'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:

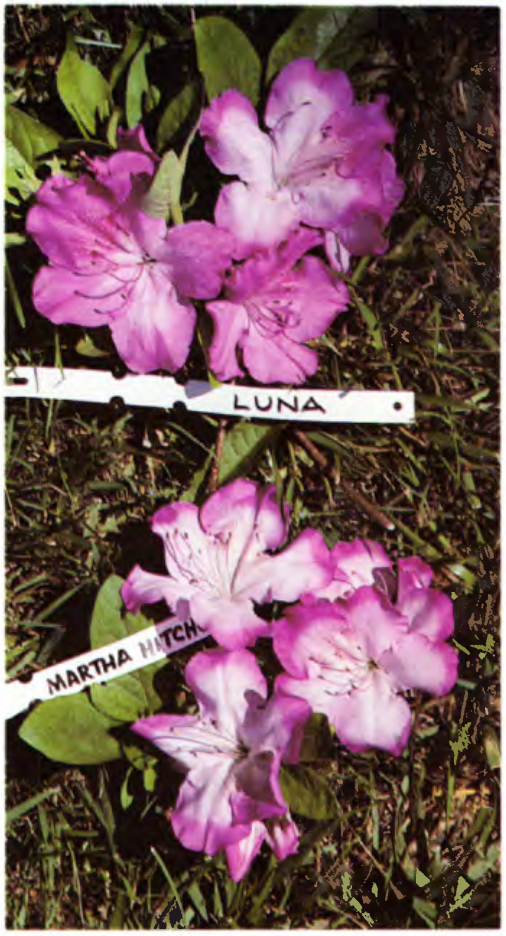
> LUNA (P.I. 201896)—*kaempferi* x Shinnyo-no-tsuki.
> Plant spreading rather than tall, eventually to 5 feet. Leaves dark green. Flowers 3-1/2 inches across, 2 to 3 in head, after the style of Alight and Welcome, but with darker rose margins (almost Tyrian Rose), with darker blotch and white eye. Mid-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

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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. ❑