Reticulata Notes 1991

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What do we really mean when we refer to 'Reticulata'? This probably seems obvious because you've always called these irises 'Reticulatas' (or 'Retics' for short), and it makes sense to do so, since the bulbs have a netted tunic as the word reticulata indicates.

Dykes in *The Genus Iris* treated them as a section: Reticulata. Mathew treats them as a subgenus: Hermodactyloides, though he adds "(the 'reticulata irises')" after that name. Rodionenko treats them as a separate genus: Iridodictyum. I'm not a botanist, I can't offer any opinion as to how I think they should be treated (though I must admit I don't speak of them as "Hermodactyloides"). I am happy to call them Iridodictyums, though I tend to refer to them as Reticulatas simply because most people know of them as such. The main problem with this, however, is that there is a species called *Iris reticulata*, so there is sometimes confusion as to whether one is speaking of Reticulatas as a whole, or just the species. To make matters worse, *I.reticulata* is quite variable in the wild. It's not just the single deep violet-blue commercial form we know so well because it is grown on a very large scale in Holland. If someone speaks of the species, are they referring to it in all its variations, or just the commercial form?

One further twist of sorts is the fact that many of the cultivars we see listed in nursery catalogues are shown as, for example, *Iris reticulata* 'Springtime', suggesting they are clones of the species *I.reticulata* when this is not the case. Many are in fact hybrids involving other species such as *I.bakeriana* or *I.histrioides*. One also often sees listed *I.histrioides* 'George' and *I.h.* 'Katharine Hodgkin', suggesting that they are forms of the species *I.histrioides*. In reality both are hybrids and *I.histrioides* was simply one of the parents in each case.

In 1989 Brian Mathew published a revision to *Iris* subgenus Hermodactyloides which divided the species among four sections:(1)

Brevituba	Monolepis	Hermodactyloides	Micropogon
I.pamphylica	*I.kolpakowskiana*	*I.bakeriana*	*I.danfordiae*
		I.histrio subsp. *aintabensis*	
		I.histrio subsp. *histrio*	
		I.histrioides	
		I.reticulata	
		I.vartanii	
		I.winogradowii	

I agree with the separation of *Iris pamphylica* and *I.kolpakowskiana* into their own sections, but not with the separation of *I.danfordiae*. The only things that make *I.danfordiae* different from the other species in section Hermodactyloides are the facts that it is almost totally devoid of standards and that it has a chromosome count of 2n=18. All other species in section Hermodactyloides have counts of 2n=20 with the exception of *Ii.histrioides* and *winogradowii* which are 2n=16. This difference shows up in wider flower parts in *Ii.histrioides* and *winogradowii*; should they not then have their own section?

A recently collected Reticulata from the Armenian Caucasus (see below) has wide flower parts. Perhaps it too has a chromosome count of 2n=16; if so, it would be a new species! Preliminary information however suggests that it is 2n=20 (an F_1 hybrid with *I.bakeriana* was fertile both ways).

You will notice that *Iris hyrcana* is not listed in the table above. It is currently considered to be a form of *I.reticulata*. Mathew in his travels in Iran during the mid 1960s found a large degree of variation in plants that would be considered to be *I.hyrcana*, making it indistinguishable from *I.reticulata*. I have continued to treat it as a separate species mainly because *I.hyrcana* is the name under which this clone continues to be sold. One of its characteristics is its early bloom.

In a sense, one wonders whether *Iris bakeriana* is truly a distinct species. Apparently forms of it have been found in Iran with orange ridges. The Turkish form is devoid of a coloured ridge. Mathew mentions in *The Iris* that the Turkish form is "very distinct from all other Reticulata Irises, but unfortunately in western Iran there are forms which obscure this distinctness. In the border area between Lake Rezaiyeh and the Turkish frontier I have seen plants with the same cylindrical leaves but having pale blue flowers with a yellow crest or ridge, looking exactly like some forms of *I.reticulata*." In addition, Reticulatas having 5- to 7-ribbed leaves have been found in the wild. They are said to be hybrids between *I.reticulata* and *I.bakeriana*, but are they? They may, so to speak, just be variations on the same theme. Where does one draw the line? The answer will only come after a complete study can be done of populations in Iran. Unfortunately because of the continuing problems in the Middle East this won't happen for many years to come.

Iris winogradowii

I am extremely pleased to be able to report that I am now growing *Iris winogradowii* successfully. Last year, for the first time, two flowers bloomed! It is well known that unlike other Reticulatas, *I.winogradowii* needs a moist location year-round. The difficulty was in finding the right spot in the garden to provide this, i.e. the right microclimate. Just how much moisture is needed? The clue came with success in growing English irises (*I.latifolia*) which also like moist conditions.

What I hadn't originally realised was just how dry most of the garden gets during the Canadian summer. I had thought that beds in the back yard which are planted with annuals (in amongst bearded iris) would be perfect since they are occasionally watered during the summer. As it turns out, they aren't really watered enough, at least not enough for English irises and *Iris winogradowii*. What proved to be the right spot was one of the beds in front of the house which has a sandy loam soil. It is planted with bulbs, bearded irises, and roses, plus quite a few annuals, and as it's at the front of the house I want it to look its best (or reasonably close to its best) so the plants get a semi-regular watering. By this I mean that I don't let the bed dry out completely, but at the same time I'm very careful not to water too frequently so that the bed is constantly wet. Rather, when I do water I try to water well, so that the water penetrates the soil.

Four years ago I tried a bulb of *Iris winogradowii* in the location where it is growing successfully today. That bulb put up a strong leaf but the leaf stopped growing when it was only 2 inches long – the bulb had rotted. I was convinced, however, that the iris ought to succeed there, so I bought

another bulb and tried again. This time it did well, though I was disappointed that it didn't bloom. Two years ago I added a further two bulbs to the spot, where the first bulb had increased to two bulbs and one bulblet. The result was two flowers last year, as well as a number of strong healthy leaves. Based on this success, and a desire to have more flowers for hybridising as soon as possible, I bought another bulb last year. Unfortunately, this year a single bloom aborted. But I'm looking forward to many more blooms in years to come.

William van Eeden told me that only a few bulbs of *Iris winogradowii* are available in Holland as it doesn't grow well there. I have heard that it has been naturalised in northern Scotland, which is extremely encouraging since it is threatened with extinction in the wild. Clearly it is a unique species and its loss would be tragic.

Brian Mathew and Margaret Johnson have determined that *Iris winogradowii* and not *I.danfordiae* was one parent of 'Katharine Hodgkin', the other being undisputedly *I.histrioides*. It was reported a number of years ago that this cross was repeated. When the resulting bulbs bloomed they were almost identical to 'Katharine Hodgkin'.

Unfortunately neither of the 1990 *Iris winogradowii* flowers set any seed. One had received pollen from the diploid *I.danfordiae*. However, *I.winogradowii* pollen was used successfully on *I.histrioides* var. *sophenensis* and on the Armenian collected Reticulata, so the blooming of these hybrids is something I look forward to.

Iris kolpakowskiana

This is quite different from all other Reticulatas. The leaf is channelled rather than square and the flower shape is unique. The flower is exquisite to say the least: the mauve standards are large and wide, style arms of the same colour extend only halfway up the falls. The fall is fairly wide and arches concavely to a point. From the widest point to the tip it is pansy violet with the very tip itself white. The wide ridge of yellow-orange changes to yellow after the flower has been open for about a day. Either side of the ridge are white areas with a few pansy violet veins running parallel down the fall haft. The back of the fall is white.

As with all Reticulatas, the bulb tunic is netted, but both bulb and tunic are distinctly different from other Reticulatas, the bulb being globular in shape and the tunic whiter and more coarsely netted.

In my experience *Iris kolpakowskiana* is difficult to keep, which may partly explain why it's not widely available. I have tried growing it under a wide range of conditions, from sand that's dry in summer to moist loam, but haven't yet found out what it really likes. Several seedlings from it are growing well in sand. The bulbs are about three years old and are continuing to increase. This year I was pleasantly surprised to have a bloom, which I hadn't expected for at least two more years. Of four mature bulbs planted nearby last year, only one survives. One had bloomed in the spring.

Iris kolpakowskiana grows in the Tien Shan mountains, quite a distance from where any other Reticulatas are found. Mathew in *The Iris* says "it is a plant of stony mountain slopes up to 3,000 metres altitude, flowering near melting snow". In *The Smaller Bulbs* he adds "I have seen it on hillsides in some very wet sticky clay, although this will dry out in summer". Based on my experience to date, I'm wondering if it needs to be grown in a moist

location and then dug up and stored over summer. One reason for suggesting summer lifting is that I've found that in soil that is slightly moist, the bulbs get attacked in summer by small centipede-like bugs. I don't know what they are but on occasion I've seen them on other Reticulata bulbs. Probably it will be a while before I find the right conditions. The first step is to reach equilibrium, whereby the number of bulbs at the beginning of the year is equal to that at the end. The second step is to find conditions that allow the bulbs to grow to bloom size and, most importantly, multiply!

Because of the channelled leaf and its habitat being remote from other Reticulatas, several people have wondered if *Iris kolpakowskiana* is related to the Junos. In his 1989 revision to *Iris* subgenus Hermodactyloides, Mathew mentions the hypothesis that perhaps "*I.kolpakowskiana* is the result of hybridisation between ancestral stocks of Scorpiris (Junos) and Crocus". Further supporting the connection to Junos is the fact that the pollen grains of *I.kolpakowskiana* are round, just like Juno pollen, whereas all other Reticulatas have barley-shaped pollen grains. I have tried crossing *I.kolpakowskiana* with Junos mostly to no avail, though I did get one seed last year. The cross was *I.kolpakowskiana* x *I.nicolai* + Armenian collected Reticulata, i.e. using two pollen parents. Regardless of which pollen "took", the progeny (assuming the seed germinates) will be quite interesting! Two *I.kolpakowskiana* x *I.nicolai* crosses this year failed. In Frank Kalich's experience, *I.kolpakowskiana* "will not cross with any Reticulata at all . . . "

Iris pamphylica

Unfortunately *Iris pamphylica* is not regarded as being very showy because its flowers are narrower than those of *I.reticulata* and its overall colour is dark. For both reasons its flowers blend in with other plants in the garden. Also the leaves are up well above the flower at bloom time. I like it because it is unique. The standards are greyed-blue with veining, the lower two-thirds yellow with small dark blue spots. The falls are tipped dark brown, and there is a wide yellow ridge running into the flower, with small dark brown dots; either side of the ridge is a white area with dark brown veins. The style arms are brown, lighter along their edges. In a sense the narrow parts give the flower a delicacy. Clearly it needs to be planted at the edge of a bed where it can easily be admired and appreciated.

Sadly, the *Iris pamphylica* bulbs I collected in Turkey in 1985 and 1986 all died in the 1986/87 winter. The ones from 1985 did well over the previous winter when in a bed closer to the house, but I moved them and all my other Turkish Reticulatas to a bed at the back of the yard where I thought they would do well in the sandy loam.

In 1990 I was fortunate to get a number of bulbs from the wild and planted them in the same area that the 1985 bulbs were in their first season. 10% of the bulbs bloomed this spring. The percentage will be a lot higher next year, because the bulbs have all increased tremendously in size, so I am extremely pleased. In the back of my mind I wish I hadn't moved the bulbs I collected in 1985, but I guess making mistakes is the way we learn. I should mention that all of the Turkish Reticulatas were moved back into the same area and are doing well. A lesson to be learned from this is that if you have some highly-prized bulbs you wish to move, leave perhaps a third where they are "just in case".

In the wild *Iris pamphylica* grows at the edge of pine forests.

This species does not cross with any other Reticulata, and it needs such special conditions that, in William van Eeden's view, it will never become a trade variety.

Armenian Caucasus Collected Form

This particularly fine Reticulata was available from Potterton & Martin for six years. Unfortunately they have not listed it for the last two years. I understand that it is from around Lake Sevan in Armenia. (Plate xxiv.)

The flower colour is a lovely pink blended with a dab of purple. When it first opens the colour is quite saturated and appears to be a strong lavender pink, but it lightens a bit in the first few hours as the flower opens fully. There are darker tones at the end of the bright yellow ridge on the falls. On either side of the ridge is a white area with a veining of the darker tone colour. It has wide flower parts like *Iris histrioides*. In that sense, I wonder if it is 2n=16? Very likely, though, it is 2n=20. An F_1 hybrid with Turkish *I.bakeriana* bloomed this year and was fertile both ways. Its flower parts were wider than those of *I.bakeriana*, but not as wide as the collected form.

I tend to refer to this species as "P&M Collected Form" for lack of a better name, and in spite of the fact that I have also obtained it from a Czechoslovakian source. It is very fertile and is my best parent (both ways) in terms of percentage of successful crosses. It gives physically large seeds. I am expecting some interesting progeny from it because of its unusual colour.

It doesn't like to be too wet in spring, but does well in moist soil during active growth. Otto Fauser (Australia) reported that "this and 'Katharine Hodgkin' are by far the easiest to grow in my garden". As far as I know it is not yet being grown commercially in Holland.

I was surprised this year to find two rogues in a batch of bulbs obtained from Czechoslovakia in 1990. Both bloomed later than the species itself (just as it was finishing) and were slightly redder in colour. One had orange pollen, the other white; in all other respects they were identical, and were fertile both ways. Prior to this all the bulbs purchased over several years were the true species. I wonder how these originated? But they are definitely not the kind of rogues to throw away. It will be interesting to watch them and their progeny in future years.

Iris vartanii

Unfortunately this is no longer available commercially. It still exists in the wild but has been lost to cultivation, which is tragic. In the wild it is normally slate-blue but the form in cultivation was white, *Iris vartanii* 'Alba'.

My understanding is that one year the last person growing it in Holland didn't bother to plant it, which may have been due to simple economics, that the same area of land could be more profitably planted with other bulbs. I am sure there was a demand for it as I for one tried to buy numbers of bulbs at a time when it was 2½ times the price of other Reticulatas but was unable to obtain it. Perhaps the wholesalers would not pay the price which the grower felt was warranted.

One thing this iris provided was a white Reticulata. At this time William van Eeden's 'Natascha' was coming onto the market. As a white it was far superior to *Iris vartanii* 'Alba' but there was room for both.

A problem is that it is tender. William van Eeden stated that he used to cultivate it, selling about 2,000 a year, but it is from Israel and in fact a winter-flowering species. It needs almost no cold to develop, and could be

planted in spring instead of autumn in Holland as otherwise it is easily damaged by frost. It is tiny with poor texture and flowers briefly. Also it seems to have increased very slowly.

I believe that the natural habitat of *Iris vartanii* (to Maurice Boussard's knowledge, the white variant has never been found in the wild) around Jerusalem is threatened by the city's expansion. Dr Michael Avishai in a letter last year said "*I.vartanii* and *I.regis-uzziae* are threatened species with only a few widely scattered individuals at best. They seem to have suffered greatly under the impact of the gradually warming up and drying climate that is characteristic of our part of the world." I hope some conservation efforts are under way to protect *I.vartanii*, and perhaps some attempts in Israel to propagate it, as is being done with aril species. Then re-introduction into the wild might be possible so that there would be less danger of it becoming extinct.

***Iris danfordiae* (diploid form)**

In 1985, as related in the 1986 *Year Book*, I went to Turkey with the specific aim of collecting a diploid form of *Iris danfordiae* to use in hybridising. The commercial form is a triploid and sterile. The bright yellow of *I.danfordiae* held exciting possibilities if its genes were mixed with other colours (look at 'Katharine Hodgkin' and 'Frank Elder', both from *I.histrioides* x *I.winogradowii*, blue x yellow).

Some of the bulbs I found in Turkey had pods with good seeds, so I was sure they were diploid, but what was their chromosome number? I guessed at 2n=18 because the counts of 2n=27, 28 done in 1934 by Simonet and 1954 by Mitra and Randolph were probably for the commercial form, i.e. 3n=27, 28. In 1989 Margaret Johnson and Brian Mathew published a chromosome count showing 2n=18 from bulbs I collected.(2)

As previously stated, other Reticulatas are 2n=16 or 2n=20, so any progeny involving *Iris danfordiae* will be sterile; there will only be a first generation. But even if the sterility barrier can't be broken, just think of the possible hybrids that might be created by crossing *I.danfordiae* with 'J. S. Dijt' (bright yellow crossed with wine red); with *I.bakeriana*, possibly greenish standards with *I.bakeriana*'s dark velvety blue on the fall blade; with *I.winogradowii*, possibly an 'improved' yellow; with *I.histrioides* var. *sophenensis*, possibly bright yellow with blue stripes, brighter than 'Katharine Hodgkin' and with a different form.

My efforts have resulted in quite a few seeds from the diploid *Iris danfordiae* and this year, for the first time, some germinated, including some from 1989 with *I.danfordiae* as the pod parent. I have had more success using it as the pollen parent.

This year it was interesting to see diploids from another Turkish site in bloom. The flowers were slightly larger than those of the clone I collected, but still quite a lot smaller than the triploid form. Of particular interest, a number of the flowers had green spots on the back of the style arms rather than the normal two green stripes. In two cases the spotting was minimal.

Other Clones of Interest

Iris histrioides var. *sophenensis*: This is seldom offered for sale. Its primary distinguishing feature is veining on the falls which are narrow. It lacks the blotches on the falls of typical *Iris histrioides* but has a yellow ridge.

Iris histrioides – collected Adil Güner: This form was found 400 km east of of the only previously recorded location for *Iris histrioides*. Overall it is similar to the commercial form except for being darker blue, somewhat on the purple side. On the fall blades there are a lot of large blotches of the same colour which contrast quite sharply with the surrounding white. There is some variation between flowers in the number of blotches, and in some cases the blotches are darker than the flower colour.
Iris histrioides – collected Ahmet Atilla: This has fairly variable blade markings. Overall it is medium blue, with slightly darker tones near its yellow-orange ridge. Standards and styles are slightly lighter blue. The variation in blade pattern ranges from very little white area beside the ridge, without spots, only wide veins blending together near the edge of the blade, to lots of dotting around the ridge, no veining, only a solid blue area around the blade edge. One flower had five large blotches around its ridge, with the blade edge area solid medium blue to veined (large spots).
Iris histrioides – Potterton & Martin Collected Form: This is worth mentioning for its unusual 'feather' markings on the falls. The flower is pale blue with a half crescent blotch of darker blue circling the end of the fall's yellow ridge. Thin darker blue veins radiate from the ridge. In some spots the veins widen into short straight blotches. It is proving very difficult to grow and I have not succeeded in finding a spot in which it is happy. It definitely does not like a wet, or even moist, location. Three years ago I tried bulbs in sand, out in the open, and they did poorly even there, though at least some survived. Two years ago I tried 20 medium-sized bulbs in the Juno hut; only one survived! It was nice and large so I hoped it would continue to do well there. But it didn't come up this year.
Iran 895 – Rix: The flower is reddish-pink, with typical narrow *Iris reticulata* parts. It is pinker than P&M's Armenian Collected Form. The fall has a bright orange-ish yellow ridge with a white area immediately on either side. A few blotches and veins of darker flower colour run into this area. It has been a good parent and seems to do well in sand in the Juno hut; I expect it would do equally well in sand out in the open.
Iris histrio – collected Lebanon: I have not grown this but have a picture of it from Maurice Boussard. It is gorgeous! Overall it is pale blue, slightly bluer than *Iris histrio* 'Aintabensis' hort. The falls are white with numerous large medium blue blotches that often merge together, particularly at the blade edge, and a yellow-orange ridge. The parts seem to be wider than those of a typical Reticulata. The fall blade is nicely convex, showing off the beautiful blue blotches on their pure white background.

Turkish Reticulata Bloom
Iris reticulata
ANMc1255: Quite an interesting Reticulata from SE Turkey. Standards and styles light wine red; fall blade dark reddish brown with a yellow ridge, remainder of fall white with dark reddish brown veins. Underside of falls green. Pollen olive green.
ANMc2175: Dark wine red. The fall ridge is narrow, orange on some clones, yellow on others, with a white area immediately either side with a few small dark wine red blotches. Falls seem wider than in most Reticulatas – I tend to think of it as a wine red *Iris histrioides*. Unfortunately the bulbs

shatter into many small bulblets – worse than *I.danfordiae*! Shown in colour plate 34 in Mathew's *The Iris*, where it seems to have some blue tones but all those I saw in the wild were dark wine red. White pollen.
ANMc2198: Standards a blend of wine-red and blue; wide orange-yellow fall ridge, the colour bleeding off the ridge, white either side with veins that bleed blue. At the end of the ridge the fall is blue, which changes to purple and then to wine red. The blade is globular. Pollen olive green. Unfortunately the flowers are not well attached to their stems – I have twice pulled flowers off when removing their anthers, which has never happened with any other Reticulata.
ANMc2205: A small Reticulata about the same size and shape as the diploid Turkish *Iris danfordiae*. Colour is a mix of blue and wine-red with a wide yellow fall ridge at the end of which is a hint of yellow. For that reason, could it be related to *I.danfordiae*? Several successful crosses have been made with the diploid *I.danfordiae*. Pollen olive green. A number of bulbs have bloomed and each is different in its exact colouring.
ANMc2220: Wine red with blue mixed in. The falls are particularly interesting: at the end of the bright orange-yellow ridge is a brief blue area which changes to wine-purple and then to the overall colour. Thin dark veins on a white background radiate from the ridge. The fall has a lovely sheen. Pollen olive green.
Iris bakeriana
ANMc2281: Standards and style arms turquoise; falls white with a very dark velvety blue blade, plus some small blotches of the same colour. One bulb had such a dark blue colour that it seemed to be black. The commercial form has blue standards and style arms. Pollen orange.

Further articles covering culture and hybridising of Reticulatas are in preparation and may appear in later *Year Books*.

References

1. "A Taxonomic Revision of *Iris* Subgenus Hermodactyloides (Iridaceae)", Brian Mathew, in *The Davis and Hedge Festschrift*, ed. Kit Tan, Edinburgh University Press, 1989.
2. "The Identity of *Iris* 'Katharine Hodgkin' – A Cytological and Morphological Approach", Margaret A. T. Johnson & Brian Mathew, in *Kew Bulletin* Volume 44, No.3, 1989.

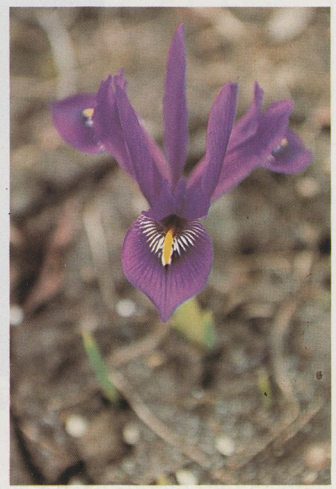

Plate xxiv
Iris reticulata
"P&M's Collected Form"
Photo Alan McMurtrie