreading to 4.5cm.; petals nearly pure white with yellowish blotch (barely visible or absent on some) on upper petals. Stamens nearly as long as petals.

Rhododendron /Kurume/ 'Tama Beni'. NA 40508 and NA 45427
Flowers single spreading to 2.5cm.; petals vivid red (5R5/13-5R4/12) with darker blotches on the upper petals. Stamens nearly as long as petals.

Rhododendron /Kurume/ 'Tennyo No Mai'. NA 40511 and NA 45430
Flowers single, spreading to 4.5cm.; petals deep purplish-pink (7.5RP6/12-7.5RP5/12) to whitish throat with dark pink blotches on upper petals. Stamens longer than petals.

Rhododendron /Kurume/ 'Tokoharu'. NA 40514 and NA 45433
Flowers hose in hose, to 3.5cm.; petals pure white with strong purplish-red (7.5RP4/11) striping. Stamens as long as petals.

Rhododendron /Kurume/ 'Tokonatsu'. NA 40513 and NA 45432
Flowers single, spreading to 3.5cm.; petals white with strong purple-red (7.5RP4/11) stripes. Stamens longer than petals.

Rhododendron /Kurume/ 'Tsuki Minoen'. NA 40512 and NA 45431
Flowers single, to 4cm.; petals with somewhat ruffled, deep purplish-pink (7.5RP5/12) edges to white throat. Stamens as long as or slightly longer than petals.

Rhododendron /Kurume/ 'Usuyukari'. NA 40493 and NA 45413
Flowers single, to 3.5cm.; petals with strong purple edges (7.5RP5/10) changing to white, throat white. Stamens longer than petals.

Rhododendron /Kurume/ 'Wakaebisu'. NA 40532 and NA 45449
Flowers single, spreading to 4cm.; petals white to deep pink with a white throat and scattered dark pink blotches on the upper petals. Stamens as long as petals.

Rhododendron /Kurume/ 'Yomei Nishiki'. NA 40529 and NA 45446
Flowers single, to 3cm.; petals white with purplish-pink (5RP5/10-5RP4/10) stripes to a nearly white throat with dark blotches on the upper petals. Stamens as long as petals.

Rhododendron /Kurume/ 'Yoro'. NA 40530 and NA 45447
Flowers single, to 3.5cm.; petals almost pure white. Stamens 1½ times longer than petals.

**Rhododendron* /Kurume/ 'Yoshi Migatake'. NA 40528 and NA 45445
Flowers hose in hose, to 3.5 cm.; petals deep purplish-pink (7.5RP5/12-7.5RP4/11) edges to a white throat with no blotching. Stamens as long as petals.

Lisa K. Schum is Curator of Rhododendrons and Azaleas at the U.S. National Arboretum in Washington, D.C. and is a member of the Ben Morrison Chapter.

1988 ASA 10th ANNIVERSARY CONVENTION

The Tenth Anniversary Convention of the Azalea Society of America will be held in the Washington, D.C. area during May 6-8, 1988. The Brookside Gardens Chapter will host all activities and has planned an exciting program. Included will be azalea lectures, public and private garden tours, a competitive standard azalea flower show, a special visit to the U.S. National Arboretum with behind the scene tours of the greenhouse and other collection areas, exhibits and convention plant sales at the headquarters hotel and a gala 10th Anniversary Banquet Celebration featuring azalea introductions and awards, and a special closing Sunday luncheon garden tour.

Registration will open on Thursday afternoon at the Bethesda Hyatt Regency, the headquarters hotel in Bethesda, Maryland. The Bethesda Hyatt is located 6 miles north of our Nation's capital at One Metro Center in the heart of downtown Bethesda. The hotel is conveniently located 11 miles from Interstate 95 and within 45 minutes by car or by hotel limosine of Washington D.C.'s three national/international airports and directly above the Bethesda Metro stop on the new Washington area subway system. Using the Metro system you will be able to travel to and from the Bethesda Hyatt Regency directly to the National Zoo, the Capitol, the Air and Space and other Smithsonian Museums, the National Gallery of Art and many more sites in our nations capital.

Washington, D.C. is one of the premier azalea areas in the United States and the ASA Convention will be held at the height of the azalea blooming season. This will be a splendid time to enjoy the splendors of the azaleas and the sights in your nation's capital. *BUT*, make your reservations early — May is the most popular time to visit the Washington, D.C. area. The Convention Committee has booked a large block of rooms at the Bethesda Hyatt Regency and has managed to keep the convention fee at the same rate as when we last met on the east coast two years ago. Once our allocated block of rooms ($69.00/room-single or twin/double) has been reserved other rooms will be difficult to obtain, expensive and may be miles further out. Downtown D.C. hotel rooms if available will be much more expensive and very inconvenient to get to and from convention events.

Activities scheduled for the 10th Anniversary ASA Convention include: THURSDAY, May 5—Registration opens at 3 p.m. at the Bethesda Hyatt Regency with the hospitality area open until 10 p.m. Dinner is on your own in the many closeby eateries and restaurants in central Bethesda. Flower show entries will be received at the Landon Azalea Festival location during the late afternoon and early evening (details will be sent to all registrants in March/April). FRIDAY, May 6—Tour of Hillwood in Washington, D.C., the home of the late Merriweather Post and one of the most spectacular azalea gardens in the Washington, D.C. area. Ninth Brookside Gardens Chapter Azalea Flower Show and visit to the Perkins Azalea Gardens at the Landon Azalea Festival. Convention plant sale. Dinner on your own in Bethesda. Opening convention lecture on deciduous azaleas by Fred Galle, past curator at Callaway Gardens, well known azalea horticulturist, author and member of the Board of Governors of the Azalea Society of America. SATURDAY, May 7—Breakfast at McCrillis Gardens in Bethesda, Maryland followed by a special visit to the U.S. National Arboretum where we will visit the azalea, bonsai and other collections and in addition the greenhouse and other behind the scene areas. The evening program at the Bethesda Hyatt Regency will feature plant sales, the President's Reception and the Tenth Anniversary Banquet and Society Meeting with awards. The convention address will be given by Dr. John L. Creech, past director of the U.S. National Arboretum and eminent azalea explorer. SUNDAY, May 8—Tour of Brookside Gardens in Wheaton, Maryland followed by a luncheon visit to the azalea garden of Denise and Bob Stelloh in Darnestown, Maryland. The convention will officially close when the buses return to the Bethesda Hyatt Regency after the visit to the Stelloh's garden. Other local ASA member and public gardens will, however, be open Sunday afternoon and also during Monday, May 9 and Tuesday, May 10. Put May 5-10, 1988 on your calendar today. Details and registration forms will be included in the December 1987 issue of *The Azalean*. In the meantime, please duplicate and distribute widely the announcement of the Convention on the adjacent page to your friends, associates, garden clubs, plant societies, etc. Join us for the Tenth Anniversary Celebration of the Azalea Society of America.

1988 ASA Convention Committee
Brian Barr
Charlie Evans
Warren Groomes
Bill Miller
Mary Rutley
Lisa Schum
Denise Stelloh

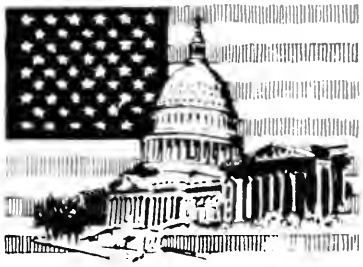
AZALEA SOCIETY OF AMERICA

10TH ANNIVERSARY CONVENTION

MAY 6-8, 1988 WASHINGTON, D.C.

hear ye, hear ye!

The Brookside Gardens Chapter will host the 1988 ASA convention featuring the Glenn Dale azaleas and the new National Arboretum Kurume azaleas.



Convention headquarters will be the Hyatt Regency, one Metro Center, Bethesda, MD. This is just six miles from our nation's capitol.

Special visit to the U.S. National Arboretum!

"BEHIND THE SCENES" TOURS!

SPECIAL TALKS!

9th Annual Brookside Gardens Chapter Azalea Flower Show!

Azalea Introductions and Special Convention Plant Sales!

Annual National Meeting and Banquet!

Azalea Garden Tours and Convention Closing Luncheon

INFORMATION:

DR. CHARLES H. EVANS
9233 FARNSWORTH DR.
POTOMAC, MD 20854

"Make a Date in '88"

A MYSTERY SOLVED?

Edward Rothe
Gambrills, Maryland

The few members who were present at the spring work days at Glenn Dale in previous years were treated to a veritable riot of azalea bloom. (This year apparently in the attempt to attract more workers, the spring work day was moved up before blooming season.) Prominent among the display in those woods is a single row of about seven or eight tall, straggly, half dead plants with flowers that would knock your socks off. Of course, there is no label in sight by which to identify the cultivar. What could they be? And, how can one describe them? And then, sometime after seeing these plants, I happened to be reading the chapter on Ben Morrison in Franklin West's book, *Hybrids and Hybridizers*, and came across the following passage excerpted from Monograph No. 20. It goes:

> "The most unusual striped flower in the collection resulted from the cross 'Vittata Fortunei' × 'Louise'. (Louise is a good rose-colored clone of *kaempferi* × 'Malvatica' blood.) This particular seedling bears two different types of striped flowers consistently on the separate branches, and also throws entire branches of self-colored deep red flowers. The lighter striped flower has a dull-white ground somewhat green-toned on the upper lobe, the entire flower irregularly and completely striped with light red; the darker striped flower is similar, but has a preponderance of dark, somewhat broader, red stripes."

That's it! The description fits the flowers in that row in the woods at Glenn Dale to a "Tee". But Morrison says little more about it. What became of it? Was it named or was it discarded? Who knows? Because of the work Bill Miller has done in diligently searching out many of the old "stud" records now stored in musty, dusty old cardboard boxes and rusty old file cabinets in a ramshackled old house on the [Glenn Dale Plant Introduction] Station grounds, the puzzle may now be close to being solved. While some gaps still remain, because of these records much of the story can now be pieced together.

Seven of the name Glenn Dales are sister seedlings of the same cross of 'Vittata Fortunei' × 'Louise'. Of these, five—'Cinderella', 'Dimity', 'Limerick', 'Pied Piper' and 'Satrap'—are listed as white striped red but none are described as above. As much as we would love to tell more, we are going to resist the temptation and wait to submit the full story to *The Azalean*. In the mean time, if anybody knows if the above description fits the behavior of any of the named Glenn Dales, or can shed any more light on this subject, please let us hear from you. The observations of long time growers are needed to confirm any theories we might derive from the records alone.

In the course of researching this problem, another interesting fact has been uncovered. It relates to the twenty-one named Glenn Dales listed in Monograph No. 20 as resulting from the cross ('Vittata Fortunei' × 'Louise') × 'Adzuma-no-hana'. Which particular seedling of 'Vittata Fortunei' × 'Louise' was the seed parent of the second generation cross? Was it itself named, or was it an un-named sister seedling? The records found at Glenn Dale confirm that the seed parent of at least some of the twenty-one is the selection which was later named 'Bridal Veil'. While we cannot confirm that all of them have 'Bridal Veil' as the seed parent, it is most likely that they do because no evidence has surfaced to indicate that the cross was made twice.

Anyone having information on this subject please respond to the author at 1517 Branchwood Terrace, Gambrills, Maryland 21054.

Reprinted from the Ben Morrison Chapter Newsletter, 1:2-3, 1987.

MORE OBSERVATIONS ON SPORTING AND BLOOM VARIATIONS

Neil Campbell
Washington, D.C.

The Glenn Dale 'Sentinel' can have four different types of flowers (in different years): 1. the amaranth purple flower as described by Morrison; 2. the same with a small white throat which did not persist when propagated: 3. a beautiful pale purple flower with a dark border and blotch over the upper lobe only, and 4. as seen this year all the flowers having a white eye as in 'Alight' and in 'Helen Gunning'. I have slides of these flowers that I find difficult to explain. 'Fielder's White' and *kaempferi*, the parents, offer no clues and I am not aware of any sporting in its sister seedlings or plants.

In my experience most 'Sekidera' sports will in time throw a branch with the original flower. 'George L. Tabor', 'Hatsushimo' and 'Ho Oden' will throw a purple flower—and the 'Sekidera' 'How Raku' will throw a white flower with stripe as a solid red.

'Aztec', the Glenn Dale hybrid occasionally has a white eye that is not fixed. In 1984 it had a few white flowers and white flowers with colored tips. (I have photographs of these). Like the white eye they did not repeat but this year every flower was white with a colored ¼" border. Probably chimeras from its 'Tama Sugata' parent.

'Eikwan'—(now known as 'Eikan'). The plant that I purchased from Hohman about twenty years ago and planted on the north side of my house has always had a definite purple stripe. A branch self-layered and was given to my daughter. She planted it where it gets full sun from noon on. There the stripes are pink!

'How Raku'—The original description given in the American Horticultural Society 1952 edition of the *Azalea Handbook* (the forerunner of the Lee book)—"spreading, low, very late; flowers single sometimes frilled, 4" white with chartreuse blotch or white flecked striped or sectored red (tyrian rose) or tyrian rose selfs." Lee also gives an excellent description of 'How Raku'' in his discussion of striped flowers on page 70 (1st edition)

and page 87 (2nd edition) of *The Azalea Book*. The plant that I obtained thirty years ago fits this description except the flowers were 2½"-3". Of course a 'Sekidera' sport appeared and it and the solid sport were successfully scrapped. The 'How Raku' casually offered commercially is the 'Sekidera' sport. The solid sport was identical to the 'Sakuragata' that I purchased from Hohman. It does not have a white eye. Morrison does not mention a white eye in his description and [Harold] Greer in his 1987 catalog says it may have a white eye.

'Kaigetsu'—fine compact rounded growth—bush completely covered with flowers with narrow pinkish purple margins—scattered flowers without colored borders. Flowers about 1½"-2". For the past two years some long shoots have appeared and these have flowers with a wider border of purple as in 'Koraku'. In 1984 'Koraku' had typical flowers with the ¼" purple border. In 1985 and 1986 the flowers had a narrow purple margin and were exactly like those of 'Kaigetsu'. This year the flowers were pale purplish selfs. One wonders if these two plants are similar or are sports from the same plant. The foliage and habit of growth are the same.

'Yamaji-no-tomoshiba' blooms in late April which makes its listing as a satsuki suspect. 'Shiryu-no-niai' is a late bloomer but its flowers are hidden by the foliage. I would not recommend it.

Have any others had the same experience?

Neil Campbell is a Past-President of the Society and a frequent contributor of azalea horticultural observations to *The Azalean*.

NEW COMPOST MATERIAL AVAILABLE THIS FALL

The Cooperative Extension Service at The University of Maryland announced this Spring that Baltimore, Maryland has been composting sewage sludge and should have a usable product available by this fall. Their composting technique involves the use of a polymer base rather than the lye-dewatered method in making Compro. The pH of this new sewage sludge should be in the 6.0-6.8 range. They are predicting that they will be processing 900 tons per day once they are full production. Contact your County Agricultural Agent for more information.

From the April 24, 1987 issue of *Insect and Disease Notes* published by the Cooperative Extension Service of the University of Maryland.

THE AZALEA CALENDAR

September 19, 1987
October 17, 1987
November 21, 1987
Glenn Dale Preservation Project Workdays
9 a.m. - 1 p.m. Contact Roger Brown at (301) 577-7509 or Andy Dietz at (301) 384-2092.

May 6-8, 1988
10th Annual Meeting and Convention
Washington, D.C.

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Monroeville, NJ 08343

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