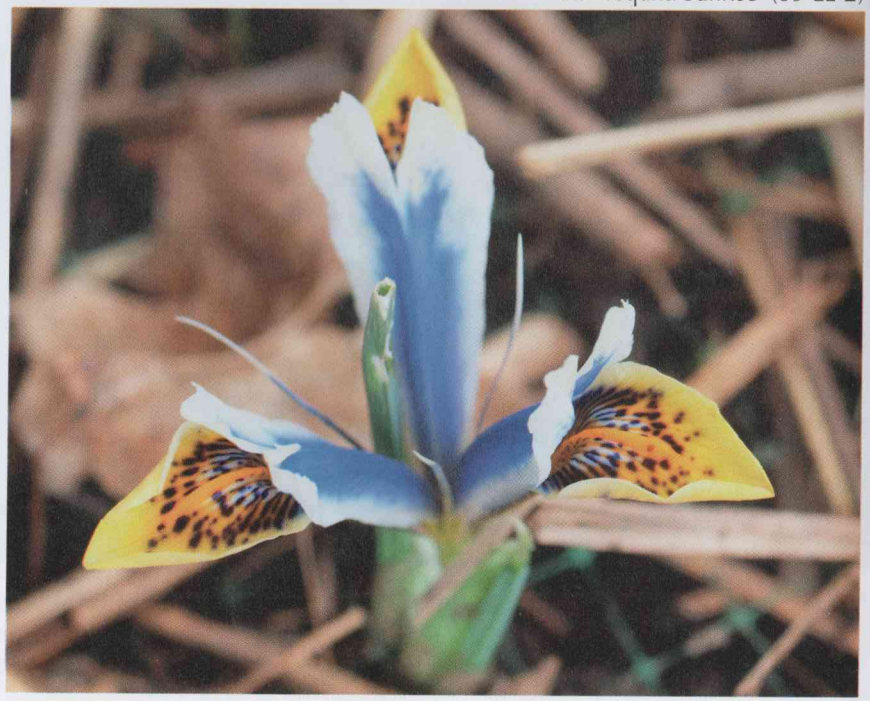
Reticulata Iris – Getting to Market

Alan McMurtrie

I HAVE BEEN working with Reticulata *Iris* for close to 35 years. Thirty-two years ago (1985) I was so keen that I went plant collecting in Turkey with a specific goal of collecting a diploid form of *Iris danfordiae* so I could use it in hybridizing. I was inspired by E.B. Anderson's *Iris* 'Katharine Hodgkin', which is a cross between *I. histrioides* and *I. winogradowii*. Although both parents are 2n=16 they must be genetically diverse since, like crossing a horse with a donkey and getting a mule, 'Katharine Hodgkin' is a sterile dead end. In the case of *I. danfordiae*, which turns out to be 2n=18, the commercially available bulbs are triploid. At the time, the only way to get a fertile form was to go to Turkey and collect it myself. I wondered if I could create something interestingly different by using it as a parent. Little did I know where this would lead me …and that journey is continuing, as you can see by

Iris 'Tequila Sunrise' (09-LE-2)



'Tequila Sunrise', which bloomed for the first time in 2016. I never would have imagined anything like this was possible. In case you don't realize, this is an incredible color break. It's almost like someone took parts from two different flowers and glued them together. I hope people like it as much as I do. The Catch-22 is, it will be about 12 years before there are enough bulbs to start sales. The good news is it exists and does reasonably well. It's a touch on the small side at 45mm (1.75 inches) tip-to-tip, but I have put it into a lab for conversion to polyploid, of which a tetraploid version could be 15-25% larger with slightly thicker petals. Typically I don't come up with a name until we're close to introducing a variety, but in this case 'Tequila Sunrise' just seemed to fit.

During my travels in 1985, I also wanted to collect some genetically diverse material to try to open up the range of possibilities. The diversity of material available at the time was very, very narrow. One that turned out to be critical to my work is the Çat ANMc2175 Retic (which is probably worthy of specific status). Amazingly it turns out that the Çat Retic, *I. danfordiae*, and *I. sophenensis* are all 2n=18. The Çat Retic has been key for teasing out orange, as well as brown accents (actually dark purple). I had wondered if there might be more 2n=18 species, but nothing had surfaced until now; or at least none that I realized. It has just come to my attention that 'Halkis' is very likely 2n=18. Years ago, Brian Mathew kindly gave me some of his BM11026. It seemed quite similar to the Çat Retic, including producing rice-grain size bulblets, and was found some 80 km (50 miles) to the south. However, results of using it in hybridizing with all kinds of crosses were very puzzling. Some seeds were produced over the course of several years, but no plants bloomed. As a result I eventually stopped paying it much attention, and now unfortunately it is gone.

Norman Steven's Adiyaman Reticulata

In 2015 I saw Norman Steven's collected Adiyaman Retic for the first time (in Holland). Its coloring was very intriguing. If you didn't have glasses on to see details, you might wonder if you were looking at *Iris pamphylica*. I got to see it and its bulbs up close in England early

in 2016 and was very pleasantly surprised to see it produces rice-grain bulblets. Could it be 2n=18? If it is, wow, imagine the possibilities…

I now have 2 other collected Retics from Turkey that produce rice-grain bulblets. Both are purples. They would have bloomed here in 2016, and I completely ignored them; they were just purples. I probably thought they were simply some of my older uninteresting 2n=20 hybrids. What made me sit up and take notice, was that when I replanted them, I saw they had bulblets. Now I kick myself for not paying attention and hybridizing them.

What I'm looking for is genetic switches, so to speak, to turn on and off enzymes that affect chemicals in a flower's petals, and thus determine what wavelengths of light are reflected back to our eyes. If two plants have blue flowers you can really only expect their children, and their children's children, to also be blue (with some amount of variation in the shade of blue). It's when a blue is crossed with a yellow that things begin to open up (e.g., *sophenensis* x *danfordiae*). You won't see this in the first generation (the F_1 generation) – they are all "just blues." It's in the second generation that white is possible – blue turned off so to speak, and yellow turned off, revealing an underlying pattern which I refer to as "blue accents" – just as happened in 1999 when 'Starlight' (94-HW-1) first appeared. Now something so revolutionary is passé. I have lots of very lovely whites. I should point out it took 10 years to see the results of those two generations, and fortunately I was smart enough to realize I should be intercrossing the F_1 generation.

The reason for wanting more genetic diversity is to open up the range of expression to be as wide as possible. Put simply, if I were only working with *danfordiae* and *sophenensis*, there is no way that I would have been able to create 'Tequila Sunrise'. The Çat Retic made all the difference. In truth, of course, without all three, 'Tequila Sunrise' would not be possible.

It is also about getting at genetic switches to allow expression refinement. I have yellow and I have pale yellow, but what about other shades of yellow to enable a wider color palette; e.g.: when mixed with blues and purples. This for example, affects the range of browns you can get. Currently browns are just dark browns. Up until 2016, hybrids showing that orange was possible were all very similarly coloured (i.e. "warm yellow" tending toward apricot/cantaloupe). Yes I want, and will eventually get true orange (and most importantly, one that is sunfast), but it would be nice to mix the "warm yellow" with various light yellows. Of course it would be really quite something to eventually get pink, just as we now have in bearded *Iris*. Strange to think that after a number of years we'll likely take it for granted and be saying, "well of course."

As to what expressions will look best is a whole different matter.

Right now the key is to make it possible. Then I'll see where that takes me. One of my current goals is to create a white with cherry accents (i.e., purple accents).

Back in fall 2004 I wrote an article for the *Rock Garden Quarterly* titled "Reticulata Iris: Creating A Rainbow." You can read it by going to the NARGS website <*www.nargs.org*> and clicking on Publications (bottom left on the home page). On page 281 of that issue (vol.62 no. 4), bottom right, you will see a picture of 98-NP-4. It's taken more than 10 years, but you can now, at long last, buy 'Eye Catcher' and 'White Caucasus', page 279 bottom left, is also available. 'White Caucasus' is a lovely pure white Reticulata. It is late blooming so it goes nicely with 'Eye Catcher', which is early blooming. In extremely limited supply is 'Orange Glow' (98-OO-1) page 282 top left. 'Sea Green' (97-CQ-1) page 280 bottom left, which got an RHS Award of Merit in 2015, is available also in very limited supply. 'Down To Earth' (94-AT-2) is pictured on page 280 top right. Incidentally, 'Sea Green' was rejected by three bulb growers! Fortunately the stock, along with several others, was saved by John Amand and they are currently being grown for John by the grower who has the rest of my hybrids. I mention the seedling numbers after each name because they are used as the primary identifier on my website <*http://www.Reticulatas.com*> where you can see parentage, siblings, and progeny:. You can probably guess that the first 2 digits are the year of hybridization. The two letters are the planting order, and the last digit is typically the blooming order. 'Eye Catcher' and 'Orange Glow' have interesting stories that will be revealed in a future article.

Iris 'Eye Catcher' (98-NP-4) - notice the multipetal flowers

My goal in writing that article in 2004, as well as many others for various societies, and giving talks to a couple of NARGS chapters, was letting members know that something wonderful was happening! Reticulata *Iris* were no longer just blues and purples. The difficulty

is that it takes 10 years or more to go from one flower to more than 40,000 (all sizes). 'Eye Catcher' bloomed for the first time in 2003; so there was just one flower in the whole world. Half a dozen small bulbs were sent to Holland that fall. In 2004 there were 2 flowers, and a few more bulblets were sent to Holland. Eleven years later 9,500 were sold, followed by 47,000 in 2016! Plus there were unfilled orders for 10,000 more. As a result of the way orders came in we oversold, so only 26,000 will be available this year. Given the demand, the aim is of course to build the stock, so we need to cut back sales a bit in order to make that happen. One fascinating thing about 'Eye Catcher' is it tends to have extra flower parts, which fortunately adds to its beauty. I don't believe they are consistent from one year to the next.

I want to dispel any illusion you might have about my getting rich off the sale of my hybrids. You see the large numbers, and you see what 10 bulbs retail for in nursery catalogs, or what a pot of flowers in bloom costs. Well it's not me or the grower who are getting rich. As with many farm goods, the price a farmer gets is a lot less than what you pay. A retailer can sell the bulbs for half price and still make a profit. Plus there's a middleman looking after packaging and distribution.

Iris 'Scent•sational'

In case it isn't obvious, the reason for working with the Dutch was to make my hybrids available to as wide an audience as possible. Holland has ideal growing conditions for Reticulata *Iris* (the long growing season gives excellent bulb regeneration), plus they have a great distribution system that extends worldwide. The idea, once I started to get some interesting hybrids, was to earn a bit of money and reinvest it in polyploids. I also hoped there would be some left to pay for trips to Holland, to see my hybrids in the field and to liaise with growers.

Iris 'Spot On' (87-DQ-1)

For the grower there are upfront costs to build the stock over the 10+ years. These start off small. For quite a few years the work is done by hand. Typical Reticulatas increase at a rate between 2.1 and 2.4 times per year.

Once sales start, other upfront costs come into play such as over €2,000 for Plant Breeder Rights, which protects both the breeder and grower(s), plus the registration cost. The grower takes on a fair bit of risk figuring out how large to build the stock, as well as set prices. In recent years wholesalers/exporters like to wait as long as they can before placing orders with the grower. That way they aren't left holding unsold stock [the grower is]. It can mean that growing costs are €3200 and only €1200 worth of bulbs are sold, for a net loss of €2,000. So in spite of selling 26,000 bulbs you lose money that year – and you can't start paying down the upfront costs. This is where it becomes critical to tightly control stock vs. demand. It is no good if you have a customer buying 300,000 bulbs of a variety one year and none the next!

Back in 1997, I started working with a Dutch grower who stopped off in Toronto, Canada, to see my Reticulata hybrids. He and his wife were on their way to California to look for *Calochortus* during bloom. At the time the grower wrote up a Test Agreement, which we signed. I sent him 2 bloom-size bulbs each of 21 of my hybrids including 'Scent•sational' (87-BB-1), 'Spot On' (87-DQ-1), and 'White Caucasus'.

A couple of years later two other growers came onboard independently. They knew about each other. The idea, if it turned out they were interested, was to partner with them and give them an opportunity to introduce more of my hybrids in the future, and that we would all work together as a co-operative. For bulbs it's important to have at least two growers of a variety in case of crop failure [this actually happened in 2016 due to flooding at the end of the field a grower rented and where he had planted my small stocks – it didn't drain properly and we didn't have backup growers]. That way wholesale customers can still be supplied with bulbs for their retail

customers (orders won't be filled 100%, but certainly more than if there was just one grower).

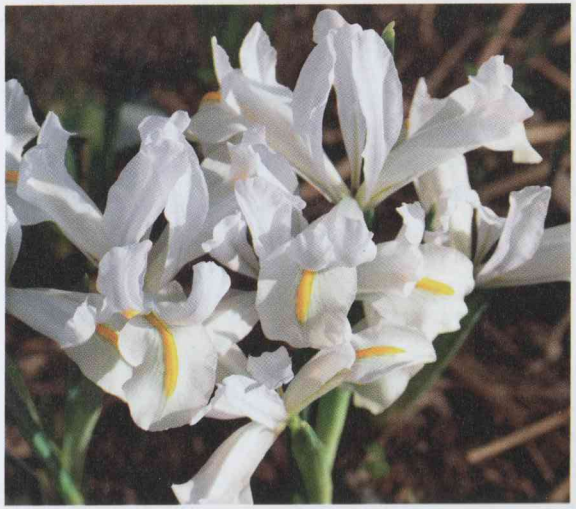
In Fall 2004, one grower sent everything back in a large box. The other turned the bulbs he was testing over to the original grower. As a result, I started working with a middleman. Yes, he would share in the profits, but I needed a backup in case the original grower also decided

'Sea Breeze' 'Mars Landing' 'Splish Splash' 'North Star' 'Sunshine'

to call it quits. As it turned out, this was very prudent – it meant I was able to introduce 'Sunshine' (00-HW-1) in 2015, and 'Mars Landing' (00-KV-3), 'North Star' (00-BC-1), 'Sea Breeze' (00-KN-5), and 'Splish Splash' (00-KN-6) in 2016.

Since 2005, some of my hybrids have been available through Janis Ruksans in Latvia. Initially these were primarily my F_1 *sophenensis* x *danfordiae* "Just Blues." They had been rejected by two Dutch growers, but I thought some enthusiasts might be interested in them. You will eventually hear a bit more about this in another article, but for now the key thing is, from my point-of-view I wouldn't say I was successful even though I eventually had Janis release some important varieties that the Dutch rejected (in total Janis introduced 37 of my hybrids). It didn't appear

Iris 'White Caucasus'



to me that people were sitting up and taking notice.

In 2009, I started noticing some problems with the original Dutch grower who didn't seem to be properly testing my hybrids. Other problems about sales then led to a legal battle that was finally concluded in fall 2014.

In 2013, the middleman I'd also worked with dropped out and I started working directly with the grower who had been growing my hybrids for him. However, not everything was so problematic. In that same year I met the grower who now has almost all of my hybrids – Jan Ligthart, a tulip hybridizer. He understands handling small stocks. He has had all my smallest stocks since 2013, along with 'Eye Catcher' and 'Holland Glory' (98-YS-1) [a future introduction from one of my front gardens] since fall 2014. Having bought out the original grower I was concerned about ensuring there were sufficient sales to pay growing costs. So I put in efforts to contact wholesalers and retailers to try to get sales. I'm glad I did. In January 2016 the middleman's grower announced he was closing his business and I would need to find another grower for the 2016/17 growing season. Fortunately Jan was willing to help me – growing an additional acre is a bit of an ask, given all the things he already grows.

Let's take a step back. What does it take to get a plant to market?

First, you need to find or develop something special
Second, you need to find a grower and build up stock
Third, you need to market the variety and build sales

For marketing I need to get you, the alpine enthusiast/home gardener interested; but what I really need first is retailers carrying the bulbs so you have a convenient place to buy them. Unfortunately the bulb market seems somewhat limited in the United States. It can appear that people are largely just looking for cheap bulbs; at least that's the way a lot of companies seem to lean. I like a bargain as much as the next person, but there's no way after building up stock for 12 years, paying to get Plant Breeder Rights, etc., that the bulbs can be sold cheaply until a lot later when hundreds of thousands are being sold each year. I do know in one case the variety was being sent over by air, rather than in the retailer's normal, less expensive container shipment. Overall the grower handles tens of millions of bulbs in a short period during the summer, having to dig, clean, dry, sort and count the bulbs and ship them off to customers. With all those bulbs to send out they don't want to be handling a lot of small packages; but it should be able to do some.

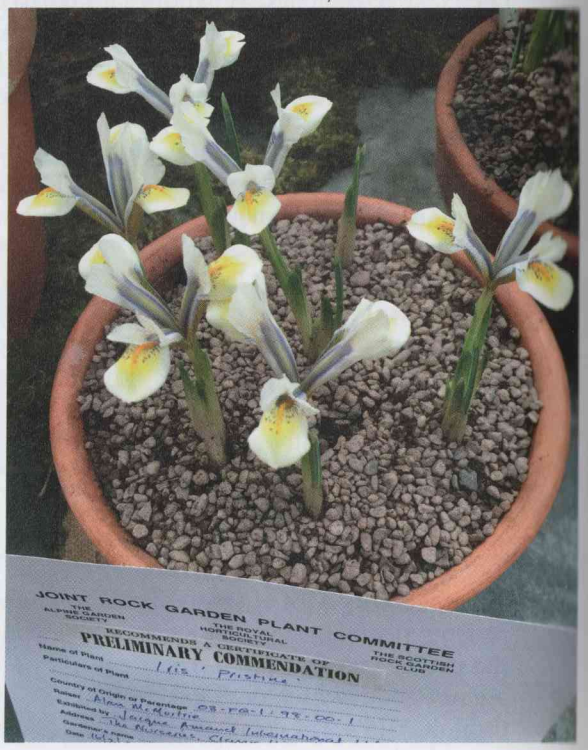
Roughly 30 hectares of Reticulata *Iris* have been grown in Holland the past few years, down from 45 hectares in 2005. I keep hearing prices are not good, which perhaps means a further decrease is imminent, though 2016's wet weather may have "dampened" the bountiful crops

of recent years. Preliminary numbers seem to suggest 25 hectares were grown for 2015/16. My understanding is 70% of the bulbs are used for forcing and potting (green sales) [I believe mainly in Europe], and 30% are sold to the nursery trade (dry sales). I'm hoping my hybrids will revitalize the market. It's just a matter of building stocks, and at the same time building demand.

One thing I hear is that 'Spot On' and 'Scent•sational' are just purples. "If people want a purple they'll buy something cheap like 'J.S. Dijt' – they don't care that yours has special markings." Indeed 'Spot On' and 'Scent•sational' can be looked upon as purple; I understand that. They were two of my first hybrids – from 1987 seed ('Spot On' involves my collected *I. bakeriana* ANMc2275). 'Spot On' did get an Award of Merit in 2016, and 'Scent•sational' did get a Preliminary Commendation.

From a marketing perspective let's look at a variety that hasn't yet been introduced, but that should do very well: 'Pristine' (03-FQ-1). It has been in Holland for 6 years. We roughly have 10 meters of it (planting width of each row is about 1.25 meters). A guess is it will be introduced in 2020, with a small quantity being sold in 2019 (i.e. at one outlet). As you can see in the photo it was awarded a Preliminary Commendation in 2016. So I am starting to put effort into showing it and trying to make people aware that it is coming. What will help 'Pristine' is that we are establishing demand for 'Eye Catcher'. In spite of the lower volume of bulbs available it appears we will have more customers for 2017; in the short term they'll be getting fewer bulbs than they'd ideally like, but if they can get their customers interested, it will be good for everyone involved.

Iris 'Pristine' (03-FQ-1)
2016 Preliminary Commendation



My hybrids aren't perfect; remember they're not far from the species level. I

Slowly but surely stocks are being built up (here in 2014) in Holland

say this in part because the commercial triploid form of *Iris danfordiae* is notorious for "shattering"(the large flowering bulb of one year succeeded by a mass of tiny bulblets the following year), and I do find *I. sophenensis* benefits greatly from being moved every few years. Many of my hybrids are good doers and I think benefit from being bred in the harsh Toronto environment here in Canada, compared to in Holland. They will form clumps if given a bit of space. I do recommend planting some bulbs in a second location in case something happens to the original planting. Key is ensuring they have a long growing season in order to regenerate bulbs that are large enough to bloom. An extra week of growth can potentially make them one size larger (or at least that's the amount of increase for tulips). If you replant my hybrids with *I. danfordiae* parentage and move their bulblets closer to the soil surface the bulblets will grow into bloom-size bulbs in about 3 years (2 years in Holland). Retics don't mind water in spring, but it's not good if they are sitting in it. Good drainage is important, which can easily be accomplished by planting in a raised bed. It can also be as simple as dumping a wheelbarrow of soil on top of an existing garden. If you do have problems, try digging the bulbs right when the leaves are starting to die down, and storing them in netted bags hanging from the rafters of a garage. Then simply replant them in the fall. I now believe this method would have been the savior of BM11026, as it has been for *Iris sophenensis*. I am attempting to rescue my *I. danfordiae* ANMc2325 this way. A bulblet has been moved to the main garden. Assuming it's big enough, I will start storing it in the garage in 2017.

Conclusion

I'm passionate about Reticulata *Iris* because of what I've been able to accomplish. Each breakthrough encourages me to do more. This is a

hobby; something to be enjoyed. It's fun to go to London, England, and see my hybrids on display, and to see them in the field in Holland. What's not fun is the problems I've had needing to ensure there are enough sales to pay growing costs. It's discouraging to see some varieties losing money (a marketing issue). I'm simply trying to take my success to the next level, so you too can enjoy them. There have been times I've almost wished I had never bothered. It seemed just one more hurdle then everything will be fine. But then there's another hurdle, and another…

Rock garden enthusiasts love pure species, but sometimes those species are very difficult to grow in our gardens. This is where a little hybridizing between species can help to make plants that are more robust. If I can create something amazing, that's easy to grow, then why not? We should be encouraging other people to enjoy alpines. If people give it a go and many of their plants die, they're simply going to give up. In a sense all I'm doing is giving Mother Nature a helping hand. If *Iris danfordiae* and *I. sophenensis* were to come together in the same valley in Turkey, then many of my hybrids would be the result. It is also fascinating to wonder how the various species came into existence in the first place.

It's good to be able to tell you my hybrids are, at long last, starting to become available. And, I've got a lot of really nice things in the pipeline. As a starting point check out: McClure & Zimmerman, Odyssey Bulbs, Van Engelen, White Flower Farm, and Jacques Amand International (biggest selection; parcels are distributed within the U.S. so you don't have to deal with any paper work). I don't know what each of these companies will be offering so do also check back in 2018. As I like to say, "It's a matter of luck, understanding science, a bit of intuition…plus lots of patience!"

I could never have imagined what I've accomplished was even possible. I wonder what the future holds? The good news is I've got 5 years worth of seed in the ground, so a lot of exciting things are already on their way.

Picture for a moment a bed of seedlings with buds coming up, ready to bloom for the very first time. To paraphrase Dave Bowman from the movie *2010: The Year We Make Contact*, "Something wonderful is going to happen." Indeed, several times each bloom season when a special hybrid opens for the first time, it brings a very big smile to my face and I think, "Yes, this is what makes all of the effort worthwhile" – the beauty of nature. The Dutch would say, "Alan, you have too many." To me, "Variety is the spice of life."

Check out <*www.Reticulatas.com*> to see my hybrids, their parentage, and their siblings. I don't have bulbs for sale: it is an informational site, where you can also read all of my writings. And you can skip over to see some of my Juno *Iris* hybrids, a few of which have been available through Janis Ruksans.

I do hope I am successful and a few of my hybrids make their way into your garden.

This was my third year ar the Royal Horticultural Society early spring show in London. My hybrids were on display at the Jacques Amand stand, including ones to be released in coming years

Jan Ligthart had a display of his tulip hybrids along with some of my Reticulatas at the 2016 Lentetuin (Dutch for "spring garden") Show in Breezand, Holland. Note 'Lilac Beauty' at the center.

Alan McMurtrie holding a pot of 'White Caucasus'