



*Lilium gloriosoides* with the Scarlet Robin,  
*Petroica multicolor*, by:  
The Barwick o' Glenbrook  
Tasmania, Australia

## Lady Luck and a Lily: A Story from 40° South of the Equator

**A**S A FAR-FLUNG overseas member of The North American Lily Society I have had almost 20 years of pleasure receiving, and devouring the contents of, splendid quarterly NALS Journals and Yearbooks.

Great joy has been derived, too, from Lilies raised from offerings listed in the NALS Seed Exchange. Living half-a-world away from the NALS seed distribution point I usually miss out on my “first choice” requests for rarer Lily species seed from the Exchange but, even so, the alternatives supplied from my 2<sup>nd</sup> and 3<sup>rd</sup> choice columns on the seed order form have produced many fine garden Lilies. Probably more than half of the best Lilies growing here at ‘Glenbrook’ started out in life from NALS “substitute column” seed packets.

In mid April, 2002, while checking off against the NALS seed list items received from that year’s Exchange (and as usual I had missed out on the rarer species offered) I chanced to look at the list of seed of “companion plants” lumped at the end of the NALS catalogue. There I noticed a curiously ambiguous listing “Item C2-223 L. gloriosoides hand-pollinated.” I wondered if it was possible that this was the very rare *Lilium gloriosoides* – disguised as a “companion plant” and hiding at the back of the seed catalogue? Probably not...and even if it was then surely “the knowing ones” would have snapped it up.....but I thought I’d try out Lady Luck. So, a very late 2<sup>nd</sup> seed order was posted off.

A couple of weeks later a little envelope containing a seed packet arrived from the then NALS Seed Chair, David Ross, along with a note saying “Hi Rod, got your gloriosoides.”

I carefully studied the seed supplied and it appeared to be “Lilium” so I set aside a portion to share with Mr. Matthew Kemp. Matt, who was age 35 at that time, is a qualified horticulturist and the most skilled younger lily grower in Southern Tasmania. The other portion of seed I sowed myself, in my usual fashion, outside, in a pot – no special treatment. A year or so later first leaves appeared and the seedlings then grew on steadily through till 2006 when I moved them on to a larger tub.

All bulbs and plants here are grown under hard conditions with constant life threats from equines and domestic poultry which roam the wild ‘Glenbrook’ plantings during daylight hours, while nocturnal dangers include Brush-tail Possums and 2 species of Wallaby who regard any kind of *Lilium*

as a high treat! But, despite this villainous situation, by February, 2007, a cane-like flower stem, some 1.5 metres tall, had risen in the *gloriosoides* tub and it carried 3 long, greenish-white buds. These were heavily mid-ribbed down the outside of the sepals and each had 3 distinct, long, pointed tips.

On February 18 the first flower opened – a radiant beauty with snowy white tepals heavily rippled along the margins, scarlet spotted on the inner third and quickly reflexing into a perfect ball shape. That same day I had an unexpected visit from Matt Kemp. He had made a lengthy journey from his home at Blackmans Bay bringing with him his pot of *L. gloriosoides*, raised from the shared seed, and with 2 handsome stems of flowers. He provided anthers from his stock, the 'Glenbrook' stem was pollinated and eventually some 150 or so good looking seeds were produced.

A year later, in March, 2008, there are now 6 flowering stems in the 'Glenbrook' tub of *L. gloriosoides* carrying respectively 8, 7, 4, 3, 2 and 1 flowers. I am much impressed by the striking beauty of this rare species. So, 5 ½ years after sowing the seed I went back to my copy of the 2002 NALS Seed Exchange list and found that the donor of the "L. gloriosoides hand pollinated" was Patrick Brown, Michigan, USA. Mr. Charlie Kroell kindly traced a current address for Patrick Brown and I've written to thank him very much indeed for his superb seed provision. I've also given "unwritten" thanks to whoever incorrectly listed *L. gloriosoides* as a "companion plant" in the 2002 NALS Seed Exchange – for it was, without doubt, that mysterious listing, along with the contribution by Lady Luck, which has brought a beautiful lily to a far distant land.

Colour drawing of *Lilium gloriosoides* with the Scarlet Robin, *Petroica multicolor*, on the frontispiece, and story of "Lady Luck and a Lily" by:

The Barwick o' Glenbrook  
Tasmania, Australia

## A Glorious Adventure Around the World and Back Again

Patrick Brown, Midland, Michigan

**M**Y PART OF this tale began in 1998 when I first acquired Ed McRae's book, *Lilies – A Guide for Growers and Collectors*. My experiences with *Lilium* had begun only a few years earlier.

We bought our first home after a year of apartment living and I soon established myself as the gardener in our little family. Having grown up on a family farm in western Michigan, I was fairly knowledgeable of growing fruits & vegetables, but I had much to learn about flowers. I quickly started receiving more garden catalogues in the mail than you could shake a stick at! I began ordering flowers to improve the meager selection of perennials in the landscape of our humble abode. Then one day, a catalogue came and as I flipped through the pages I came across the first garden *Lilium* I remember seeing. I ordered some of these mixed asiatics and so my lily fascination began. I started searching the internet trying to find as much information on this amazing genus as I could. I soon learned there were many types of lilies and even found a discussion group devoted to their culture. The oriental species and hybrids quickly became my favorites of the lily world.

In my search for information, I learned of a new book devoted to growing lilies. Ed McRae's book on *Lilium* was exactly what the doctor ordered! I poured over and over the pages of this book. I read about lily hybrids and fantastic species that contributed to their development as well as many of the pioneers who worked with these beautiful plants. As I read about *L. speciosum*, there was a brief mention of a variety of this species that captured my imagination. This variety was *L. speciosum* var. *gloriosoides*.

For a few years I searched for sources of this rare variant, to no avail. Then through the internet discussion group I learned of a wild lily collector in China, Chen Yi. I contacted her to get a price list and in the summer of 2000, placed a shared order with several lily friends to secure some wild collected lilies. In our order was a small number of different lily bulbs, but for me the most prized lily was the *L. speciosum* var. *gloriosoides*.

As a group we ordered a total of fifteen bulbs of *L. speciosum* var. *gloriosoides*, of which I kept ten. The box arrived from China in December of 2000, which was too late for planting in the garden as the garden soil was already frozen. The bulbs ranged from one half inch to one and a half inches across. I potted up the lilies in a peat moss mixture and placed them in a spare refrigerator for the winter. When the spring of 2001 came, I buried the pots in a small bed on the East side of my house where they would re-

ceive morning sun. I watered them regularly and before long several stems emerged. In all, there were seven stems that grew from the ten bulbs. Five of the seven stems flowered that first year. The largest stem had five blooms; the second largest had three blooms, the third largest had two blooms and the two smallest that bloomed had one bloom each. All plants looked similar, but there were notable differences in stems, leaves, and blooms. The exotic beauty of these blooms was breathtaking. The buds were long and thin and had a heavy green rib that extended into a spur that was a half inch longer than the bud. The blooms opened over a two day period and upon first opening had a greenish tint to the white areas and the amount of green varied from stem to stem. The tepals and petals were narrow and as they curled back, the edges became wavy. The dark red spotting was concentrated near the center of each bloom and was variable from stem to stem and on some of the blooms it “bled” between the spots to a blush pink color.

All stems had problems with botrytis, but this could be attributed to my novice skills of raising lilies (overhead watering and no spraying). As each one bloomed I harvested the pollen. I cross pollinated each bloom with pollen from the other stems and capped all the stigmas to protect the crosses. I also attempted several crosses with the pollen on Oriental hybrids, but none produced seed. I did not keep detailed records of pollination dates or when I harvested the seed of *L. speciosum* var. *gloriosoides*, but I don’t remember anything remarkable about the process. I was surprised at how well this species set seed for me. The harvested seed and pollen were sent to several friends and a portion of the seed was sent to the NALS annual seed exchange in late 2001.

When I received the seed exchange list in early 2002, I was very concerned when the seed I donated did not show up in the appropriate section of the list. At first I thought it had been left off the list, then I found it mislabeled in the companion plant section. I thought I had very carefully labeled it, but as it was an uncommon variety I imagine it could have easily not been clear what it was.

Unfortunately, this is nearly the end of my story with this lily. A few of the original bulbs produced some non-blooming stems in the summer of 2002, and after that they all disappeared. I had a good quantity of seed that I attempted to start. The seed germination was delayed hypogeal. Some of these hypogeal bulbs were dropped into test tubes and grown under lights for a period where they increased in size. I donated some of the best of these test tube babies to the NALS auction several years back – it would be great to hear if anyone was successful with these. I have never successfully raised any of these seedlings to blooming size. My lily growing has taken

a few detours, including starting a family, building a house, moving to Minnesota and back to Michigan. All of these life experiences, while they have been wonderful, have caused great set-backs in my lily growing. Each time we moved, I dug all the lilies I had and brought them with me. My seedlings did not fair well in these moves and I have very few seedlings for all the seed I have started. We just moved into our current home in August of 2007 where I replanted all my surviving lilies. I so look forward to seeing the lilies come up this spring, and Lord willing plan to remain in this home for a long time.

It has been a little over five years since I donated the *L. speciosum* var. *gloriosoides* seed to the NALS seed exchange and I had all but forgotten this adventure due to new adventures with kids, career, and moving three times in less than three years. Round about Christmas time of 2007, we were really just getting settled in to our new home when a large envelope arrived in the mail. This envelope was sent from Tasmania! Not often do I get mail other than bills, much less from the other side of the world. I opened the envelope to find a very nice card and wonderfully illustrated lily newsletter written by Rod Barwick. The card was thanking me for the seed donation of many years ago and pointed me to his article in the newsletter describing the adventures of how he acquired the donated seed and his experiences in growing this marvelous lily. His article "Of Lady Luck, Lilies and my best Garden Dollar Ever Spent" was so encouraging! It has revitalized my interest in this rare lily gem and rekindled my desire to produce and donate seed to the seed exchange!

This tale began in the USA with a young aspiring lily grower who imported wild collected lilies from China and was fortunate enough to flower and obtain seed from them. These seeds donated to the seed exchange then traveled back around the world to the land down under and five years later the tale returned back to the USA through a thoughtful plantsman.

I would like to encourage anyone who has gotten seed from a seed exchange and successfully grown it to flowering to contact the person who donated the seed and share your experiences!

## ‘Twinkle’

David Sims, Bonners Ferry, Idaho

MY INTEREST IN *Lilium speciosum* var. *gloriosoides* was piqued after reading Leslie Woodriff’s provocative descriptions of a lily he called ‘Twinkle’ in the 1950s NALS *Yearbooks*. Woodriff believed that ‘Twinkle’ probably was the Taiwanese form of *L. speciosum* var. *gloriosoides*, but he questioned if it was a variety of *L. speciosum* at all. The standard lily references offer similar laudatory descriptions of *L. speciosum* var. *gloriosoides*: a variety of *L. speciosum* having a white flower with a scarlet or crimson center and spots, heavily recurved tepals with slightly wavy edges, giving it a superficial resemblance to *Gloriosa superba*, hence its varietal epithet. Unfortunately, the standard lily references do not offer enough detail to corroborate Woodriff’s *Yearbook* accounts. I read the accounts in the mid 1990s and tried to find more information about ‘Twinkle’, or someone that had grown it or someone with first hand information about it. I was not successful, and because *L. speciosum* var. *gloriosoides* was apparently not in cultivation at the time, I gave up solving the mystery of ‘Twinkle’. Now, with the recent re-introduction of *L. speciosum* var. *gloriosoides* from China, additional historical references and new information from researchers in Taiwan, the story of ‘Twinkle’ needs to be told.

The first mention of ‘Twinkle’ in a NALS *Yearbook* is in the 1949 edition in a listing of show winners from the NALS show in Boston (Pfeiffer, 1949). ‘Twinkle’ won an award of merit at the show; unfortunately the only information given was that it was exhibited by Leslie Woodriff. The next mention of ‘Twinkle’ is in the 1950 *Yearbook* in an article by Leslie Woodriff titled “Results of Lily Breeding in Oregon” (Woodriff, 1950). The 1950 article reads (I am including the full text from each of the descriptions written by Woodriff, as there is so much of interest, and it is illuminating to see how the description changes over the years.):

We have another type that might be *L. speciosum* var. *gloriosoides* from Formosa [Taiwan]. This received an Award of Merit at the lily show in Boston two years ago under [the] name of ‘Twinkle’. We have been listing it for the past year or two at the ridiculous price of \$100 each and I think it is worth it. This lily is not a *speciosum* though it looks like one. When a lily will not cross with *Ll. auratum*, *rubellum*, *japonicum* or *speciosum* types and the seed is less than half the size of *speciosum* and germinates with a double leaf I cannot see that it is related to the *speciosum* group. It did set one pod of 200

seeds with a rare Chinese tiger lily and the seeds behaved differently being three weeks slower to germinate under the same conditions. Less than two percent germinate at 50 to 60 in the greenhouse. In moist peat and sand for 2 months at 35 degrees 95 percent will sprout. When it is then put in the greenhouse germination is up to 90 percent in two weeks. A few flower the second year. The flower is snow white over two-thirds of its surface with a splash of brighter and deeper red in the center, and on the papillae than in *rubrum*. The flower is reflexed too much. We hope from seedling selection or hybridization to get them flat. We have had plants in the field up to five feet tall with 35 flowers. In the greenhouse the pedicels are up to a foot long. It flowers two weeks later than most of the *L. speciosum* types, or from September 15 to October 15. Dr. Emsweller was very much taken with it and said it was not *gloriosoides*. I know it is not the Chinese type. I had seed and fifty badly dried up bulbs of it. They are small bulbs not over an inch in diameter.

There are a number of interesting points and questions raised in the preceding quote:

- 1) Woodriff suggests that ‘Twinkle’ “might be” *L. speciosum* var. *gloriosoides* from Taiwan, but it is not the “Chinese type.”
- 2) Woodriff received seeds and bulbs of ‘Twinkle’ from an unknown source, but presumably from Taiwan.
- 3) ‘Twinkle’ would not cross with *Ll. auratum*, *rubellum*, *japonicum* or *speciosum*, but did set seed with a “rare Chinese tiger lily.”
- 4) The germination of ‘Twinkle’ differs from that of other varieties of *L. speciosum*. Woodriff’s description of the germination is not entirely clear in this account, but he provides more descriptions in later *Yearbooks* that leave no question as to the mode of germination.

‘Twinkle’ makes its next appearance in the 1954 NALS *Yearbook* in an advertisement for Fairyland Lilies, Woodriff’s nursery business (Woodriff, 1954):

TWINKLE—Probably *speciosum gloriosoides* from Formosa [Taiwan] but not a *speciosum*. Seed germinates like *regale*. The most jewel-like lily we grow. Stems to 5 feet with 74 flowers. Very reflexed flower—snow white with deep red papilla and central splotch. A few large flowering sizes at \$10 each. Flowering size at \$5 each. Flat grown seedling bulbs 1/2 to 1/4 inch diameter \$1 each.

Again, there are a couple of interesting points made. Woodriff elaborates on the germination mode, describing it as “Seed germinates like regale”, indicating epigeal germination, while other varieties of *L. speciosum* have hypogeal germination. It is also interesting to see the price of the bulbs has dropped from \$100 in the 1950 *Yearbook* to \$1-\$10 each.

In the 1955 *Yearbook*, the following Fairyland advertisement appears (Woodriff, 1955):

We will have several thousand bulbs of our TWINKLE available this year. This is probably the Formosa [Taiwan] form of *speciosum gloriosoides* but is not a *speciosum* and is not the same as the China one described first. It is the loveliest colored of the *speciosum* type flowers pure white petals with carmine blotch in center of each. Flowers slightly smaller than *speciosum* but higher bud count up to 75 on one stem. Growth more like *henryi* with seed like *formosanum* and same germination. Seedlings 1/2 inch \$1.00 each, Small flowering size \$2.00 and larger flower size \$5.00 ea.

In this advertisement, Woodriff refers to it as “probably the Taiwan form” of *L. speciosum* var. *gloriosoides*, and claims it is different than the form from China. He also asserts it is not a variety of *L. speciosum*, and again he confirms that the germination is epigeal.

In the 1958 *Yearbook* Woodriff writes in an article titled “Lily Breeding Notes” (Woodriff, 1958):

I read with much interest of Dr. McDaniels’ trip to Formosa [Taiwan] and I hope he will be able to study *L. speciosum gloriosoides* in its natural habitat. We believe it is the same as our Twinkle and if so it is certainly not a *speciosum* and is not even closely related to them as it has much smaller seeds and epigeal germination after cold treatment. We are finally getting them adapted to our gardens by many generations of seedlings and selecting only the most vigorous.

We have never had a hybrid between Twinkle and anything else though we have used pollen by the cupful. I believe *henryi* is really closer to *speciosum* than Twinkle is as we are practically sure that our Black Beauty of which a small stem was sent to the show last year is a *rubrum* × *henryi* hybrid.

In this account, Woodriff is convinced that 'Twinkle' is in fact *L. speciosum* var. *gloriosoides* and again suggests that is not a variety of *L. speciosum*, based on the size of the seeds and the germination. He also states he has never had a hybrid from 'Twinkle' and anything else, which conflicts somewhat with his 1950 account when he describes 'Twinkle' as setting a pod with a "rare Chinese tiger lily." Perhaps the resulting seedlings did not turn out to be hybrids or they did not survive.

In any case, his 1958 article leaves little doubt that he was unsuccessful in raising any hybrids involving 'Twinkle'. At the time he wrote this 1958 article, Woodriff had already hybridized the first orienpet ('Black Beauty'), the first asiapet ('Woodriff's

**We have never had a hybrid between Twinkle and anything else though we have used pollen by the cupful.**

Pink Tiger') and was growing various Division VIII (oriental) interspecific hybrids by the tens of thousands, including advanced generation hybrids involving *L. auratum*, *L. speciosum*, *L. rubellum* and *L. japonicum*. The fact that Woodriff was unable to produce any hybrids with 'Twinkle' is certainly significant.

Woodriff apparently had 'Twinkle' in cultivation for a number of years but eventually he seems to have given up on it or lost his stock as it disappeared from later catalogs. Indeed, throughout its history, *L. speciosum* var. *gloriosoides* has resisted attempts to keep it in cultivation.

Woodriff called 'Twinkle' the Taiwan form of *L. speciosum* var. *gloriosoides*, implying that he felt it was distinct from the form from China. The Chinese form of *L. speciosum* var. *gloriosoides* was introduced by western botanists in 1868, found in the Lushan Mountains of China by Père David. It was introduced to England by Charles Marie, but it was soon lost to cultivation. It was discovered in Taiwan in 1908 by N. Konish, and material from Taiwan was sent to England in 1912. E.H. Wilson has a good account of the early history of *L. speciosum* var. *gloriosoides* in his book *The Lilies of Eastern Asia* (Wilson, 1925). Wilson attempted unsuccessfully to find it in the Lushan Mountains of China in 1907, but he did find it growing in Taiwan in 1910 growing on red sandstone cliffs. Based on a photograph of a water color painting of the Chinese form, he felt it was the same as the form found on Taiwan. Wilson collected seed in Taiwan, and it was successfully flowered in the United States in 1921 by Professor Sargent. Wilson did consider it the loveliest of the colored forms of *Lilium speciosum*.

Wilson considered it a rare lily, based on his inability to find it in the Lushan Mountains of China. However an article in *The New Flora and*

*Silva*, dated April 1932 (25 years after Wilson searched for it) recounts that according to an Englishman living in China it was “a common plant of the hills about Kuling” (in the Lushan Mountains) (Grove & Watson, 1932). In an earlier issue of *The New Flora and Silva*, there is an article about *L. speciosum* by A. Grove that discusses *L. speciosum* var. *gloriosoides*. Grove received bulbs from W. R. Price in 1913, collected near Sekitei in Taiwan. Price noted that it was (Grove, 1930):

...growing out obliquely from a steep rock face, chiefly from cracks and ledges where other vegetation had collected. All the rock face was very wet with running water when I was there. Kanahira gathered one flowering specimen in March. When I was there in December 1913 there were only small buds. The stems are all simple, up to 2 feet long, and the leaves all distichous. It is certainly very local in Taiwan and only occurs on the foothills at quite low levels.

It sounds as if the plants in this account were actively growing through the winter and perhaps resting in the summer, which would be quite unusual. Grove went on to say the Taiwan form “seems identical” to the China form. He also added that the material from Taiwan that was sent to England gradually dwindled and none of the plants produced seed.

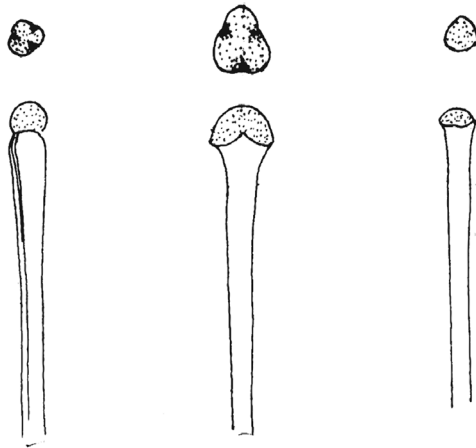
After reviewing the historical references, I am confident that Woodriff’s ‘Twinkle’ is *L. speciosum* var. *gloriosoides* from Taiwan. What about the epigeal germination that Woodriff claimed, and the inability to cross with other varieties of *L. speciosum* or other Division VIII lilies? And finally, should it be considered a distinct species? Fresh plant material imported from China in the last ten years, as well as recent reference material from Taiwan have been a great help in answering these questions.

I have corresponded with a number of people that have germinated seeds from the recent material imported from China, and with one exception they have reported hypogeal germination, which is typical for *L. speciosum*. In the one exceptional case, the grower started two batches of seed and reported hypogeal germination in one instance and in the other instance he was not positive what the germination mode was, but he thought it was epigeal. When I considered this germination information, I once again felt that I had reached a dead end in solving the ‘Twinkle’ mystery, as no one had definitively observed the epigeal germination that Woodriff claimed. I decided to look for more references, hopefully involving material from Taiwan, and finally discovered an important piece to the puzzle: researchers in Taiwan had published a paper describing the germination mode of

*L. speciosum* var. *gloriosoides* from Taiwan as being epigeal (Chen & Chen, 2004). At last I had confirmation of Leslie Woodriff's claim that 'Twinkle' had epigeal germination! Based on the anecdotal evidence from recent material from China exhibiting hypogeal germination, it appears that the Taiwan form may have a different mode of germination than the China form. If so, this may be unique in the genus *Lilium*, as I am not aware of any other species that exhibits both epigeal and hypogeal germination depending on its geographical origin.

One of the most thorough discussions of the different varieties of *Lilium speciosum* is the thesis of Dr. Sadao Abe. His thesis was originally published in the *Botanical Magazine of Tokyo* in three parts in 1956, and was reprinted in the 1980 NALS *Yearbook* with the kind permission of Dr. Sadao Abe (Abe, 1980). Abe analyzed the different types of *Lilium speciosum* that occur in Japan and also included the Taiwan form (var. *gloriosoides*) in his comparisons. Unfortunately, he did not analyze any material from mainland China. The differences that Abe found between the Taiwan form and the Japan forms (besides the differences in flower color) included later flowering, smaller fruits, shorter styles and differently shaped stigmas.

Abe describes the stigma of the Taiwan form as having a "sub-capitately truncate and sub-constrict" shape. The pictures and descriptions I have seen of the Chinese form of *L. speciosum* var. *gloriosoides* do not have this type of stigma. Is this another significant difference between the China and Taiwan forms?



Shape of stigmata from different origins

Left: Taiwan origin, Middle and Right: Japan origin

(Figure reprinted from the 1980 NALS *Yearbook*)

Abe discusses possible evolutionary origins of *L. speciosum* in his thesis. He asserts that the prototype *L. speciosum* originated in China and migrated overland before Japan was separated from the Asian mainland. He considers the China form (*L. speciosum* var. *gloriosoides*) as the precursor to the varieties found in Japan. After Japan was separated from the Asian mainland, the geographical isolation of the Japanese islands resulted in the evolution of different types that varied among themselves (Abe considered three distinct types found in Japan) and between the original form from mainland China. Abe does not distinguish between the mainland China prototype and the type found on Taiwan, but it seems clear the same type of isolation and evolution that occurred in the Japan forms could have occurred with the Taiwan form, resulting in differences between the Taiwan form and the mainland China form.

Abe also address the issue of fertility. He states that "All the Japanese ecotypes of *L. speciosum* are cross-fertile with each other, although the cross-fertility between the Japanese types and the Formosa [Taiwan] type is uncertain." The choice of the word "uncertain" leaves some question as to the intended meaning. Does it mean "untested", "unreliable but possible", "not possible" or some other meaning? Is Abe's assessment consistent with Woodriff's failure to cross 'Twinkle' with other forms of *L. speciosum*?

There is one mention in the 1969 NALS *Yearbook* of hybridizing with *L. speciosum* var. *gloriosoides* by Jan de Graaff of the Oregon Bulb Farm in an article titled "Silver and Gold" (de Graaff, 1969). He writes "*L. speciosum* var. *gloriosoides*, that strange plant coming to us from China, has been crossed with other orientals." The following year in the 1970 *Yearbook*, Edward McRae briefly mentions *gloriosoides* in an article titled "Lily Hybridizing at Oregon Bulb Farms" that gives a comprehensive view of the hybridizing work at the Oregon Bulb Farm. He does not mention any hybridizing work with it but writes "A number of clones from *L. speciosum gloriosoides* are very exciting" (McRae, 1970). In his book *Lilies – a Guide for Growers and Collectors*, Edward McRae conveys the following information about hybridizing with *gloriosoides*, confirming that hybrids were produced at the Oregon Bulb Farm (McRae, 1988):

The unusual *Lilium speciosum* var. *gloriosoides*, with its exotically twisted tepals, engendered many interesting seedlings when crossed with other forms of *L. speciosum*. These lilies were surprisingly heat-tolerant in the warm summers of Oregon's Willamette valley, a valuable characteristic.

What about attempts with recent material from China? I have personally communicated with three lily growers that have unsuccessfully tried to cross recent material from China with other forms of *L. speciosum*. Joe Nemmer of Pennsylvania, Calvin Helsley of Missouri, and Dr. James Ault of Illinois have all reported failures when crossing *L. speciosum* var. *gloriosoides* with other varieties of *L. speciosum*. Joe Nemmer has been successful in raising three hybrids between the oriental hybrid 'Casa Blanca' (seed parent) and *L. speciosum* var. *gloriosoides* (China form). The cross produced only a few seeds, suggesting relatively low genetic compatibility. Joe Nemmer has questioned if the pollen tubes of var. *gloriosoides* have evolved to the shorter style of var. *gloriosoides* and are unable to reach the ovules in other varieties of *L. speciosum* with longer styles. Pollen tube growth staining experiments could be used to investigate this hypothesis.

The hybridizing success at the Oregon Bulb Farm with *gloriosoides* and other varieties of *L. speciosum* contrasts with the lack of success of Leslie Woodriff with the Taiwan form and with recent attempts with material from China. Unfortunately, I have not been able to find any further information about the Oregon Bulb Farm *gloriosoides* hybrids, and none were registered with the Royal Horticultural Society Lily Register.

Notwithstanding the Oregon Bulb Farm hybridizing successes, the apparent limited fertility of both the forms from China and Taiwan of *L. speciosum* var. *gloriosoides* with varieties of *L. speciosum* from Japan does suggest they are not closely related. Whether they are sufficiently distantly related to be considered separate species is a question that needs to be examined by taxonomists. The relationship between the form from China and the form from Taiwan also needs to be explored; I am not aware of any grower that has tried to cross them or conducted any systematic, detailed comparisons between the forms.

After analyzing the information about *L. speciosum* var. *gloriosoides*, I was initially satisfied that the mystery of 'Twinkle' had been solved. I do believe that 'Twinkle' is undoubtedly the Taiwan form of *L. speciosum* var. *gloriosoides*; however, the question of its relationship to the other varieties of *L. speciosum* from Japan and China remains a puzzle to be solved. In any event, Woodriff's experiences with 'Twinkle' over 50 years ago are another example of how far ahead of his time he was with his lily growing.

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