

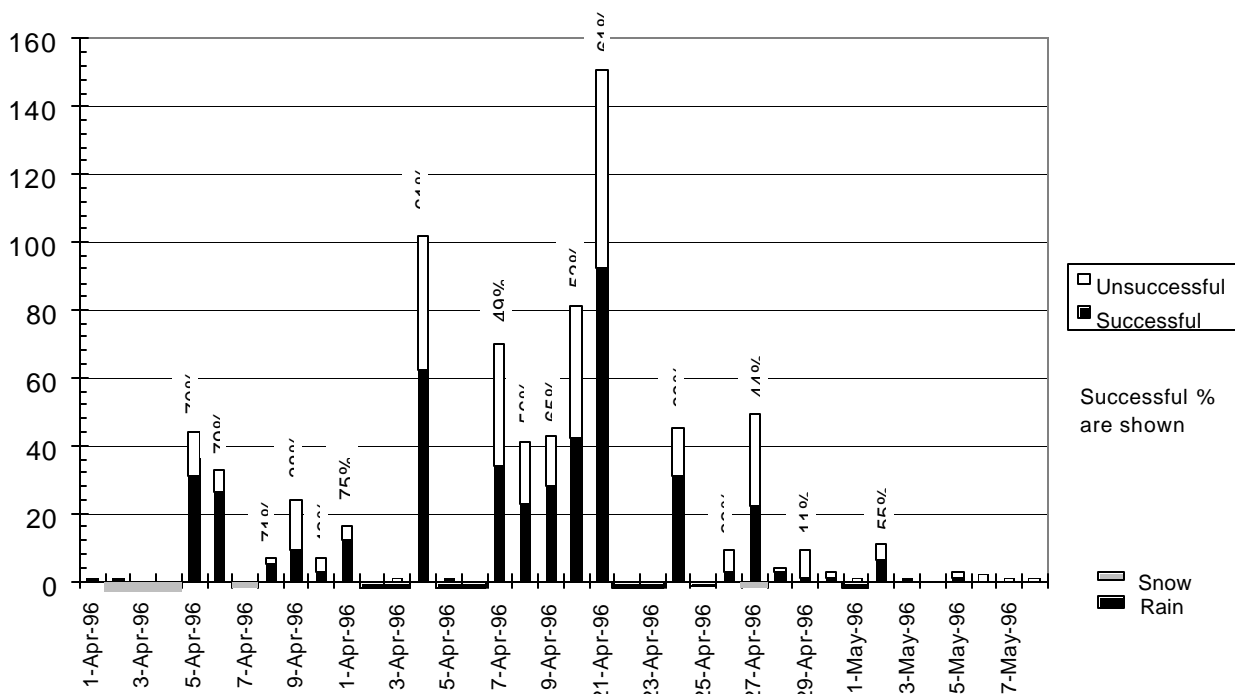
# 1996 Retic & Juno Bloom

By Alan McMurtrie

## Reticulatas (Iridodictyums)

This year Reticulata bloom started on a more typical March 28th. Those first blooms were on 1987 crosses involving *I. hyrcana*. On April 1st we got a bit of snow, but it melted by later in the day. On April 3rd however, we received 2 cm of snow, which prevented hybridizing. That was followed by another 6 cm the next day. April 5th was a bright sunny day (Good Friday). The air temperature wasn't much above freezing but the bright sun did a good job of melting a lot of snow. I spent much of the day first, clearing the snow off of the dishpans<sup>1</sup> and immediate surrounding area, then later doing a fair amount of hybridizing. The cool air temperature kept the bees away, so I didn't mind leaving all of the dishpans off. That way the moist ground around the Retics could get a chance to dry off. Saturday the 6th also was quite a nice day. Easter Monday the 7th had light snow coming down for most of the day; a little heavy at one point. Just above freezing temperatures melted much of what fell. That though, meant no hybridizing was done.

Figure1: 1996 Reticulata Crosses



Continuing cold weather slowed growth down considerably. The 1989 *histrioides* var. *sophenensis* x *danfordiae* hybrids (at times referred to below as 'h x d') didn't start blooming until April 9th (two opened; others didn't open until the 15th). Three new blooms from 1991 *danfordiae* x *histrioides* var. *sophenensis* (reverse of the crosses in 1989) opened on April 15th. I was fairly surprised that these had some dotting on their falls. Unfortunately it looks like I was so busy with hybridizing that I never took any pictures of them, except for one of a nearly finished flower. Other than the dotting, they were similar to the 1989 *histrioides* var. *sophenensis* x *danfordiae* clones. I will try to take time to study them next spring. In total I now have over 35 hybrids involving *histrioides* var. *sophenensis* and *danfordiae*. Of the ones that started to bloom two years ago (ie. this was their third year of bloom), most had between 4 and 6 flowers this year. As I reported in 1994, these are fertile, so every single flower was crossed, and their pollen was used in a lot of crosses, though not as many as I could have used it in.

<sup>1</sup> I use upside down dish pans and tin cans to cover my Retic flowers (and shorter Junos) in order to keep rain and snow off so that I can hybridize them. These covers also keep bees from getting at the flowers and spoiling my crosses, as well as stealing the pollen before I get it. The covers also prevent strong winds from blowing away some of the pollen while I'm at work during the day.

With Junos I often use bricks on their sides to raise the dish pans and tin cans higher. One thing to watch out for is not to stack the bricks too high without additional support, and specifically to ensure they aren't tipsy. Invariably I end up having one dish pan go over on me, often snapping the stalk of the very plant I'm trying to protect. I hate it when that happens!! Understandably when it does, I renew my efforts to make sure that it doesn't happen again.

I do wonder if *histrioides* var. *sophenensis* is really related to *histrioides*. Its petal shape is more along the lines of *I. reticulata*'s (ie. narrow; though sometimes *I. reticulata* has wide petals: such as in the "pinkish" clone from the Armenian Caucasus). Also, *histrioides* var. *sophenensis*' falls have striped markings rather than dots (no dots what-so-ever). The only thing "*histrioides*-ish" about it, is its shade of blue.

Just to continue the *histrioides* var. *sophenensis* x *danfordiae* discussion for a moment: these clones produce a lot of bulblets, just like both parents (no surprises there). I'm now making use of that fact to increase the number of bulbs I have by replanting the bulbs every year. I found last year that a couple of bulbs which had been replanted in late summer 1994 had their bulblets increase quite noticeably better than ones that hadn't been replanted. The 1991 clones have never been replanted however there are quite a lot of leaves around each clone (typically 5 smaller leaves in addition to the "parent's" leaves). I definitely intend to replant both of these this fall in order to give them more room. A key point to remember is, bulblets need to be replanted closer to the soil surface for them to be able to come up and increase, otherwise they'll largely just die out. Unfortunately, replanting is becoming more and more of a "chore"<sup>2</sup> every year, since the number of bulbs I'm replanting keeps increasing. Last year I replanted the ones from 87, 88, and 89. This year I'm hoping to do only a small portion of the 1987/88 area (next year I'll replant it completely), plus the whole 89 and 90 areas [didn't get to the 1990 Retics], along with portions of the 1991 area. The pre-87 area should also be done if I can fit it in [not enough time this year].

It rained in the afternoon of Friday April 12, and all the next day. I spent the whole day Sunday hybridizing. By late afternoon I was "all hybridized out" --> I don't believe I was really making the best (most interesting) crosses that I could. And besides, some other interesting crosses were just opening. Their pollen wouldn't be ready until at least the following day. However, as predicted, it rained Monday afternoon and all day Tuesday. I took the day off work on Wednesday and spent all of it hybridizing. I should mention that some of the pollen I was using was not as ripe as it could be [perhaps this is the reason for the slightly lower success rate that day]. With the cool weather the anthers weren't fully opening. We briefly had warmer weather starting on April 18th, but it returned to being cool shortly after that.

May 1st: the weather is continuing on the cool side with a fair bit more rain -- I believe 30% more for April than normal. Last Saturday large snowflakes fell for about two hours. At times the snow was fairly heavy, but the temperature was at least 5°C so the flakes melted as soon as they hit the ground. Snow this late is very unusual. Most Retics have finished. Some from 1989 which are planted in a slightly shaded spot have yet to bloom.

The very last Retic to bloom finished on May 13. Others had finished by May 9th. This was about two weeks later than "normal".

June 7th: we are still continuing to get cool temperatures. We haven't yet had what I would consider to be a really hot day. I certainly am not complaining, though it can feel like you need a sweater on in the late evening. This cool weather should be good for the bulbs since it means they'll have a longer growing period. Normally it's hot enough that I wouldn't dream of needing a sweater at this time of the year. In fact it's often excessively hot.

I have gone into a bit more detail about the weather in this report because I thought it would be good for you to realise some of the realities that affect early spring hybridizing. Of course what you can't truly appreciate is how cold my hands get on a few of the quite cool days -- so numb that movement of my fingers feels sluggish. Figure 1 shows the number of crosses made each day, along with the percentage successful.

The following hybrids are ordered by number of blooms, starting with the highest number first:

**87-BB-1** (Armenian Caucasus Retic x {'J.S. Dijt' & 'Purple Gem'}) started blooming April 15th. 24 flowers bloomed (3 others had flowers that aborted, one of which had its stem eaten, so no wonder it didn't bloom). Additionally, one bloom sized bulb disappeared (no trace of it), and one other bulb was big enough to bloom (11 x 14 mm), but didn't. All of the bulbs gave only single flowers, including two which were 18 x 23<sup>3</sup> and 19 x 23 mm. I had thought they might have given two flowers per bulb. Since I kept a detailed planting map from last fall (specifically of 87-BB-1 and 87-BN-1 so that I could more accurately track each bulb's performance), I was able to discover that a little over a dozen of the bulblets that I planted close to the surface didn't come up. Last fall I had a total of 90 bulbs, of which half were

<sup>2</sup> An enjoyable chore, since it's fun to see how well they're doing and how large the bulbs are, but there's a point when the enjoyment wears thin; especially when there are lots of other things that need to be done.

<sup>3</sup> Thinnest x widest dimensions

of small to bulblet size, 19 were medium, and 30 were large enough to bloom. The largest bulb's size, 19 x 23, was down from the previous year's largest: 20 x 25 mm. Additionally, last fall one bloom sized bulb was sent to William van Eeden in Holland for evaluation (not included in the figures below)<sup>4</sup>. With 87-BB-1, generally bulbs of 11 mm diameter and larger will bloom.

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
# of Bulbs <sup>5</sup> :	?	?	21	42	90	76
Bloomed:	1	5	16	21	24	?
Doubles:	-	?	5	-	-	
Net bulb bloom:	-	5	11	21	24	25 expected
Unbloomed <sup>6</sup> :	-	-	-	-	3	
Others <sup>7</sup> :	-	-	-	-	2	

**Table 1: 87-BB-1 Bloom**

Let's take a look at bulb increase for a moment. The amount of increase is clearly different for different clones, and it is also weather dependent. For 87-BB-1, 1994's bulbs were down in size from 1993's. The increase in the number of bloom-sized bulbs from each original bulb was slightly higher than in 1995 when bulb sizes were back up close to 1993's. Unfortunately this year was somewhat disastrous in terms of 87-BB-1's increase. I now only have 76 bulbs of it! When I went to dig the bulbs I could only find 15 of last year's 46 small to bulblet sized bulbs (4 had "split", so there were 19 bulbs). 14 larger bulbs were lost, including several that had increased: I found two hollow casings beside each other. As well, what should have been three large bulbs, were gone; other bulbs in each of those clusters were still there. I have no idea why they disappeared.

Clearly this is not the performance I want to see, especially in what has been my top performer. However one has to accept reality. We'll see how well 87-BB-1 does next year. Certainly I expect its performance will pick back up within 2 years and it will continue to be a top performer.

In the past, very large bulbs typically yielded 5 bulbs, with the largest being as big, if not slightly bigger, than the original bulb. The second largest bulb would be about 2/3 the size of the main bulb. Two other bulbs would be of medium size, while the fifth would be a large bulblet.

Last year's large bulbs increased to 4 bulbs in only just one case (with two of those being small and bulblet size), and in just two other cases they increased to 3 bulbs. Hopefully next year's increase will be more typical of 1995's. The actual number of bulbs certainly won't increase as they typically have, since this year's bulb sizes were down. The largest this year was only 16 x 21 mm. Typically it will yield only 3 bulbs, with one of those being small. Incidentally, the largest I've had so far from this clone was 17 x 28 mm in 1993. Also that year, there were two 20 x 25 mm.

One strange point of note: when I planted the bulbs this fall I didn't have time to cover them with soil -- it had started to rain and I hadn't yet marked the position of all of the bulblets on my map. The next morning I found 3 bulblets had disappeared, one small bulb had it's top half eaten, and ants were busy eating into two large bulbs! They took a reasonable size chunk out of the bulbs. I certainly hadn't expected anything like that to happen. I of course quickly dusted the bulbs with ant killer. I certainly hope the ants don't develop a taste for Reticulata bulbs!

Next years' bloom can be fairly accurately predicted once you know the sizes of bulbs from this year's increase. For 1997 I am expecting 25 blooms.

It's interesting to note that in 1994 and 1995 half of the bulbs bloomed (re: net bulb bloom). This year the number dropped to about 25%. Had 1995's increase been comparable to 93 and 94's you would have expected just over 40 blooms this year.

<sup>4</sup> In the fall of 1994 two medium bulbs were sent to Lynette Black

<sup>5</sup> The number of bulbs can be misleading since it doesn't give any indication of their size. However the number does give an indication of how well a clone is doing, plus it helps explain the number of blooms, which for next year certainly does need some explanation.

<sup>6</sup> Aborted or damaged by bugs (eg. stem eaten)

<sup>7</sup> Bulbs that were of bloom size but that either didn't put up a flower stalk, or that disappeared by spring.

Generally speaking what's important about bulb size is its mass. Not all Reticulata bulbs are round. I like to measure thinnest and widest dimensions because they best illustrate the bulb's actual size. Bulb gauges which try to measure circumference are actually measuring the bulb's largest dimension, which is not bad if the bulbs are nearly round. Clearly "pancake" bulbs such as ones 10 x 17 mm aren't accurately measured by such a gauge.

**87-BN-1** ('Gordon' x Armenian Caucasus Retic) started blooming April 2nd. There were 23 flowers in total with 4 bulbs having 2 flowers per bulb, however one flower of the four aborted (ie. 20 blooming bulbs). The bulbs with 2 flowers each were 18 x 22 mm and larger in size (17 x 21 mm was not large enough to have 2 flowers). Three other bulbs had blooms that aborted, one of which had its stem eaten. I don't believe the aborted flowers are typical of either this clone or 87-BB-1. 87-BB-1 and 87-BN-1 are planted beside each other and the two bulbs with their stems eaten were fairly close to each other. I don't believe this was the work of a white grub because I would expect more stems would have been damaged, plus I didn't find a grub in the immediate area (though at that point I didn't know to look for them -- see additional comments about white grubs below, near the end of the Juno section). Two other bulbs, which had been of bloom size disappeared; at the end of March when the Retics were just starting to come up I only found traces of one of these (as if bugs had partially eaten it). A smaller bulb beside was also damaged, but it was salvageable. Additionally last fall one bloom sized bulb was sent to William van Eeden in Holland for evaluation (not included in the figures below)<sup>8</sup>. Like 87-BB-1, bulbs of 87-BN-1 that are 11 mm diameter and larger will bloom. One that was 9 x 11 bloomed for example, where as ones 8.5 x 11.5 and 10 mm in diameter did not. Last year I had a total of 55 bulbs. Like 87-BB-1, half were of small to bulblet size.

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
# of Bulbs:	?	?	15	31	55	70
Bloomed:	1	4	11	16	23	?
Doubles:	-	-	2	-	3	
Net bulb bloom:	-	4	9	16	20	23 expected
Unbloomed:	-	-	-	-	3	
Others:	-	-	-	-	2	

**Table 2: 87-BN-1 Bloom**

This year's increase was not as bad as 87-BB-1's, but of course it wasn't as good as what I had hoped / predicted; particularly in terms of the size of the bulbs. I now have 70 bulbs, 40 of which are small. The best increase I could have expected would have been 95 bulbs. I'm predicting there will be 23 flowers next year, with none of the bulbs giving two blooms. This year's largest are 15 x 20 mm, of which there are three. Last year's largest was 18 x 22 mm. In 1993 the largest was 21 x 28 mm.

I couldn't find 7 of the medium to large bulbs when I went to replant, including the two that had disappear by early spring. Only 4 of last year's 24 small to bulblet sized bulbs disappeared.

For 1994, 1995, and 1996, net bulb bloom has been roughly 50%. That will drop to 33% next year.

**87-CQ-3** (Armenian Caucasus Retic x {blue Van Eeden & 'J.S. Dijt'}) had 22 blooms (all singles). Clearly its a good doer, with large, but not eye catching flowers. Its bulbs don't get as big as the two clones above: maximum 14 x 18 mm.

I am using it in a reasonable number of my crosses because of its vigour, and also because one of its siblings is bitoned (its not quite as good a doer as this clone). I'm expecting 87-CQ-3's progeny will show some interesting, plus good, characteristics.

**87-DQ-1** ('Purple Gem' x Turkish *bakeriana*) had 18 blooms; with 3 bulbs having doubles (ie. 15 bulbs bloomed). I would say that this is the best clone involving *bakeriana* that I have to-date, both in terms of interesting flower, and its vigour. A quick description would be that it's a red-purple *bakeriana*. Its not a great seed setter: only 4 of 14 crosses worked this year (29%). However extensive use of its pollen gave more typical results: 21 of 39 crosses worked (54%). Its anthers don't open normally and that's why I never used its pollen previously. This year both the

<sup>8</sup> In the fall of 1994 one bloom sized bulb and one medium bulb were sent to Lynette Black in New Zealand.

fact the anthers opened reasonably well, and the fact that this clone has been a good increaser, lead me to make a large number of crosses with it.

**87-DD-1** ('Pauline' x *histrioides* 'Major') had 11 blooms. Large, but not eye catching flowers. I am surprised to report that this clone appears to be semi-fertile. Given that it's suppose to be  $2n=20$  X  $2n=16$  I expected it would be sterile. In 1992, 93, and 1994 six crosses onto it all failed, then last year two with unknown pollen worked (giving 20 seeds). This year 5 of 7 crosses onto it worked: 25 seeds (avg. 5 seeds per pod). Its pollen has only been used in 7 crosses to-date, 5 of which worked yielding 74 seeds.

I am wonder if its parentage is correct. It has an Armenian Caucasus-like form.

**87-DL-2** (*hyrcana* x *bakeriana*) had 9 flowers, with 1 bulb giving doubles. Many of its siblings and clones from related crosses have not done as well. The others had no more than about 4 blooms, and quite a number have died out. Back in 1992 and 1993, when they first started blooming I thought more of them would do reasonably well. That hasn't proven to be the case. Bulbs of *hyrcana* x *bakeriana* all look very similar to *hyrcana*. The one thing that indicates the cross did work, and that it isn't just *hyrcana* x self, is the fact their pollen is either white (like *hyrcana*) or orange (from *bakeriana*) in colour. Bulbs of *hyrcana* x *bakeriana* are smaller than those of other Retics. They generally bloom when they are larger than 9 mm diagonally, where as others hybrids need to be larger than 11 mm. Double flowers are obtained on *hyrcana* hybrids where bulbs are greater than 13 mm (including bulbs 10 x 15). 87-BN-1 needs bulbs to be greater than 20 mm to get two flowers (eg. 18 x 22 mm). Normally *hyrcana* x *bakeriana* hybrids are the earliest Retics to bloom.

As I've mentioned previously, both 87-BB-1 and 87-BN-1 are worth introducing. 87-DQ-1 is also a contender, particularly because of its interesting appearance.

Two large bulbs of 87-BN-6 (planted side by side) showed signs of rot when they appeared at end of March: their leaf colour was yellow-green and the tissue was becoming damaged (mushy from rot). They were immediately tossed out. They were the only bulbs showing this problem.

One new hybrid of particular note is from *hyrcana* x 'J.S. Dijt'. It has quite an interesting gorgeous "red" colour. Unfortunately it's going to be a while before I can go anywhere with it, since only 2 seeds were produced when it was crossed with three pollen parents. I tried using its pollen in two crosses, but neither worked. See additional information at the end of the Reticulata section.

An up-and-coming star is 89-AU-1 from the Armenian Caucasus Retic x *bakeriana*: completely red-purple with a wide bright yellow ridge. There is a small amount of white running along side of the ridge. It had 5 blooms this year, and 9 are expected in 1987 (its 4th bloom year). The 9 for next year is pretty good considering how many clones' bloom are expected to just equal this year's. A cross from these same two parents gave me one of my first hybrids to bloom back in 1991 (one of two hybrids to bloom that year). It and its siblings have not done all that well. 89-AU-1 on the other hand, is not only a good increaser, but its falls are quite wide, making it showy from a distance. Since it's from a cross of two pure species, the progeny from both crosses are very similar (e.g. all clones are essentially the same colour). 89-AU-1's siblings all share its wide fall blade, however 89-AU-1 is showing the best increase.

Disappointingly, out of all my 1991 crosses involving diploid *danfordiae* only four others bloomed from three crosses (other than the *danfordiae* x *histrioides* var. *sophenensis* cross mentioned above). In all cases they turned out to be *danfordiae* itself (or at least they appear to be pure *danfordiae*). I believe two were "*danfordiae* x ?" crosses, so it's likely the "?" was also *danfordiae*. There had been 318 seeds with *danfordiae* as pod parent, and 474 with *danfordiae* as pollen parent from 19 and 30 crosses respectively. I believe only 2 of the crosses with *danfordiae* as pollen parent had any germination, whereas 11 of the 19 pod parents had germination (I only recorded information about their first year germination back in 1993). I know a couple of these are doing well. Hopefully they will bloom next year.

As expected my 1988 çat x *danfordiae* clones did not bloom: they weren't big enough. I did take a peek at them this fall. They had increased in size, but I don't expect that they'll be big enough to bloom next year. They aren't all that robust so they'll never be introduced. Last year's flower was crosses with pollen from clones of three different h x d crosses, but no seed was set. However 5 of 9 crosses with its pollen did work, giving 62 seeds. Three crosses were onto diploid *danfordiae*, giving 1, 4, and 21 seeds. The other two were onto my hybrids: Armenian Caucasus x 'White with Yellow Mark' and J.S. Dijt x '20 km East of Agri-Van'

1989's *hyrcana* x *danfordiae* bloomed again. Next year I'm expecting 2 blooms. A third bulb is probably not quite big enough to bloom. This clone seems to be an average steady increaser. I have not been able to set seeds on it, and only one of two crosses with its pollen worked, yielding 12 seeds last year (onto a h x d hybrid). All of the crosses involved either *danfordiae* or h x d clones.

I wasn't able to include information about last year's crosses in my 1995 report to you because at the time it was written I hadn't yet had a chance to enter the successes and failures into my database. This year I'm finishing off this report after the garden's already been put to bed for the winter so I'm able to include both 1995 and 1996 results. Of particular interest are the following:

		<u>Retic Crosses</u>	<u>Successful</u>		<u>Seeds</u>		<u>Avg./Pod</u>			
<u>1995</u>	<u>1996</u>		<u>1995</u>	<u>1996</u>	<u>1995</u>	<u>1996</u>	<u>1995</u>	<u>1996</u>		
533	816	made in total	292	(55%)	486	(60%)	3528	6242	12	12.8
65	61	used h x d pollen	30	(46%)	37	(60%)	270	525	9	14
14	66	h x d pod parents <sup>9</sup>	10	(71%)	34	(51%)	81	224	8	6.6
17	13	h x d -- F <sub>1</sub> x F <sub>1</sub> <sup>10</sup>	15	(88%)	5	(38%)	214	63	14.3	12.6
4	4	<i>danfordiae</i> x h x d	2	(50%)	1	(25%)	14	31	7	31
<u>2</u>	<u>9</u>	h x d x <i>danfordiae</i>	<u>2</u>	(100%)	<u>4</u>	(44%)	<u>51</u>	<u>77</u>	26	19
102	153		59	(58%)	81	(53%)	630	920		
12	45	<i>danfordiae</i> pod parent	8	(67%)	27	(60%)	55	468	7	17.3
30	23	used <i>danfordiae</i> pollen	21	(70%)	7	(30%)	340	89	16.2	12.7
9	-	Armen. Cauc. Alba pollen	5	(56%)	-		44	-	9	-

**Table 3: 1995 & 1996 Reticulata Hybridizing Results**

Two years ago, in 1994, essentially all 11 (69%) successful crosses onto h x d pod parents were F<sub>1</sub> x F<sub>1</sub> crosses: yielding 131 seeds. That was the first year the h x d clones bloomed, and I felt if anything would work, it would be by intercrossing their clones. Only one of three crosses using h x d pollen worked that year, yielding 20 seeds. The pod parent was one of my 'Gordon' x Armenian Caucasus clones (same parentage as 87-BN-1).

At least one of 1995's h x d crosses germinated this year. I didn't record which one(s). The key point is that this milestone in working with *danfordiae* has been reached. It will be approximately 4 years until the next milestone is reached: when the F<sub>2</sub> clones bloom. That same year we'll see whether those F<sub>2</sub> clones are also fertile.

This year I noted that a number of the crosses involving h x d pod parents with other pollen had many hollow / incomplete seeds. It may in part be due to certain pollen parents: Iran 895, Ahmet Atilla's collected I. *reticulata*, and Mathew's BM11026 were notable. Many of the crosses though do produce good seeds.

Getting seeds is the first major step for a cross: ie. will it work? The next is: will any seeds germinate? The key though, is will some of its seeds eventually bloom and do well. It's strange to be collecting seeds right now as I am writing this, knowing that even though I've got good seeds, only 30% will germinate.

Generally this year has been a poor one for increase. I had actually expected the milder spring weather that we got this year would be good for bulb rejuvenation. Bulbs have of course increased, but sizes are down somewhat in the few clones that I have detailed data of for comparison. The h x d clones seem to have done not too badly, but on careful evaluation I found bulb sizes down, though bulb counts have increased essentially as expected. Of course a few of the 35 clones are not doing well, but most are. I expect that a couple will be worth introducing, both for their robustness and the fact they are fertile hybrids involving *danfordiae*. In addition they are simply good blues. As blues, I would pick them ahead of most named varieties.

<sup>9</sup> *Histrioides* var. *sophenensis* x *danfordiae* pod parent with pollen from other Retics.

<sup>10</sup> *Histrioides* var. *sophenensis* x *danfordiae* clones intercrossed (should bring out a wider range of expressions in the F<sub>2</sub> generation).

One of these, 89-AC-4 which was pictured opposite page 48 in the 1994 BIS Year Book: dark blue with a lot of *danfordiae* influence giving the fall blades a brown colouring, only put up one weak bloom. I'm not sure why this was. Certainly the bulb was large enough that it should have bloomed normally. Next year I'm again expecting only one bloom; the size of the other bulbs just isn't there to give more blooms. Originally I thought this clone might be one of the better doers. The number of bulbs has increased from 20 plus 28 bulblets (last year I would have guessed there might be 3 blooms), to 38 bulbs and 21 bulblets. Note: 7 of the bulbs had small chunks eaten out of them. It would appear that 11 of last year's bulblets or small bulbs were lost.

89-AC-5 (violet) did well, giving 4 blooms. Next year 5 are expected. The number of bulbs has increased from 7 plus 28 bulblets to 37 plus, 34 bulblets. Of course of the 37, 27 are small (last year's bulblets), 5 are medium, and 5 are large enough to bloom. Its largest bulb is 12 x 14 mm. Last year's largest was 15 x 16.5 mm. It had not been replanted in 1994.

89-Q-7 which starts off charcoal grey in colour, and then changes to more of a dark brown-blue, had 3 blooms. One of these was small. It came up a bit late and had trouble getting through the soil surface. When I dug the bulbs I only found one of the bulbs that bloomed. I believe I found two small bulbs that were from one of the other bloom-bulbs. All of the 16 other bulbs were 7.5 mm in diameter or less: many would have been last year's bulblets (I didn't record any information about this clone last fall, so I don't know how many there should be). This year 39 bulblets were produced.

89-Q-4 gave the largest number of bulblets: 127! I would guess there were 30 the previous year (I didn't record any data about it last year). It gave four blooms this year. I'm expecting 7 next year. This is one of the clones that I did replant in 1994, so I now have 32 small bulbs, 13 medium, and 7 large enough to bloom (total of 52). The largest is 14 x 18, which compares quit well to last year's 14 x 17.

Other clones like the five 'F' series ones, all increased in numbers essentially as expected. However, sizes of the bulbs are down, as seen by looking at the largest ones, and thus next year's bloom is expected to be only slightly above this year's.

One problem with replanting, especially with the h x d clones, is that invariably some bulblets are missed. Try as hard as I could to get them all, when I replanted I found what I would consider to be a reasonable number still in the soil (found when I was sifting soil on top of the bulbs being replanted). I wonder how many I missed, and thus are going to get mixed in with the clones I'm planting!

Sheila Anne Germany bloomed again this year on a 13 x 17 mm bulb. I thought one that was 9 x 13 might also bloom, but it didn't. This year the largest bulb is 14 mm (round). I'm expecting two others 12 x 13 and 11 x 15 mm will also bloom next year. It would appear that last year's four bulblets didn't increase, which is surprising (actually extremely surprising). Other small bulbs did increase, and I know that Sheila Anne's bulblets did come up quite well. I am certain I did find the right bulbs when I replanted Sheila Anne Germany.

A bee somehow got under one of my dishpans. I say "somehow", simply because the dishpan was sitting flat on the ground. Perhaps I hadn't been as careful as I thought I had, and I actually trapped a bee under the dishpan after I had finished hybridizing the flowers under it the previous day. Most of the flowers under it had been hand pollinated. Three had pollen that I particularly wanted to collect. The anthers had not been open enough the previous day, so I had left them. Needless to say not a speck of pollen was left on any of the anthers -- the bee had a good time.

The number of 1992 seedlings I currently have is surprisingly low, particularly compared to the number of 1993 seedlings which are growing right beside. I really have no idea why this has happened. I am certain there were similar larger numbers previously. In particular there were some involving *winogradowii* (I'm not sure how many, since I never recorded any information about them). Originally some *winogradowii* x *danfordiae* seeds germinated, but I know none have survived. There are only Armenian Caucasus Retic x *winogradowii* seedlings coming along.

*Winogradowii* is continuing to recover from its set back 3 years ago<sup>11</sup>. It didn't bloom this year, though I had expected to get one flower from a 12 x 15 mm bulb. As you might imagine, I'm quite hesitant to dig up and divide any of its bulbs, so I

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<sup>11</sup> In 1992 I had 5 blooms on *winogradowii*. That fall I divided the bulbs. Very disappointingly none of the bulbs bloomed the following year. I was a bit surprised by this, because there should have been at the very least two blooms. What was much more disconcerting though, was a few of the bulbs didn't seem to be doing well: they didn't put up leaves. I dug the bulbs up and they seemed fine; no sign of any disease. They had been making an attempt to put up leaves abet very feebly. I moved them to a spot were I could more easily keep an eye on them, and to separate them

don't currently know what the bulb sizes are. Assuming it does bloom next year, which I fully expect it will, I'll likely divide only half of the bulbs. The other half will be left for division in 1998.

The alba form of the Armenian Caucasus Retic did not bloom this year. I'm not surprised by this only because the bulbs were not big enough to give any bloom. I had, had one bloom in each of the previous two years. Last year I again tried selfing it, but the cross didn't work. The previous year's self gave 15 seeds. This is the "fastest" route for producing more alba plants, but of course they will all be similar to their parent. The only thing I'm hoping for is possibly a better doer. I now have 5 bulbs of this clone: 2 medium, 3 small. This is a small increase over the four I had last fall. The largest is 10 x 11.5 mm. I don't expect it will bloom next year, although there's a small chance it might.

For the first time there were two blooms on Martin Rix's 'Iran 895', instead of just one. One was growing in coarse sand and the other in good loam soil. Previously it had bloomed in 1988, 1989 and 1994. It is of interest because of its pink colouring. Seedlings from 1989 have been blooming for the past two years. One from the Armenian Caucasus Retic x Iran 895 looks like a "pink" Armenian Caucasus Retic. Unfortunately it doesn't appear to be very fertile: in the past two years it set only 2 seeds on two crosses as a pod parent, and out of 8 crosses as a pollen parent only 2 worked, giving 8 seeds.

Perhaps my biggest surprise was with Brian Mathew's BM11026. Last fall I recorded 36 bulblets, all of which I planted close to the soil surface. Would you believe only 4 leaves appeared other than those of the main bulbs, and of those, 3 would have been from medium-size bulbs. When I replanted BM11026 this fall I found only two of the three large bulbs, and one of their main bulbs had disappeared. As well, one of the medium bulbs had its side badly eaten. This is quite disappointing. I had thought it's fortunes were on the up swing. When I got it from Brian a number of years ago I started growing it in coarse sand where it increased only slowly. I then moved it to its present location where in 1994 it gave one bloom. Last year I had two, and then three this year.

BM11026 is a lovely dark red with a wide fall blade. Its flowers are larger than those of the related Çat form which I collected 10 years ago. Both come from eastern Turkey, and both produce a lot of bulblets; many of which are quite small. I quite prefer BM11026 over the Çat clone: it's much superior. Fortunately BM11026's parent bulbs stay large, though this year's 11 x 13 is smaller than last year's 13 x 16 mm.

My perception had been that BM11026 was a good seed setter. This was based on the fact that it gives large pods which are full of seeds. The reality is that often crosses with it as both pod and pollen parent produce lots of small incomplete seeds (a fact that doesn't show up until the seeds have dried). The highest count of good seeds it's given was 45 seeds. Over the years the highest seed count I've gotten from a single pod of all my crosses was 68. This happened twice: in 1984 with a pod on *histrioides* 'Angel Eye', and then this year with 87-AB-8: Armenian Caucasus Retic x J.S. Dijt.

In the fall of 1994 I sent a number of my hybrid Retics to Lynette Black in New Zealand (South Island) for trial. As you probably realize spring was starting in New Zealand. Sending bulbs either way essentially results in them skipping their first year's growth. Now that 2 years have passed Lynette sent me bulb counts and general sizes of the bulbs. It was surprising to learn that several of the good doers for me haven't done as well for Lynette. A few clones have done somewhat well. Lynette's counts form a new reference point now that the bulbs have had a chance to become acclimatized. We'll see how they do from this point on.

As I mentioned in last year's report, I suspect disease, possibly a pythium (root rot), hit part of one of my beds. Very unfortunately it was the area where I had most of my collected clones: most have been lost. I am thankful that a few, including my collected *danfordiae* and *histrioides* var. *sophenensis*, were also in another bed. I should make even more of an effort to disperse more of my Reticulatas than I already have. With the loss of *histrioides* var. *sophenensis* in the infected area I just realized I'm back down to having it in only one spot. If the ground weren't frozen as it is as I write this, I would move some right now. Instead, I'll have to write myself a prominent note and make sure I act on it next year [during a mid spell in December I moved just over a dozen bulblets]. The affected area grew wider than it had been in 1994. Other than the problems with *pamphylica* mentioned below, I don't it grew much if at all in 1995. It's one of those things you don't really notice until its already happened. I still don't feel that I really know what happened.

Last December William van Eeden wrote, "There are many different pythiums for Tulips, Narcissus and Hyacinths which only attack each specific genus. For instance, Tulip pythium does not attack Narcissus or Hyacinth or Colchicum. Iris

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from the others. They didn't succeed in getting their leaves up. The only thing I can attribute this to was the previous fall I used a sharp old knife in some cases to cut the basal link between main bulbs.



pythium and *Crocus pythium* are the same. Pythiums can survive on host plants such as grasses, etc., are very stable, and extend very fast."

I wanted to do something about the problem this spring so that it wouldn't persist or spread. William mentioned that the best product in the trade for fighting pythium is called Ridomil. He found out that it is sold in Canada under the name Subdue. He also found out the name of a wholesaler in Ontario that sells it. As it turned out I was passed on to another company that would sell me a 11 kg container in a granular form for \$130. I believe the active ingredient is 'metalaxy!'. The only catch was that I had to have a pesticide license; which I don't. I only found this out when I went to pick it up. Apparently there are no products available for domestic use. Last fall I planted a few of my 1987 Retic hybrids in the area - surplus clones - ones that did reasonably well, but I didn't feel would lead anywhere. They all came up and flowered well this year. Spot checks in late summer showed the bulbs were all quite healthy. Going into winter the bulbs were continuing to do well.

So for the moment things are looking fine. If the problem surfaces again I'll have see about getting a pesticide license

Very unfortunately my *pamphylicas* were devastated last year -- I can only guess that it was due to the same thing that hit most of my collected Reticulatas. The *pamphylicas* were in 3 spots around the devastated area, with the main planting being just inside the area. In the spring of 1995 I would have said the main planting was on a slight decline. The number of leaves and bloom were down, but no need for alarm. At that point it hadn't been affected like the collected *danfordiae* right beside it had. The other two spots were quite healthy, with no sign of decline what-so-ever. I was shocked last fall when I went to dig the bulbs and only found a few poor ones in the main group. What was particularly shocking however, was the fact the two other plantings were completely wiped out!! They were at least 35 cm beyond the affect area. Reticulatas in-between the devastated area and the other *pamphylicas* were not affected. I couldn't believe it!!!

The reason the three spots were so close to one and another was that this is the only area I found where they do well.

I didn't record whether many/any of the small salvaged bulbs came up this spring. I believe only a couple may have, and that most didn't.

Fortunately I was able to secure a few additional bulbs of *pamphylica* this year. They are planted in 5 different locations (including one very close to where the others died out). *Pamphylica* is a difficult species to grow. In the past I tried it in three other spots in the garden. My very first bulb of it back in 1982 bloomed the following spring. Within 2 years it died out. I bought a second bulb of it in 1984, but I don't believe it ever bloomed. In 1985 I collected *pamphylica* in the wild. Initially I planted those bulbs where *pamphylica* has been doing well for the past few years (which is how I came to know the spot was a good one), however the following year I moved all of the bulbs to another spot which I thought would be even better. Of course, wouldn't you know it, they all die out there (yes, I should have only moved half). There were factors that weren't good about that second location, but they hadn't shown up with some test Retics I had there the previous two years. In 1988 and 1989 I tried two bulbs each of *pamphylica* in shaded locations, but they didn't even bloom there and tended to die out the following spring. It was in 1990 when I purchased a larger quantity of *pamphylica* that I cleared some bearded Iris out of the area where *pamphylica* had done well in 1985. As I mentioned above, they had done fairly well there up until last fall.

I can't say enough about planting special clones in several different spots. Of course I don't always do this (eg. in particular, with all of my hybrids: almost all are only planted in a single location). However with a couple I immediately took a special effort to ensure they were in two separate spots: Armenian Caucasus Alba Retic; *hyrcana* x 'J.S. Dijt'; etc. I should though put in even more effort and sit down and make up a list of all those that I still need to split up, instead of just doing it adhoc. Adhoc is better than not doing anything, but I undoubtedly will missed some.

I actually wonder if the disease was in some way related to all of the *danfordiae* bulblets that had started to come up at one point. In 1992 I wrote, "the diploid *danfordiaes* from the second Turkish site had a fair numbers of small leaves coming up (ie. from it's bulblets)". The area looked like a moderately thick patch of grass. In a sense you would think that this couldn't be a problem, since this same crowding would occur naturally in the wild and *danfordiae* should have evolved to handle it.

I know for a fact that just such a thing happened several years back to my named English Iris. They had been doing quite well for a few years, increasing all the while. Then, all of a sudden they were gone. Only a few came up weakly. Upon digging them up I found a multitude of hollow hulls, and as expected, some rot and mold.

It looks like I'm not alone in having problems with Retics this year: Norman Stevens commented "My own collection of Retic Iris took a downer last winter / spring. All the Katherine Hodgkin have gone - I just hope my wild collected Retics show next spring."

Would you believe there were only two blooms in one of my beds which 9 years ago, had over 2000 blooms of named varieties. These had been very generously given to me by William van Eeden and by Margré Kroon. The bed has never been replanted; largely because I've never had time to do so. I have a feeling this bed has been hit by disease as well. Generally Retic leaves are still coming up throughout the bed, though their numbers are down from a couple of years ago. However, one corner of the bed which had been having a higher flower and leaf count than the other parts, was almost completely void of leaves. The bed contains coarse sand and is now invaded by maple tree roots, which certainly hurt the bulbs' performance.

Many people remark how their Reticulatas only bloom for one or two years and then either die out or bloom very sporadically. I am hoping my Retic hybrids will overcome this problem. Of course one can't quite expect miracles overnight; or in this case, in the first generation. Certainly though, there is great potential for hybrid vigour to show up in the first couple of generations.

I need to start testing my own hybrids by simply planting some in one spot, and then leaving them there undisturbed to see if I get continued bloom. Last year I moved some to another spot in the garden. I had hoped to move some to coarse sand where the long term performance of named hybrids has been poor, but I ran out of time: next year for sure.

Four years ago I bought some "fresh" bulbs of *danfordiae* hort. and *reticulata* hort. First year performance was excellent. Last year there were a few blooms on *danfordiae*, but this year there were none. I. *reticulata* hort. had 6 blooms last year, 24 the previous year, and 12 in their first year (which was the number of bulbs purchased). This year there were 5. I do believe they would benefit tremendously from being replanted every year. That of course can take a reasonable amount of time, especially if you have a lot of bulbs like I do. I put what time I do have into my hybrids. Invariably the others don't get touched (I have one garden with bearded Iris, etc. that is long overdue for replanting [its been about 8 years since it was last done ], and I didn't have time to get to it again this year).

Portions of a few Reticulata pods rotted. The affected areas on the pods were tan in colour, while the rest of the pod was quite green. Seeds in the affected area are soft, and thus no longer any good. We haven't had an excess amount of rain, so I'm not sure what brought this on. I have seen pod rot occasionally in the past. In those cases it was due to the pods sitting in prolonged wet soil, and the rot always started at the stem and worked its way up to the top of the pod.

Dr. Rodionenko has separated off *winkleri* and *kolpakowskiana* into a new genus *Alatavia*. Details of this are to be published in the 1997 spring issue of SIGNA.

It would seem that the mysterious *winkleri* has been collected within the past couple of years:

Janis Ruksans, July 25, 1994, "My friend early this summer again visited Central Asia searching for *winkleri*. It really exists, he saw many herbarium samples. It is intermediate between *kolpakowskiana* and Juno. We both saw one living plant, collected accidentally with other bulbs. Unfortunately my friend's expedition was very unsuccessful -- all his money, documents were stolen and he returned with nothing."

Janis Ruksans, December 7, 1994, "Earlier I thought that *winkleriana* is only some variation of I. *kolpakowskiana* (many Russian botanists are famous "Splitters"). But my friend (Mr. Arnis Seisums) working in Herbarium of Botanical Institute in St. Petersburg found many sheets with *winkleriana*, labeled as *kolpakowskiana*. We both took part in discovering of this single plant in a very large collection of CA bulbs. Together with keeper of this collection we looked at potted plants which just started flowering in bulb house. This pot was labeled 'I. *kolpakowskiana*', and we all three together told one and another 'It Is Not *kolpakowskiana*!! *Winkleriana* is intermediate between *kolpakowskiana* and Juno. If *kolpakowskiana* we can regard as some step in the direction of Junos, then *winkleriana* is second step in this direction: still Iridodictyum (by bulb), but partly Juno (by stem and leaves). Original plant are from some Czechoslovakian collector, who didn't collect the bulbs himself, but who paid to natives for this job. Appearing of *winkleriana* between them is very lucky accident, even more lucky, that this bulb came in true hands. Unfortunately I haven't a photo of it -- I didn't have my camera with me. The pot was immediately taken out of the general bed and cashed in closed glasshouse. I didn't receive permission to say who has this unique plant, but he is a very keen gardener and I think, he is between your correspondents too. It is in very good hands.

My first stock of *kolpakowskiana*, which I had some 20 years ago was very variable, but I lost it. Now I have another, almost uniform quite well growing stock, which grow to good size and even increase quite normally, but this spring was very bad for it. I have now only approx. 100 bulbs (before I had 150)."

Earlier this year George Rodionenko sent me a copy of an original 1899 write up about *winkleri*. A co-worker kindly translated it, and you'll find it at the back of this report. Janis Ruksans wrote this past August, "*winkleri* possibly is intermediate between *kolpakowskiana* and Junos. Leaf bases covering the bulb are not reticulate, but more as in *Alliums*".

In 1995 Janis and Arnis tried to go to the eastern side of the Fergana valley, not far from Osh. Arnis was specifically going to look for *winkleri*. It turned out that Janis couldn't go, but Arnis did. A friend had promised to arrange a car, but he hadn't done so, so Arnis could not travel very far. Janis Ruksans, August 1996, "it is very difficult to achieve this place. It is at border between Uzbekistan and Kirghizstan."

This year Janis and Arnis did go to Uzbekistan, but they did not receive permission to visit Kazakhstan. So their trip was limited to visiting locations around Tashkent: Timurlan Gate (220 km from Tashkent, toward Samarkand; Chimgan; Bashkizilsai (70 km from Tashkent); and Tovaksai (30-40 in the direction of Chimgan).

In terms of Junos, their trip was quite successful. They collected 6 or 7 different species. These new collections are QUITE welcome, especially since there is quite a good chance that some of the material is new to cultivation.

Here's some information of interest concerning *kolpakowskiana*:

Mojmir Pavelka, June 1992, "...white form of *kolpakowskiana*, found in Bishkek in 1986. Standards are white, and the falls are white with a smoky pale blue strip."

Janis Ruksans, August 1996, "The white form of *kolpakowskiana* was grown some 30 years ago by my correspondent from Bishkek (then Frunze), who collected it not far from the city, but it was not very vigorous and he lost it quite soon."

Janis Ruksans, March 1996, "As you know, I've been offering a good growing and increasing form of *kolpakowskiana* for many years in my catalog (only in the last two years have there been some dramatic losses due to enormous spring conditions and possibly some of my own faults). In 1994 I obtained some bulbs from Alma-Ata. Last fall I planted some of both forms in my glasshouse together with *danfordiae* for crossing (I wanted to repeat the cross made in Göteborg, Sweden by Henrik Zetterlund).

My original stock of *kolpakowskiana* was collected by Arnis in 1990 in Dzungarian Alatau range, Natai mountain, 1500-1700 m. This is the most northern population of this species known to Arnis. It started to flower about a week ago. It is quite tall (20 cm), variable intensity of purple, but more violet than purple. Haft of its fall is pure white with long dark, even blackish purple violet spots.

Last week I was away in Moscow. Yesterday when I visited my glasshouse I got a big surprise when I saw the Alma-Ata *kolpakowskiana*. The flowers are not more than 10 cm in height. Again they are variable in intensity of purple. Fall is very deep purple, not violet. Haft of the fall is whitish, some almost violet with only a small white zone between haft and blade, but all with a prominent yellow midrib, which is absent in the Natai population.

Comparing both forms they look like absolutely different species. Certainly the difference is much greater than between *Iris rosenbachiana* and *I. nicolai* [Alan: I very much believe *rosenbachiana* and *nicolai* are separate species]. By my opinion, the Natai plants need at the least subspecies status, if not a species nova! [Alan: the Natai form of *kolpakowskiana* may deserve subspecies status, but more needs to be known about various populations in the wild.]

I called Arnis immediately - and he agreed with me that the Natai plants looked something special by their growing capacity, but he never compared them with other samples because they all are flowering outside so early that you rarely go out in the garden. In my garden both had been planted quite separately. Possibly if I had not planted them together in the glasshouse I would not have noticed the differences for a long while. It is the best novelty from my *Iris* garden."

Last year I got a number of the Alma-Ata bulbs of *kolpakowskiana* from Janis Ruksans. It was most fascinating to see them in bloom because their standards ranged in colour from light blue (which is what I have seen before), to purple!! It is this form, with it's yellow ridge, that I am familiar with and have grown before. For me, out in the open garden, the flowers were between 20 and 25 cm in height.

I am hoping to get a couple of bulbs of the Natai form this year for comparison, and hopefully I'll be able to propagate them. The key thing though is to find a spot in the garden where they will do well. I have not yet found what conditions *kolpakowskiana* likes best here. Unfortunately all of the bulbs I have had, have dwindled. A number of years ago I was successful at raising some bulbs from the seed I got from Dr. Rodionenko. These were growing in a well drained bed of coarse sand. Unfortunately one spring, when they just up to bloom size, they died out. This was in spite of my having covered them with straw.

Until now I have tried *kolpakowskiana* in a number of spots around the garden without success: success being measured in terms of having the bulbs fully rejuvenate to bloom again year after year. I planted the *kolpakowskiana* bulbs that I got from Janis last year in four different spots in the garden where I haven't had them before. Incidentally, two of my older bulbs did bloom this year, but I don't consider them to be doing very well overall.

As I write this part of these notes its early July and the Retic leaves have all died down. I've just gone around to check the bulbs and was quite surprised at how well they are doing. The bulbs range in diameter from 13 to 20 mm, and in a couple of cases they had an additional bulblet. I hadn't measured the bulbs when I planted them last fall. The bulbs of the Natai form that I received from Janis this year were both 17 mm in diameter.

I have twice tried crossing Reticulata pollen on to *kolpakowskiana* without success. And I have unsuccessfully tried using Juno pollen (either *nicolai* or *rosenbachiana*), onto *kolpakowskiana* four times. Once, six years ago, I did get one seed, specifically with *nicolai* pollen. It didn't germinate. This year, based on Janis' comment about Henrik Zetterlund attempting to cross *kolpakowskiana* with *danfordiae*, I tried the same thing. The cross didn't work. I will write to Henrik and try to find out more about whether he was successful, etc.

I would like to emphasize that the hybrid 'George' is not a clone of the species *histrioides*. *Histrioides* is simply one of its parents. Bulb firms like to list it in their catalogs as "*histrioides* 'George'" in order to indicate the fact its falls are wide like *histrioides*. However, as I mentioned above, *I. reticulata* can have wide falls, as is the case with the Armenian Caucasus Retic. Bulb firms should be listing it as "Reticulata 'George'" (Dr. Rodionenko would say "Iridodictyum 'George'"). Notice I've capitalized 'Reticulata' to refer to the type of Irises known as Reticulatas, and not to the species *I. reticulata*.

General observations about particular crosses:

(note: as expected, first generation crosses of two pure species yield fairly consistent progeny. It's in their second generation that the expression will open up considerably.)

**'Gordon' x Armenian Caucasus Retic**

Reds and blues, but flowers grow too high above their spathe and thus tend to flop over as they age (ie. flower stem continues to grow). Fall blade width is like 'Gordon's. For some reason, after starting off strongly for a couple of years they die off. Upon examining the bulbs one finds they are rotting from the base up.

**Armenian Caucasus Retic x *bakeriana*** (eg. 89-AU-1, mentioned on page 5)

Very consistently coloured dark red hybrids (different shading from 'J.S. Dijt'), with light yellow ridge.

**Armenian Caucasus Retic x 'Springtime'**

Only one flower bloomed, and it was very similar in colour to the Armenian Caucasus Retic x *bakeriana* clones, however you could see a bit of Springtime's influence in it. Clearly *bakeriana*'s genes are at work!

**'Pauline' x *bakeriana***

*Bakeriana*'s influence shows up quite strongly, in that all of the progeny have a lovely "*bakeriana* look". Colours are dark reds and dark blues. This is a cross I wish I had made more of, and have specifically repeated on a number of occasions.

***hyrcana* x *bakeriana*** (eg. 87-DL-2, mentioned on page 5)

These all look remarkably like *hyrcana*. *Bakeriana*'s influence is completely masked except for the pollen which ranges from white to orange.

***histrioides* var. *sophenensis* x *danfordiae***

Various blue shades from light blue through bright true blue. Generally there is a yellow influence, which with the blue, gives a greenish cast. Standards are very narrow (from 0.3 to 3.0 mm vs. 7 to 10 mm normally), but they are of typical Reticulata length.

Each bulb produces a reasonable number of bulblets: typically 9, but up to 15. Small bulbs of 6 mm diameter occasionally produce 3 to 5 bulblets. If these are not replanted closer to the soil surface most will die out. This showed itself when I replanted all of the clones. The only problem of course is the amount of work required to do this. It's not bad when there's only a few, but the reality for me is the work is growing significantly each year.

After their first year bulblets will increase to 4 to 6.5 mm. In their 2nd year these will increase to 6.5 to 10 mm in diameter. By next year most of these should be of bloom size.

89-Q-4 had at least 7 bloom-size bulbs, along with 15 others, plus 127 bulblets!

Generally these clones are good doers. This was their third year of bloom.

#### **'Cantab' x bakeriana**

'Springtime'-like progeny, with a bit of twisting to the falls. Not very good in themselves, though some are reasonably good increasers.

#### **hyrcana x Armenian Caucasus Retic**

Quite lovely bright evenly coloured reds and blues. The colours are excellent. Form is along the lines of *hyrcana*'s. Unfortunately they're not fast increasers.

#### **'J.S. Dijt' x bakeriana**

Gives Pauline/Purple Gem-like hybrids, including violet clones.

#### **'J.S. Dijt' x hyrcana**

Only one clone bloomed. It's a gorgeous red. Clearly it was a mix of J.S. Dijt's purple and *hyrcana*'s blue, with a lightening of J.S. Dijt's component: RHS 70A (unfortunately the flower was finishing when I got out my chart, so that likely isn't 100% accurate). You can see *hyrcana* in the flower's shape, along with it's wideish yellow ridge.

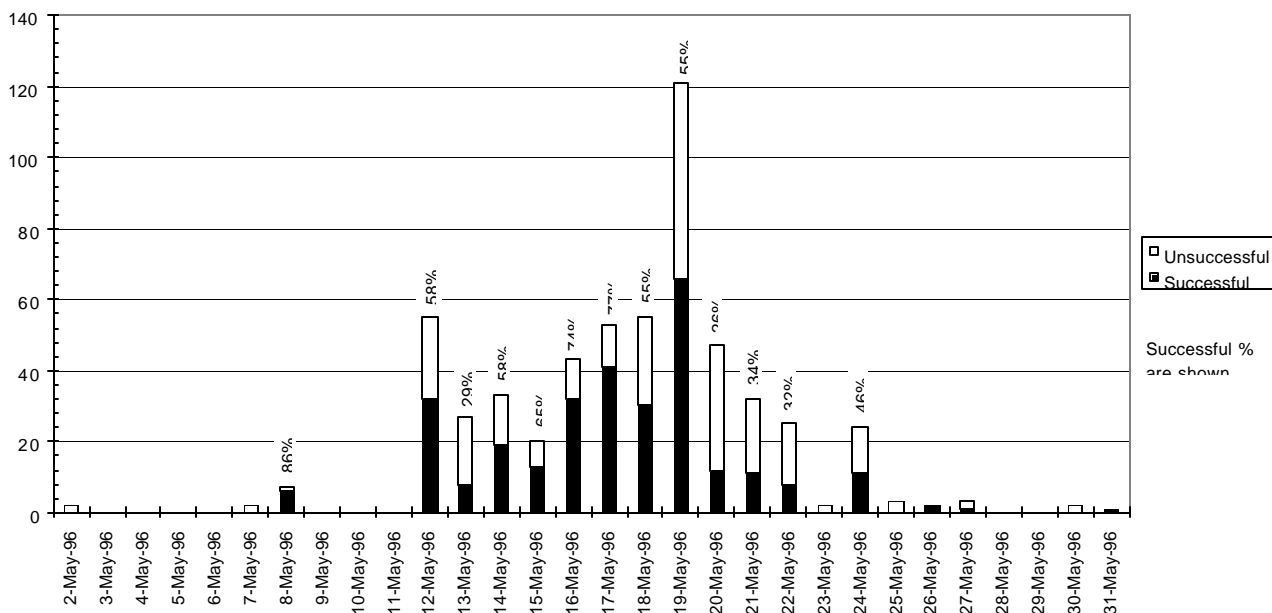
This year we've had a reasonably moist fall. By the end of October a number of Retic shoots were starting to poke through the ground. As I finish this off in mid December we're continuing to get above freezing temperatures and the Retic buds are up as much as 3 cm. I expect that next spring they'll be wanting to jump the gun and start into bloom as soon as we get a warm spell. I'll have to keep my eye on them; otherwise they'll bloom under the straw without me realizing. Leaves are up to 4 cm above ground. So far we've only had one significant snow fall. It only stayed around for just a couple of days.

## **Junos**

On May 8th *willmottiana* (true) started to bloom along with dwarf *aucheri*. This is about 10 days later than normal. Of course the early species like *nicolai* and *rosenbachiana* had already finished by then. The bulk of Juno bloom started on May 10th.

There were three highlights to this year's bloom: seeing *zaprjagajewii*, *bucharica* forma, and *microglossa* all bloom for the first time. The *zaprjagajewii* was one I raised from Gert Bohme's wild collected seed. Its leaves were more widely open than shown in colour plate 33 of Mathew's 'The Iris': just over 13 cm in diameter. They are a distinct grey-green. It's white flower had very light blackish markings on its fall blade, which gave somewhat of a speckled effect. On either side of its crest were two black lines (in the veins feeding the blade). These markings don't appear in Mathew's clone. And, only the lower half of the crest was yellow. I tried crossing it with *rosenbachiana* and *nicolai*. A pod was set, but I was surprised to find that the seeds were no good. It bloomed after *nicolai* and *rosenbachiana*, so I couldn't use its pollen on either of those two

Figure 2: 1996 Juno Crosses



*Bucharica* forma is essentially a small sulfur-coloured *bucharica*. Tony Hall sent me the bulb last fall. I have had another bulb of it, also from Tony, for 4 years, but it has yet to bloom. Just a couple of days after the 1995 *bucharica* forma opened, "*baldschuanica*" raised from seed bloomed. It turned out to be *bucharica* forma. I knew originally that it wasn't true *baldschuanica*, since the seeds didn't have a white line on them. If I hadn't seen *bucharica* forma before the "*baldschuanica*" bloomed I would have really wondered what I had. Neither of the two set seed, but their pollen worked on 4 of 6 crosses: two *orchioides*, one *warleyensis*, and a *vicaria*. The two crosses that didn't work were onto *magnifica*.

I have Henrik Zetterlund to thank for *microglossa*. While its flowers are not as showy as some species', it is certainly a treat to have. I tried selfing its flower, as well as using pollen from several other Junos, but no seeds were set. What I likely need now is another clone of *microglossa* for breeding purposes. *Microglossa* bloomed May 31st and finished June 2. Its foliage is amazingly similar to *cycloglossa*'s. I say amazingly simply because *cycloglossa*'s flower is so different. Both grow on Afghanistan's Salang pass (as well as other locations), though *microglossa* is found there between 8,000 and 10,000 feet, while *cycloglossa* is found at 3,000. *Xanthochlora* grows along side of *microglossa*.

Other highlights included several of my hybrids blooming for the first time:

Three *albomarginata* x *vicaria* (veined form) clones bloomed from 1991 seed. You could say they looked like veined forms of *albomarginata*, especially the first one to open. Its style arms and standards were solid blue, exactly the same colour as *albomarginata*. Its fall was also the same colour, with a solid tip area starting at the end of its crest, and widely spaced veins running to the stem. The veins were of moderate width such that they show up from a distance. there was no yellow on its crest. The second clone was taller, and lighter in colour. Because of the lighter colour the veins weren't as prominent from a distance. It had a bit of yellow part way along its crest. The third one was dark blue in colour, but the veins on its falls were not as widely spaced as the previous two, and they were narrower. As a result its not as showy as the first clone. This one also had a touch of yellow part way along its crest. All were semi-winged. Unfortunately as expected, none set seed. I don't believe their pollen any good.

Two *albomarginata* x *graeberiana* hybrids bloomed from 1989 seed. One was intermediate to the two parents, the other looked very much like *albomarginata*. Both had *graeberiana*'s methyl-blue colouring. Both set seed with *warleyensis* pollen. *Willmottiana* pollen was also used on one of the crosses. Note: putting *warleyensis* pollen onto *graeberiana* is a cross that normally works. I used it here hoping that it might like-wise work. Two crosses were made with the hybrid pollen, but neither worked.

In terms of this cross being able to set seed it's important to remember that *albomarginata* and *graeberiana* are closely related species, where as *albomarginata* x *vicaria* aren't.

A 1991 *bucharica* x *orchioides* hybrid bloomed. As expected it generally looked like a winged *bucharica*: its standards and styles were creamy, and around its yellow fall was a cream border, wider at the arch and vanishing right at the very tip. There are green markings around its crest, just like both parents can have. Its winged hafts were about half the width of true *orchioides*'. It had three flowers. Unfortunately this was one of the clones damaged by white grubs; in this case the day after it first opened. You can imagine how disappointed I was. It was pollen sterile.

Mojmir Pavelka's *orchioides* bloomed this year. Instead of last year's one flower, it had three. It is similar to the picture taken by Nigel Service in the wild, but his picture shows 6 flowers on a stem. I am of course hoping that the plants I have prove to be the same species, and that they too yield 6 flowers! It doesn't quite look like the *orchioides* I am familiar with because it grows much taller, its foliage is narrower, and its leaves aren't silver edged, but certainly its flowers have very widely winged falls. A second bulb with a single flower bloomed in a different bed. I had completely forgotten that there were some Junos in that spot<sup>12</sup>, especially since some bearded Iris are now growing quite close to it. I was pleased to see it in part because its in a different part of the yard, so I can compare how it does there. I had actually planted those bulbs there as an insurance policy in case anything happened to the others. I only happened to notice the flower because I was doing some weeding in the area. Unfortunately this clone doesn't appear to be a good increaser.

The *orchioides* I'm familiar with is more dwarf, with silver edged dark green foliage. Its flowers are cream in colour with a large orangish yellow tear-drop shaped blotch on its fall blade starting at the arch in the fall. The blotch doesn't go right to the blade edge, so there is about a 3 mm border of cream. The exact shade of orangish-yellow varies from clone to clone, with a few being noticeably orange compared to the majority. Some clones have dark green markings beside the crest. Its hafts are of course very widely winged, and it has a very dissected crest which appears like a line of short hairs going every which way. It has an infusion of orangish yellow in its style lobes.

I have Tony Hall at Kew Gardens to thank for the dark blue/violet forms of *warleyensis* that bloomed this year. In fully violet forms the standards and styles are violet just like the falls (through not quite as dark as on the fall). Typical *warleyensis* has white standards and styles with a rich velvety dark blue/ violet fall. What surprised me about the clones from Tony was their *kuschakewiczii*-like foliage: dwarf, silver edged, glossy dark green foliage. The typical forms I have, as well as the Alba form, are all taller and I believe not quite as darkly coloured, nor as noticeably silver edged. I've always regarded *warleyensis* as being closer to *bucharica* and *magnifica* than species like *kuschakewiczii*, though certainly and unfortunately, it seems to be trickier to grow.

If this beauty was as easy to grow as *bucharica* is, then quite likely Junos would be more popular than they are.

By last fall one of my typical clones of *warleyensis* had built up into four bulbs (two clumps of two bulbs<sup>13</sup>). At that time I made a decision not to divide them because I didn't want to chance anything happening to them. I also felt I wanted to wait and get one more season's bloom before moving half, since sometimes Junos don't seem to bloom the first year after they've been moved. Wouldn't you know it though, when they started to come up one stopped growing. As soon as I saw something was wrong I investigated and found the bulb rotting (stinky!). I suspected its twin was also infected, so I promptly tossed the two in the garbage. I was quite disappointed. If I had more bulbs of *warleyensis* I wouldn't have minded, but I don't.

The other two bulbs seem to be doing fine. I hate to even look, since I know if there were a problem there's nothing I can do; it would already be too late. I expect what I'll do next fall is move half to the bed at the front of the house where the alba form is doing well. I don't want to risk only having one clump of it in case something similar happens again. I do have one other clone of typical *warleyensis*, which did bloom this year.

Tony gave me several clones of *warleyensis* in 1991, but they didn't do well. Perhaps this was because they were in a crowded spot, where tall Tulips and tall bearded Iris blocked them from getting sun. Only the Alba form survived. It began to thrive after I moved it to its current more open spot in the same bed. The clones Tony gave me last year were planted near *warleyensis* Alba. Because they all appear to be doing well there I've expanded the area slightly for few more.

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<sup>12</sup> ...just like a squirrel forgetting where he buried his fruit and nuts.

<sup>13</sup> The two clumps are very close together. This is a result of previously dividing two bulbs with minimal disturbance to their roots. ie. The roots were left buried and the soil was removed to a bit below the bulbs, then the bulbs were moved apart and the soil was filled back in starting between the bulbs in order to hold them apart.

I also lost a dark blue form of *warleyensis* from Maurice Boussard. Prior to this year's success I would have said that the dark forms appear to be more susceptible to problems. A previously bulb of Maurice's *warleyensis* was stolen by a squirrel.

*Warleyensis* Alba, which had bloomed consistently for the previous 2 years, did not do so this year. Its bulbs are doing well though.

In case you didn't realize, the typical alba form is not fully white. It has a rosy cast to the fall blade, with a strong yellow blotch around its crest. You probably expected the fall to have a light infusion of blue or violet, but that isn't the case. Interestingly, Janis Ruksans sent me a slide that he took in the wild showing a clump of *warleyensis* with 9 bloom stalks. Three are typical *warleyensis*, while the other six are pure white! They don't appear to have any blue or violet influence what-so-ever; just a bright yellow blotch around its crest.

My 1992 *magnifica* x *warleyensis* hybrids are coming along well. Natural hybrids between *magnifica* and *warleyensis* can be found in the wild; though I don't know of anyone in the west who has one. Hopefully some of my own will bloom next year, however I really don't know whether or not they are big enough to do so. It would be nice if these had been involving dark blue/violet forms of *warleyensis*. It will be at least 5 years before any from this year's crosses are big enough to bloom.

Two of my favorite Junos, *albomarginata* and *willmottiana*, continue to do well. Unfortunately *albomarginata* only increases slowly. One clone hasn't increased at all -- after 5 years, I still have only a single bulb of it. The other clone has increased, and I have sent bulbs of it to two other people (though I know in one case the bulb died).

*Willmottiana* also increases slowly. One clone that bloomed for the first time last year, and that was taller than normal, didn't bloom this year. It still had the normal maximum 3 flowers (I had been hoping for more). I also have a number of bulbs that I raised from seed. I received the seed under the names of *kuschakewiczii* and "kywakebura". They have smaller flowers than my other clones. In fact, they look like someone took the other clones and trimmed 3 mm off all the way round their fall.

*Linifolia* had 9 flowers on approximately 7 bulbs in 3 locations. Bulbs in another bed, which has been quite good for other Junos, are doing poorly. The only difference is additional drainage due to maple tree roots, where they are doing well. This makes one humble: you might get a sense you know what you are doing, but these incidents pull you down to earth.

Two *maracandicas* in different parts of the garden are hanging on. One had an aborted bloom.

Only one *caucasica* bloomed. *Caucasica* doesn't seem to be a strong doer. At one time it had been doing quite well in the Juno hut<sup>14</sup>. Then several years ago I replanted the bed and the bulbs were moved over several feet. Since then they've seemed somewhat weak. I also have a number of bulbs in sandy loam soil which come up weakly. I'm not sure what I can do to help them out.

Based on how much rain we got this year, plus the fact it wasn't as hot as it usually gets, I expect there will be very little *aucheri* and *caucasica* bloom next year. Overall *aucheri*'s bloom was lowish this year, but not too bad.

Very unfortunately '*graeberiana*, not the van Tubergen form', has now died. The damage the squirrel did last year was severe enough that the bulb didn't recover. It was still alive in the early spring, but it never put on any growth, and sadly has now disappeared.

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<sup>14</sup> The hut is where I started growing a lot of my Junos just over 10 years ago. It's approximately 3' high (4' at the centre) x 7' wide x 8' deep. It is constructed of a 2" x 4" wood frame, with the sides covered in metal sheet. The top is open, but it was designed so that during the summer clear acrylic panels can be fastened on top to keep rain off. The panels allow sunlight to get to the plants while they are dying down. The panels would be removed about the beginning of October. I haven't tended to bother putting on most of the panels over the past couple of years. This year for example I didn't put any on.

The hut is filled with about 25 cm of medium coarseness sand.

The idea was for the hut to provide a microclimate similar to what the Junos would experience in the wild.



Very sadly *stenophylla* subsp *allisonii* is gone! I dug it up this spring when it didn't seem to be coming up and found it had turned to mush. This was the biggest, most significant loss of the year. On the positive side though, this fall Tony Hall sent me 4 bulbs of it which I planted in 2 different locations in the garden. It will be interesting to see how this form compares to the one I had from Norman Stevens.

*Bucharica* PF8223 is back doing poorly. It had bloomed the previous two years. I specifically didn't move the bulbs when I was replanting some of the surrounding area last fall for fear of upsetting it. Its foliage is more like *kuschakewiczii*'s in the sense of being shorter and more dark green

*Rosenbachiana* in coarse sand in the Juno hut is not doing as well as last year: two of Rodionenko's bulbs didn't come up. Several years back I moved bulbs to two other locations in the garden. One of these bloomed again this year. Quite a few *rosenbachianas* from Janis Ruksans also in the Juno hut also perished. I purchased 4 more this year and planted them in 2 different locations

The Junos in the hut seem to have done somewhat poorly over the past two years. In particular *kuschakewiczii* has not been fairing well, but then it hasn't been doing well in other locations either. In fact I didn't get any blooms on it at all this year. Originally I thought it would turn out to be quite easy here.

*Orchioides* (true) also hasn't done as well as it had previously. The bulbs in the hut are still blooming, just not as profusely as at one time. Perhaps in part the problems are due to a large nearby maple tree, but I don't believe this is the main factor. Some bulbs of *orchioides* (true) in another bed seem to have largely died out, but why? *Linifolia* there was previously affected (ie. wiped out), but the majority of other Junos around there are fine (*linifolia* does well elsewhere). *Orchioides* had done well there for 3 years prior. Two other plantings elsewhere are doing reasonably well.

Some forms of *orchioides* hort.<sup>15</sup> (yes, there are several forms of *orchioides* hort. around), specifically what I believe is the commercial form, increase quite well, but tend not to flower. Other forms I have flower every year, and their increase rate is similar to typical *bucharica* hort.

This year I had white grub problems for the first time. I found stems eaten just below the soil surface. I came to realize that it was white grubs that were causing the damage and that even if I didn't find one right at the stem I could sift through the soil and find it a short distance away. I have noticed white grubs in the soil in the past, but never noticed any damage like I had this year. I did spray the garden in early summer. I had wanted to spray in the fall but I never got a chance to. When I was replanting my Retics and other bulbs I did occasionally run across white grubs, including some babies. I hope to spray for them early next spring before they have a chance to do any more damage.

Often when I go to dig my Junos I damage a couple of bulbs, particularly if I'm trying to dig individual bulbs for sales. It can feel like being stabbed in the heart so-to-speak, particularly if the bulb affected is a special one.

	<u>Juno Crosses</u>	<u>Successful</u>	<u>Seeds</u>	<u>Avg./Pod</u>
1995:	622 made in total	361 (58%)	6690	18.5
1996:	574 made in total	306 (53%)	5013	16.4

**Table 4: 1995 & 1996 Juno Hybridizing Results**

An updated 'Juno Crosses That Work' diagram is shown on the next page.

I have felt for a number of years that although some crosses don't work, crosses between specific clones may: eg. *bucharica* - Duschanbe \* *albomarginata* does give some seeds, whereas other clones of *bucharica* don't yield any. The difficulty is identifying specifically on which clones a cross works. Normally I only identify the species names of the parents on my hybridizing tags, not specifically which clones the pod and pollen parents were. At seed collecting time I'm now trying to make sure that at the very least the pod parent is identified for crosses that I think are of particular interest. I've reflected this in the diagram 'Juno Crosses: Successes and Failures', which is on the second following page, by listing out many of my different clones. You will see that for some species the results are quite similar for all clones. For now I'm

<sup>15</sup> These are actually "somewhat yellow" forms of *bucharica*. They are different from wholly yellow forms, in which the flower is completely the same bright yellow colour. They are clearly *bucharica* since they are unwinged. True *orchioides* has widely winged hafts.

listing all of this information so that I can continue to add to it in future (though I've pared it down a bit in Figure 4 in order to get it to fit onto one page). The one thing that doesn't get shown is exactly how many of each cross I've tried and the percent that were successful.

Penny Aguirre wrote, the Junos "were quite the conversation pieces with garden visitors. I am a molecular biologist by trade, so some people thought I produced them in the lab. How else do you get an Iris bloom on a maize plant! ...they all bloomed and I was particularly fond of *graeberiana* 'Dark Form' ".

## **Miscellaneous**

The problem with planting seeds too shallow is that they, and the bulblets they produce, can more easily be heaved out of the ground. I found a bit of that going on this spring. I had removed a reasonable amount of straw when the first Retics started to germinate (to minimize any slug problems once it got warmer), but we had quite a number of days with frost after that point. Later when the bulblet's foliage began to die down I noticed that some of 1994's bulblets were sitting on top of the ground (both Juno and Reticulata bulblets). This had never happened before. I carefully went over the bed and dug them in at least 1.5 cm deep. Now I wonder what I'm in for next year since I planted my 1995 seeds shallower than usual. I wanted to see whether this started germination any earlier or increased the germination rate.

In terms of earlier germination I wouldn't say it helped since there were only a few first year germinators this spring from the 1995 seed. The majority of germination normally occurs after the second winter. Interestingly, none of those new bulblets heaved out of the ground, and they're planted right beside the 1994 area.

I also planted this year's seeds on the shallow side. Next year I should be able to get a clear idea of whether this is of any benefit, assuming I have time to record germination rates.

Last year I didn't physically double plant<sup>16</sup> as I had in 1994, rather, since I knew it would be necessary, I planted the rows closer together than I otherwise would have: 3.5 cm vs. 5 cm. However, with double planting, the 5 cm became 2.5 cm in 1994. This was necessitated by the fact that I had so many seeds that I wanted to plant, and less and less room for them. In 1994 I squeezed at least 7000 seeds into approx. 5.25 sq metres. In 1995 I afforded 5000 seeds 5 sq. m. It was because I had less seeds to plant per square metre that I figured I could give them an extra cm between rows.

This year I crammed 8000 seeds into 4 sq. meters. Talk about tight! One thing that allows me to do this, is relatively low Retic germination (30% minus 5% losses for a net 25%), and even lower Juno germination.

The reason I cram so many seeds into a small area is because I'm keen to see what progeny each will yield. In a sense you never know which cross is going to give the next super star. As well, these second generation crosses should give wider expressions than the first generation ones did.

I often find crosses with 3 or less seeds don't germinate. I don't have any statistics to prove this out. However, I now plant most of the '3 seeds and under' crosses in a group. I loose track of the parentage, but they don't justify the expense of a metal tag and the extra space the tag takes incurs.

Last year I reused my 1992 Juno seedling area after moving the bulbs that were coming along, to one end of the bed. As well I had to clear out a lot of my Siberian seedlings which had been doing quite nicely at the opposite end. This year I moved my 1991 seedlings into one half of their area, and then used the remaining space for this year's seeds. I also used up a fair portion of the area that had my 1990 Juno seeds (the seedlings were moved into one third of the area). I was able to do this because I tagged all of the seedlings before their leaves died down. They were then moved in mid September. This year I had also tagged my 1990 Retic seedlings, but I never got a chance to move them.

Next year I am hoping I can move most of my 1993 seedlings to other spots. That would give me 4 sq. metres for seeds.

For several years now I've been complaining of how my garden's getting too full, yet so far, I've been able to continue buying in more bulbs, plus plant thousands of seeds (abet, every more squished closer together). Well, I'm just about up to the limit: "the crunch". Up until now, I've trimmed out other plants from the garden (mainly bearded Iris), plus I've

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<sup>16</sup> "Double Planting" refers to my planting Juno seeds inbetween rows of Reticulata seeds. This is accomplished by first planting the Reticulata rows, and then using a small flat sheet of metal to wedge open a row half way between the Reticulata rows. The Juno seeds can then be planted and the two sides of the wedged row patted closed.

replanted areas that previously had seeds. And of course I've reused space where plants have died out (not a good way to make space for new things). I've got one more year left of doing that. After that I'm in trouble, and will have to give up some things that I don't really want to give up.

Having more land would be nice, however that would mean more work, and I have a hard enough time keeping up as it is.

My *Galanthus elwesii maximus* bulbs were indeed devastated last year. As expected, none came up this spring. Not only that, *Galanthus viridapicis* and *Galanthus alpininus* which had been on either side of *Galanthus elwesii maximus* were also almost completely lost! Only one flowering bulb of *viridapicis* came up, along with leaves from 3 smaller bulbs, and one small leaf from *alpininus*. I have my fingers crossed hoping these two will recover.

I purchased a new bulb of *Galanthus elwesii* and planted it back where the others had been, since they had done so well there.

I do record all of my successful and unsuccessful crosses and then get printouts of them: one sorted by pod parent and pollen parent, and another sorted by pollen parent and pod parent. This is somewhat useful for deciding what crosses to make, especially in the case of Junos since many crosses just don't work. It is useful for Retics as well. There are a few hybrids of mine that are pod or pollen sterile (when they shouldn't be). I don't want to waste time making crosses that just don't work. Also, at hybridizing time it's nice to know what crosses I've already tried. Sometimes its amazing to look up and find out that I'm planning to make the same cross that I already made a year or two ago. Often I'll then make a different one instead, especially if the one I had thought of making produced a reasonable number of seeds.

As I'm finishing this off in late November, I've been busy trimming large branches off of a 25 year old maple tree who's ever expanding root system has, in particular, started invading one bed where a number of my Junos have been doing well. It's a love - hate relationship: it's nice to have a shade tree where it is by our patio, but I hate the way its roots invade my beds. Clearly the majority of plants in beds close to the tree are not doing as well as they would otherwise (ie. as well as they did before the tree got so large). I can't allow the tree to get any bigger, so I'm giving it a heavy pruning. Some of the branches I'm cutting are 15 cm in diameter. This is the best time for this work since the plants have all died down for winter. Thus, when the branches fall onto the beds below, and when I move my ladder into the beds, there is only minimal damage.

At long last my *Actinidea arguta* varieties (hardy Kiwi fruit) are starting to produce fruit. They are about a month behind the *kolminika* varieties in blooming and ripening, and their fruit is noticeably larger.

## ***Iris Winkleri* (Regel)**

Translated by Nikolai Lemeshko, 1996

*Iris winkleri* was discovered by A. Regel in Turkestan and was given its name after the famous botanist K. Y. Winkler, who has been working in St. Petersburg Botanical Garden for 25 years. K. Y. Winkler has done quite a lot of investigating Turkestan's flora and, we hope, he will do even more in the future. St. Petersburg Botanical Garden Herbarium contains just two sample plants (a third one has no flowers) and they are the plants described by A. Regel in Transactions of St. Petersburg Botanical Garden, volume VIII, page 677. From what I know, I am describing here the first cultural sample of this lovely Iris. The accompanying drawing was made from a living plant which was grown by me from tiny bulbs. I collected those bulbs in Turkestan in 1897. The plant flowered for the first time in my garden near Mozaysk this year at the beginning of April. It has already survived two winters in the open soil (first winter it was not covered at all; second winter it was covered up with fir tree branches), so it obviously can be grown in our climate. It is very suitable for early spring cultivation because of its grace and small height. The whole plant is usually 20 cm or less in height and it completely matches the description made by A. Regel except in colouring. The flowers are not just "blue", as A. Regel thought describing dry samples, but multicoloured. The three inner petals [standards] of the flower are purple and the three outer petals [falls] are cherry-red with a clear-contoured white area in the middle. This area is dotted with deep red and crimson touches [dotting]. Those contrasting colours look very impressive. Its leaves and stems are blue-green and sheathing leaf is white.

O. Fedchenko

Olgino, Mozayskogo uyezda (near Moskow)

May 23, 1899

