

SIGNA



Roy Davidson
1918-2000

No. 66

Spring 2001

Species Iris Group of North America

Spring 2001- Number 66

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President's Message

Dear SIGNA Members,

The entire horticultural world has lost a great friend with the passing of Roy Davidson. Roy was the driving force behind the formation of SIGNA and was one of the major contributors to this publication. SIGNA will miss him, I will miss him.

Your answers to the questionnaire Graham sent out in the last SIGNA have been a great help to the board. The response has been great with nearly 100 replies. The written comments have given us insight into what the majority of members want from SIGNA. We will never be able to fulfill the wishes of every member but we hope to please most of you. With the questionnaires several people sent in donations toward the color fund for SIGNA and to help pay the costs of the overseas and life member mailing. I thank you for taking the time and effort to answer the questionnaires and we appreciate the extra comments and contributions that many of you added. Graham has outlined the results of his questionnaire elsewhere in this issue.

With the latest raise in US postal rates it has become obvious that we can no longer produce and mail even a black and white SIGNA with our dues at the current level. The board is doing research into costs and possible alternate methods of printing. We want to maintain the policy of keeping the overseas members dues the same as those of domestic members because our foreign members have so heavily supported the seed exchange and have contributed many articles to the publication. If all works out we may be able to print SIGNA for very little more than what it costs us now and have color at no additional cost. We'll then need just a modest dues raise to cover the higher printing costs and the new mailing rates. The numbers are not all in yet so things have not changed for this issue but we will be in a position to announce the dues increase in the fall issue.

I am sending a third thank you out to all of you who participated in the seed exchange this year. We have had a very good exchange with increases in both donations and orders. Now don't rest on your laurels, let's make the 2001 exchange better yet! One of SIGNA's goals is the preservation of the species and the seed exchange helps us to do that by distributing species seed around the world. Hand pollinated seed is always in demand so try to remember to hand pollinate and tag some of your species this spring and send the seed to the exchange in the fall. Jan Sacks and Marty Shafer and their seed exchange staff also need a thank you from the membership. They do a great job. How do you like the new tags on the seed packets with the names of the species not just a number? Let Jan and Marty and their crew know how much you appreciate the great job they are doing.

Last November George and I traveled to New Zealand for the New Zealand Iris Society's Symposium 2000. It was an International Symposium on Iris held in conjunction with their 50th anniversary celebration. The New Zealand Iris Society put on a great program (see the Report on it elsewhere in this publication) for which they deserve a big thank you. We had a grand three weeks "down under" getting acquainted with irisarians from all over the world and meeting many overseas SIGNA members.

I just read through this letter and discovered that each paragraph was a thank you to some one or some group. I guess I might as well finish it off with one last (but not least) thank you to Graham Ware, Colin Rigby and Bob Pries for producing this issue. They are doing a great job considering this publication originated in three different places in two countries. Thanks much to all!

Carla Lankow

SIGNA TREASURER'S REPORT

by Jan Sacks

1/1/00 - 12/31/00

As of 1/1/00:	Checking Account Balance	\$12,848.91
	CD (life memberships)	6461.46
	Outstanding Officers' Advances	<u>647.44</u>
	TOTAL ASSETS:	\$19,957.81

REGULAR INCOME

Memberships	\$2331.00
Past Publications	8.00
Seed Exchange	3201.38
Slide Rental Fees	35.00
Interest on CD	329.75
Interest on Checking	<u>66.28</u>
	\$5,971.41

SPECIAL INCOME

Checklist	\$533.40
Donation for Color	365.00
Auction at National	50.00

Total Income **\$6,919.81**

REGULAR EXPENSES

Membership	66.60
Current Publications	5981.80
Past Publications	6.79
Seed Exchange	1152.58
Slide Library	62.63
Miscellaneous	<u>0.00</u>
Total	\$7,270.40

SPECIAL EXPENSES

Research Grants	0.00
Seed Collecting Grants	0.00
Checklist	1131.43

Total Expenses **\$8,401.83**

As of 12/31/00:	Checking Account Balance	\$11282.81
	CD (life memberships)	\$6791.21
	Outstanding Officers' Advances	<u>\$401.77</u>
	TOTAL ASSETS:	\$18,475.79

SIGNA BY-LAWS AS PERTAINING TO NOMINATIONS

" Any member in good standing may make further nominations by submitting a petition of no less than ten signatures of **SIGNA** members in good standing to the President *no later than June 1st*. A ballot of nominees shall be mailed to all members which must be returned to the Nominations and Elections Chairman *no later than September 1st* in order to be counted. Results of the balloting shall be published in the fall issue of the **SIGNA** Publication. Nominees receiving a majority of votes from the ballots received shall be declared officers for the next term and shall assume office on the last day of December."

" Term of office for President, Vice-President, Secretary and Treasurer shall be for a period of two years. Term of office for a Director at Large shall be for a term of four years, two Directors at Large to be elected each election year. There shall be no limit to the number of consecutive terms the President, Vice-President, Secretary and Treasurer may serve. A Director at Large may serve only one consecutive term. The term for an appointive officer shall be indeterminate."

The slate of officers:

President: Will Plotner

Vice-President: Barbara Schmeider

Secretary (Recording): Paul Martin

Treasurer: Janet Sacks

For Directors at Large, term to expire 2005:

Liselotte Hirsbrunner

Lorena Reid

Respectfully submitted, March 8, 2001,

Colin Rigby

Helga Andrews

Kevin Vaughn

2000 SIGNA Seed Exchange

by Jan Sacks and Marty Schafer

This was a great year for the seed exchange - lots of seed, many good and interesting contributions, and lots of orders. We had many compliments and thanks from members on the quality of this year's list - the thanks must go out to the donors who did a great job. The wild collected and hand-pollinated seeds are so precious and we are grateful for every bit.

Here are the particulars for *next year's* seed exchange: **The deadline for mailing seed is November 10, 2001.** If you know your seed will not be ripe by that date, please send a list of these late species so they can be included in the seedlist. Send your seed or list to:- Jan Sacks and Marty Schafer at 337 Acton St., Carlisle, MA 01741-1432, USA (or use e-mail: jpwflowers@aol.com for the lists). We must have either the seed or a list in our hands by November 10 in order to get the Seedlist out before Christmas and the seed in the members' hands in January (when there is still time to stratify seeds).

All seed should be clearly labeled. Anything hand pollinated should be marked **HP**. Anything collected should be marked **coll.** with the location of the collection. On all seed it is very helpful to have a short bit of extra information as to color, or any other specific characteristic of the parent. If you are at all unsure of the true identity of your iris let us know and we will include a question mark with the listing. It is always a good idea to look up a description of a species (Mathew's, '[The Iris](#)' is a good reference) to

confirm that your flower, plant and seed look like the description.

As mentioned above, the hand-pollinated seed is in great demand. Please consider making a few hand pollinations of pure species. This is the best way we can share and preserve the pure species. If you have access to irises or irids in the wild, please try to collect some seed. We always need seed of arils (DEFGH). This is the section where we always have the most requests for the fewest numbers of seeds. The bearded people have been doing a great job on the pumilas, aphyllas and pallidas, but the beardeds and arils are still always the first to run out. Keep them coming. To 40 chromosome siberian and PCN growers - we REALLY REALLY REALLY need hand pollinations of known pure species. These irises cross so readily in the garden that the pure species are disappearing. We know we say this every year, but those of you who have those pure PCNs and 40s -- tie a string around your finger and remember to make some hand pollinations this year!

There were fifteen items on the list this year with 35 requests or more. It was particularly good that so many of these items had lots of seeds and we were able to fill a large number of the requests for them.

Here they are below- the most popular requests- starting with the column on the < left.

00J051 *chrysographes* 'Black Beauty' from Tim Loe, Cornwall England. 200+ 54 requests

00R421 *locsyi* coll. Barskoon Valley, 2930m, E. Kyrgystan. Central Asia from Tony Dickerson, Worcester England. 100+ 48 requests

00R427 *ruthenica* 'red form' from Barbara and David Schmieder, Concord, MA. 100+ 45 requests

00K137 *tenax* coll. Washington, 1800', late bloom and possible rebloomers from Steve Ploegstra, Lake Stevens WA. 4000+ 44 requests

00A008 *reichenbachii* HP diploid yellow from Harald Mathes, Gladbeck, Germany. 50+ 42 requests

00C035 *germanica* HP ex. NW Greece, 48 chromosomes and fertile from Harald Mathes, Gladbeck, Germany. 200+ 41 requests

- 00A009 *suaveolens* HP from Harald Mathes, Gladbeck, Germany. 100+ 39 requests
- 00K135 *macrosiphon* coll. Cobb Mt., CA 3000', yellow from Michael Tallman, Santa Rosa, CA. 500+ 37 requests
- 00H047 Arilbreds mixed F1 and F2 from aril x TB cross from Sam Norris, Owensboro, KY. 500+ 37 requests
- 00A002 *lutescens* HP ex France, very dwarf from Harald Mathes, Gladbeck, Germany. 50 36 requests
- 00D040 *stolonifera* HP from John Wight, West Covina, CA. 100+ 36 requests
- 00M154 *sintenisii* ex Eco Gardens, fine plant from Marty Schafer and Jan Sacks, Carlisle, MA 200+ 36 requests
- 00R405 *lactea* selected seedling for repeat bloom from Marty Schafer and Jan Sacks, Carlisle, MA. 400+ 36 requests
- 00Z539 *Neomarica northiana* HP, self, plant with 130 blooms over 11 weeks from Barbara and David Schmieder, Concord, MA. 350+ 36 requests
- 00Q390 *setosa* pure white from Liselotte Hirsbrunner, Chesieres, Switzerland. 150+ 35 requests

For Phase I of the 2000 Seedlist we took in \$3,419.14 with expenses of \$563.36 for packaging and shipping and \$506.51 for the printing and mailing of the list. For Phase II, left over seed will be available at the SIGNA Section meeting at the AIS National Convention and then through Membership Secretary, **Rodney Barton**. (See address on inside front cover) Last year we were able to make \$364.50 during Phase II. Don't

miss out on Phase II if you want great Iris seed. Many of you sent additional donations of money that are greatly appreciated. All of the work on this exchange is done by volunteers. The Seed Exchange is an important fund raiser for SIGNA and supports both seed collecting grants and the cost of our semiannual publication. People who are planning seed collecting trips where wild irises or irids are expected can apply to the SIGNA Seed Chairs for grants. These are small but many trips are made up of just such small grants.

Changes for the future: Many people wrote in with thanks for the labels on the seed packets this year. We had only planned at first to put the numbers on the labels (trying to save the arm of the hand stampers) but couldn't resist putting the name and some of the info on each label. Next year we hope to do a better job and get all three lines on the label consistently - though it may still not be possible to get all the information on that little label without going to tiny print. We are also considering a couple of other changes for next year's seed exchange. Many members have suggested that we charge a small handling fee for seed orders. Some orders come in for only two packets of seed and the cost of packaging and mailing exceeds the \$1.00 paid. So it is likely that we will be adding a \$1.00 fee to each order. We are not planning to increase the cost of a seed packet. We are also considering some changes to the structure of the seedlist - the alphabetical outline. This may be a major reorganization or just some small changes. One of the most out of date sections is "R" where several of the "monotypic" series are no longer monotypic. If you have any well thought out suggestions for reorganization - please send them to us.

We will have a notice in the Fall 2001 SIGNA regarding the changes. Thanks again to all who sent seed; all who ordered seed; and, finally, to our crew here in New England who did all the packaging and order pulling.

EDITOR'S CORNER-

If there are *questionnaires*, then surely there must be
***answerraires* !**

This is a very good if not absurd speculation, *mon amis* de SIGNA. The response to The Questionnaire in the Fall issue (#65) was excellent and completely wonderful. Thanks to all who responded. It proves the adage that if you ask good questions, you'll get good answers. Are we patting ourselves on the back here? Naturally. We received some excellent suggestions that we are going to institute with this very issue. Moreover, your response proves unequivocally how much you love this publication; how much you value it; and, that you are prepared to pay slightly more for dues. Expect an important announcement regarding the dues in the Fall issue, #67.

Larry Rue thought that it would be useful if each author was able to provide the reader with the details of the climate/microclimate, soil and winter and summer temperature averages and extremes that they garden in. We will try to do that where relevant. Someone else thought that a regular feature could be a species profile and another thought that we should spotlight a N. American species. Both great ideas.

Visit the web of the N. American Native Iris- <http://dale.hsc.unt.edu/~rbarton/iris/nani> put together by SIGNA's Membership Secretary, Rodney Barton. You'll see pics of *Iris lacustris* 'alba' as well as *Iris giganteaerulea* and the full article of Hanna and Orrick (see below) from the American Journal of Botany. There are many good links and features at this web including a link to our own web- www.signal.org Way to go Rodney!

Other ideas included having Beginner's articles as well as good sources of seeds and plants. We'll work on those for the next issue.

Everyone was very pleased with the color, some even knocked-out by it and even the lone dissenter grudgingly admitted that, at least, it added something. Most members' sentiments were best summed up by **Mrs. Sven Thoolen** who said, "I really like the updated color!"

We will continue to use color although we will be installing it at the back of the issue to make for the ease of production and collation. You will also notice the Photo Gallery concept put together and paid for- *again* -by the ever enthusiastic Bob Pries. Thanks from everyone!

And Other Things About This Issue: As you will see from the cover we are saddened at SIGNA about the passing of Roy Davidson. See the 'In Memorium' piece by Jean Witt and Tony Hall. I also found a previously unpublished piece by Roy himself taken from the St. Louis Symposium- 'Considering the Grex Expedient'. Don Jacobs has an article on Appalachian iris species and selections from the aforementioned symposium; and, Dr. Gary Hannan and his colleague have a nice segue on the genetic origins of *Iris cristata* and *I. lacustris*. This issue is overflowing with irisarian abundance with original articles by George Rodionenko, Sam Norris, Christy Hensler, Carla Lankow, Tom Dillard, Terry Aitken and Bob Pries as well as reports and other business. Whew! What an issue and what fun! Have a good year in your garden and remember to record it with your camera.

Cheers, Graham Ware

IN MEMORIAM: Byard LeRoy Davidson

Written by Jean Witt and Tony Hall

B. LeRoy Davidson, long time AIS member and one of the founders of the AIS section, SIGNA, died in Bellevue, Washington at age 83 on November 28, 2000 after a brief illness. He was the last of four brothers, and is survived by his sister Sybl and his life partner of 58 years, Ferdinand Minici.

Roy was born in Kendrick, Idaho, in 1918, then moved with his family to his mother's family farm near Colton, in the Palouse wheat country of southeastern Washington. He grew up roaming the "breaks" of the nearby Snake River Canyon, where the vivid prairie wildflowers had escaped the plow. He learned gardening through helping his parents with their vegetable and flower gardens on the farm. After studying botany at Washington State University in Pullman from 1935 to 1939, he moved to the Seattle area where he pursued a successful career as a florist, and became an enthusiastic participant in the Northwest horticultural community.

Roy was an active member of the local NARGS (North American Rock Garden Society) chapter, writing articles for its journal, planning study weekends, and leading field trips. He also belonged to the American Penstemon Society, and introduced several wild selections of shrubby Penstemons including the recent AM winner *Penstemon procerus* 'Roy Davidson'. He was also responsible for producing the first guide to the cultivars and their origins for the APS.

With irises his interest ran to the wild types, beginning with *I. missouriensis*, the native blue flag of the Palouse. He brought into his garden several interesting color forms which were registered in 1956 as 'Miss Bluejay', 'Miss Peacock', 'Miss Pink Dove', 'Miss Purple Finch', and 'Miss White Canary'.

When Pacific Coast Irises began to attract the attention of west coast gardeners, Roy made numerous collecting trips to southwestern Oregon and northern California, selecting outstanding color forms of a number of species. Most of these were never registered, but were shared with friends of like interests. Grown

under garden names such as "Moon Lad", "Roy's Gold" and "Lemonade Springs", many are still found in Northwest gardens. In 1972 he registered a group of five PCI of which 'Memoria Elwood' was a spectacular collected clone of *I. purdyi*, and 'Mini Ma' a lavender-blue dwarf form of *I. douglasiana*. Two red PCI, 'Hinges of Hades' (1972) and 'For Ruth' (1979) were registered and came into commerce from his hybridizing work with *I. innominata*.

In the 1960s, species iris round robins focused the attention of American iris buffs on the garden possibilities of the wild irises of the world. Roy, with others, including Bruce Richardson of Hannon, Ontario, organized a Species Study Group. By 1968 this group had become the Species Iris Group of North America (SIGNA), which subsequently became a section of AIS. Roy served as its first chairman from 1968 to 1978, writing articles and collecting seeds in the wild for the seed exchange. In conjunction with the Portland, Oregon, AIS convention in 1972, he organized a "species" bus tour which was so popular that it filled two large buses, making a loop out to the coast and back to view *I. tenax* in the wild. His Bellevue, Washington, garden—built in wetlands—was on tour for the 1984 AIS convention in Seattle. Its extensive plantings of Siberians, versicolors and other water irises demonstrated the value of these beardless iris types in the well-planned garden scene.

In recent years Roy had been working on his much-anticipated book on the genus *Lewisia*, brought out last spring by Timber Press. My final memory is of him sitting in the lobby of the NARGS convention hotel last July, chatting with old friends and signing the book. He will be greatly missed not only in the Northwest's horticultural community but also further afield. He belonged to many international plant organizations, including the Alpine Garden Society and the Scottish Rock Garden Club. The *Iris pseudacorus* hybrid 'Roy Davidson' is one of several plants that bear his name. Others include the spotted-leafed, pale blue

Pulmonaria 'Roy Davidson' and *Lewisia cotyledon* var. *fimbriata* 'Roy Davidson'. (Jean Witt)

Tony Hall of the Royal Botanic Gardens at Kew shared the following reminiscences of Roy Davidson:-

"As background, I first met Roy through my old boss, Brian Halliwell and Brian Mathew. In those days Roy made regular visits to the U.K. and, I seem to remember, occasionally stayed in London for some months at a time.

We were having dinner in a swish Kew village restaurant once. I'd been there a few times but didn't remember the service being quite so good. We were treated like royalty. Towards the end of the meal the owner sidled up to me and said, eyes darting to Roy, "It's John Huston- the film director- isn't it?" Outraged I spat, "Certainly not! It's Roy Davidson, the famous plant collector!" Roy was tickled pink by the episode; and I must admit that his particular brand of wild-west smart casual dress with bright, cowboy-style kerchief, grizzled beard (I guess we'd call it *designer stubble* today) and measured speech were reminiscent of Huston. And it was a great meal...

At that time my interest in *Iris* was minimal but I certainly had a passion for all alpines and bulbs. Roy fueled that and for many years he donated interesting and rare material to the Alpine Section at Kew. He also introduced me to the writings of Ripley and Barneby, whose contributions I still admire today, as well as Roy's own articles and essays on the flora and landscape of the Pacific Northwest.

In 1979 I joined Roy on a collecting/study trip to the Rockies (Utah, Idaho, Montana, Washington and Colorado) for about six weeks. I remember we almost got swept away in Colorado during a flash flood in the mountain forests! The trip was, initially, to the Yukon, but when Roy met me at the airport he thought it would be wiser to head south...he had just been banned from driving. He then said, 'You'll have to drive', and lobbed the car keys in my direction. 'But Roy, I've **never** driven a car in

my life!' I shrilled. 'It's a piece of cake: switch on here; this is the gas and here's the brake.' It was an automatic, so with no previous experience and not even a provisional license I drove us for 6,000 miles around the western U.S.A. I chickened out only once -down a series of hairpin bends in Mesa, Colorado- and for a few minutes Roy took the wheel. When I got back to England I bought a car and had driving lessons, but I can still only drive an automatic. For years though, I thought that the accepted way of parking one's vehicle in town was to shunt others' cars with the aid of one's bumpers until there was room to park! Another manoeuvre from 'The LeRoy Davidson School of Driving'.

I have very fond memories of that trip: the scenery, the plants and animals, most of all Roy's humour and wealth of knowledge. He was passionate about the environment and nature and as generous with his experience as he was with plants. I still grow some of the plants from that study trip as well as others Roy gave us over the years. He had a good eye for the unusual...

I recently reviewed his superb book on *Lewisia* for the R.H.S. magazine, *The Garden*. The day I sent the review off I heard of Roy's death...I only wish I had told him how much I enjoyed the book; writing of that quality is rarely encountered in horticulture today." (Tony Hall)

NOTICE

**Due to the lateness of this issue,
the deadline for additional
nominations to the slate of officers
has been extended to June 30, 2001
for this time only. All other rules
and restrictions of the By-Laws
remain unchanged.**

...considering the Grex Expedient

by LeRoy Davidson (delivered at the St. Louis Symposium 1995)

(Edited by G. Ware)

grex: a flock or population, a gathering. Among animals there are very many such special gatherings:- armies of ants, murders of crows, charms of finches, schools of fishes, prides of lions, coveys of quail, bales or herds of turtles, etc. The *grex* principle is useful in plant taxonomy too, though not quite so colorful. It also has the official approval of the agency responsible for orderliness in nomenclature, natural groups occurring within a given species or whatever.

The International Botanical Conference Report (Stockholm, 1950) define the *grex* as being, " a group of hybrids originating from the same parents or series of parents, but whose individuals vary in appearance." This category then is on the level equivalent with species. The *grex* (its plural is *greges*) helps keep tabs on the accumulations of hybrid orchids, rhododendrons, etc., with each individual with its own clonal designation left intact, all held together in a file drawer or fascicle or *grex*.

We might go so far as to consider *Iris germanica* in the light of a *grex*. Think about it.

Some of the more polymorphic *Oncocyclus* species of *Iris* might be better understood as being *greges* with several form (or even clones such as *Iris susiana*) sometimes going as distinct species in taxonomic literature, which of course includes the publication of the *Iris* registry. The *grex* finds its greatest utilization as the means of recording horticultural hybrids of such popular garden plants as rhododendrons, saxifrages and the warm house orchids. As an example, all rhododendron hybrids raised from the mating of *R. fortunei* and *R. griffithianum* are conveners with the *grex* known as *Rhododendron x Loderi*.

The enthusiasm of Victorian times for orchid hybrids broke all the records and some of the rules to the extent that it became necessary to consult several reference works in order to decipher nomenclature whereby generic appellations were cobbled together from portions of as many as four pre-existing generic names! We've done something similar with concoctions for such *Iris* hybrids as 'Paltec', 'Longsib' and the like. To date at least, no guidebook is necessary to their understanding. Recent proposals aimed at revising the disorderliness within some *Iris* nomenclature (AIS Bulletin 293: 73-82) is essentially the utilization of the *grex* experiment as a means of expressing relationships; an attempt to move a step further toward the ideal, although the author did not state it that way.

The *Porophyllum* Saxifrages, familiar to gardeners as *Kabschasias*, have recently been restudied and then revised the classification based on the *grex* experiment. It has relieved their taxonomic muddle to everyone's pleasure. What is to prevent calling a small and particularly confusing race or *grex* of *Iris* hybrids such as *Iris x Holdencloughii* if we wish?

Such a designation serves to define a group in the ideal way, using the recognizable name already in the *Iris* registry. This would act as an assurance that these hybrids do not become in time remembered merely as selected form of *Iris pseudacorus*. Although three of the four advanced generation hybrids registered to this time do appear phenotypically to be that, genotypically they simply are not. Just how 'Holden Clough' came about is not known, nor do its seedlings offer much enlightenment. It is quite acceptable to contrive such a name for the sake of clarity and precision: *Iris x Holdencloughii* 'Phil Edinger' for example. True identity, the chief aim of registration, after all, must be preserved.

New Zealand Iris Symposium 2000,

a Personal Report by Carla Lankow

Last November my husband and I made our second trip to New Zealand. Having visited this beautiful island country in 1998 it took very little incentive to convince us to return. This trip was to attend the Iris Symposium 2000 organized by the New Zealand Iris Society as part of their 50th anniversary celebration.

The Symposium was held in Tauranga on the North Island but our accommodations were in the small beach community of Mt. Manganui. Our first evening set the tone for the entire symposium. We all met together for the first time at a social hour in a restaurant situated right on the beach across the street from the hotel. Early in the evening those of us with no foreign language skills beyond a little high school Latin felt a bit disadvantaged. Soon our European and Asian counterparts came to our rescue. Using what English they possessed with the addition of much gesturing and a bit of sign language we soon broke down the language barrier out of our mutual need to communicate about our common interest in irises.

The next two and one half days were filled with presentations of papers. Of the seventeen who presented papers, nine were SIGNA members! The speakers brought to us an eclectic collection of papers from very technical presentations on Systematics and Taxonomy to papers on non-iris irids such as *Watsonias* and *Libertias*; to papers filled with information on how to

use iris in the garden. There was something for every attendee at all levels of expertise. Some of the presentations that impressed me were Tony Hall's paper on *Junos* at Kew. The slides of these beautiful flowers were exquisite. Jean Witt covered the Pacific Coast Native Iris from species to modern cultivars. Because of a personal interest in wide crosses, Dr. Tomas Tamberg's paper on Interseries and Siberian Iris was probably my favorite.

After the presentation of papers we had a day and a half of touring iris gardens in the Bay of Plenty area. A visit to a Kiwi research center was a highlight. The last evening of the Symposium we all attended the NZIS Jubilee Dinner at the Tauranga Yacht Club.

The NZIS had arranged post-Symposium tours of both the North and South Islands; we had no time to even catch our breath as two busloads of us left to spend five days touring gardens and scenic and cultural sites on the North Island. We visited Rotorua to see the thermal areas and visit a traditional Maori village. We saw a wide variety of hybrids and species of the tender crested iris. I am in love with 'Fairylend' and 'Nobody's Child'. Jean Witt's 'Chengdu' was in many gardens all over New Zealand. *I. gracilipes*, *I. pseudocyperus* and *I. graminea* were also seen frequently.

A scenic drive along the eastern side of Mt. Egmont (Mt. Taranaki to the Maori) reminded us of photos of Mt.

Fuji in Japan covered in fresh glistening snow. When we arrived at O ' Tara Birch Gardens, owner Eddie Johns greeted us with orchids and a glass of wine, we felt like royalty. The eight-acre garden specializes in *Hostas*, Daylilies, Japanese, Siberian and Species Irises. A great river of blue purple turned out to be a hundred-foot long swath of the Siberian iris, 'Caesar's Brother'.

For me one of the highlights of the North Island tour was a chance to meet Frances Love. We had seen her fine Siberian, 'Emma Ripeka', in several gardens. Named for her grand daughter, this iris won the first New Zealand Dykes Medal. In her garden we saw many species including several of her seedlings and selections. A large, deep yellow diploid hybrid of *I. pseudacorus* and *I. ensata* was superior, I felt, to any cross like this that I've seen to date, and it was a strong plant.

At Wellington, many of the tour members headed home but about one bus full of hardy souls had signed up for the nine-day tour of the South Island.

Our South Island tour began with a two and a half-hour Ferry trip from Wellington across the Cook Strait into the Marlborough Sounds and the port of Picton. There were many iris represented in the gardens of the South Island as well as Roses, Lavenders, bulbs and perennials of all types. Between the garden visits, we saw many other attractions from the golden beaches of Abel Tasman National Park and beautiful turquoise blue lakes in the New Zealand Southern Alps to Bungee jumping sites. The highlight of the whole tour for me was a trip to Milford Sound. We traveled by bus from Queenstown up into the Alps through some of the most magnificent scenery I have seen! Then we wound down from

the mountains and then hit through the 1 kilometer long Homer Tunnel and on down to Milford Sound. From there we took the two-hour trip by boat to the mouth of the sound, into the Tasman Sea along the Fjordland coast and back. When back on the bus, we saw the morning's trip over the Alps in reverse. Once out of the mountains, we realized how tired we were and most of us slept for the remainder of the excursion back to Queenstown. On the last day, the Harris family, two sisters and a brother (all active in the NZIS), entertained us.

In the morning we visited Owenda Harris. Her garden and nursery are filled with all sorts of "goodies" including many irises. I could hardly be torn away from it. Later that day we visited the gardens and nursery of Barbara and Brian Harris. Brian is a grower of predominately bearded iris and imports many new introductions from the United States and from Australia. That evening we visited the third Harris sibling, Judith Neilson whom had just finished her term as president of the NZIS. Judith and her husband Murray had arranged for a demonstration of sheep shearing after which we toured Judith's garden. Later we gathered for our farewell dinner somewhat saddened to say our good-byes to our new found friends from New Zealand and all over the world.

I'd strongly encourage all SIGNA members to consider attending such a symposium as this one in New Zealand or the one in St. Louis in 1995. Please don't feel intimidated by an impressive line up of speakers. There is something for everyone at all levels of knowledge at such a gathering.

Finally, I also want to thank **Peter Berry** and his organizing team of the **New Zealand Iris Society** for putting on such a **wonderful** Symposium!

WHAT MENDEL NEVER KNEW

by Sam Norris

It has now been some 135 years since Gregor Mendel made his contribution to genetics with the test he ran using the garden peas, *Pisum sativum*. It is unlikely that he had the faintest idea as to the impact these tests would have on future generation of gardeners. The result of his test are so ingrained in recent generations of hybridizers that any deviation from the expected results are cause for doubt as to their authenticity.

Prior to the time Mendel ran these test(s), he must have seen strong indications of the variations he eventually reported. It is very unlikely that he would have decided on these tests, using the garden peas, if he hadn't had some indication of what to expect. However, that would have precluded the scientific method and one cannot imagine Mendel being too worried about the outcome.

The test he ran have probably been repeated numerous times in the last 135 years and some of the reports concerning this test expresses doubts as to the accuracy of Mendel's initial report. It is not so much a doubt of what was reported, but rather a doubt that some of the results observed may have not been in the report. It could have been that some of the observed results were so at odds with the main body of his observations that he was more or less certain that some mistakes had been made. This would be well in line with the way some of our present day hybridizers feel.

In 1975 a book was published by Verne Grant entitled, "Genetics of Flowering Plants". In it are given several examples of non-Mendelian genetics in the garden pea. To give Mendel the benefit of the doubt, these examples might have been for characters that he was not tracking. And, equally possible, could be the fact that the strains or varieties Mendel was working with were not the same as those that Grant and others were experimenting with.

In all earlier book by Grant, "Plant Speciation", published in 1971, he provides numerous examples of plant species where the results of different crosses, but particularly **wide crosses**, did not resemble those reported by Mendel. Most of us are familiar with *linkage* between different characters where they are inherited together, but something that is not so well known is the phenomenon whereby entire blocks of characters are linked and inherited *as a whole unit*. To carry it a step further, an entire set of chromosomes can be transmitted as a block. Many times these odd combinations are complicated by *lethals* where certain combinations of genes or chromosomes are not viable. A prime example of this is *Oenothera lamarckiana*. This is known as the Renner Complex.

If you take the time to obtain Grant's book, "Plant Speciation" you will find all kinds of examples of inheritance that are not in line with those described by Mendel.

Here is a short list of genetic *inheritance phenomena* that you might want to investigate. **androgenesis, apomixis, block inheritance, coupling, diplospory gynogenesis, lethals, parthenogenesis, poikilodynamic hybrids, repulsion** and, the aforementioned, **Renner complex**. A search through various literature will find a number of other terms not listed here that deal with the factors of inheritance which were not described by Mendel. While Mendelian inheritance will cover the largest part, it doesn't cover quite all. It is these ones that are the ones that can be really confusing and, at times, the most interesting as well.

Let's go to one example from my own breeding. A red hibiscus was crossed with a very pale yellow. Only one plant from the cross lived and it had a small white bloom. The bloom was selfed, and seed from the pod were potted up. Twenty-two out of the 107 seeds germinated. All 22 had the pale yellow blooms like the paternal grandparent. This must have represented block inheritance combined with lethals. It is a good thing that Mendel didn't run into something like this with his garden peas or he may never have gotten up enough nerve to write his now famous report.

The question arises, 'How many failed crosses does it take before such a cross is deemed impossible?' One response to this question arises in the hybridizing work of Christy Hensler. She has made a wide cross of *I. ensata* and the Siberian iris. Many knowledgeable hybridizers have tried this cross before without producing any seed, therefore we have deemed it to be *impossible*. Fortunately, Christy Hensler was not dissuaded by such false conclusions. The answer to this is, no matter how many failures there are, all that can be speculated on is that a particular cross is *improbable*. It is only impossible to prove a negative!

To demonstrate how puny our crosses or the Iris are, here is a report from Plant Breeding Symposium II sponsored by Iowa State University. It gives the following:

Since 1975, over 32,000 maize and *Tripsacum* crosses have been made, and 36 hybrids have been obtained. And another statistic from the report: Since 1975 about 30,000 pollinations have been made between maize and sorghum. From these, 25 intergeneric hybrids were obtained

It is very unlikely that the two examples given were hand pollinated but just think how many wide cross hybrids could be produced in the iris family with only one tenth as many crosses. Instead of saying that a cross is *impossible*, it would be more scientific and rigorous to repeat the cross *ad infinitum* until seed was produced. Seed could well be produced on the first cross or, quite possibly, not until one had done ten thousand! The point here is that many of the so-called *impossible crosses* will produce seed if repeated often enough. It seems rather foolish therefore to say that a cross is *impossible* when only a limited number of attempts have been made.

NEARLY PERFECT CROSSES

Due to an expanding interest in interspecific and interseries crosses in my small space, and the need to keep accurate records on seed set, I found that I needed a way to insure that any resulting pod would be from the cross I'd intended. Although nothing is ever completely perfect, I've found this method of removing the excess parts of a bloom is as close to perfect as I've been able to come up with. If anyone has ideas on how to further improve the technique, my address follows.

When dealing with any wide cross, I've found that most hybridizers are wary of trusting the seedlings they've produced until the plants are of flowering age. They are then tested and analyzed thoroughly or simply look clearly intermediate to both of the parents. Granted, it's a nice approach if you have the space and are willing to settle for only those F1 hybrids that look like a blend of both parents. My personal belief, however, is that Mom Nature isn't as much into instant gratification of our parameters as she is leaning towards new species with characteristics that give them an edge toward survival. Knowing that the odds are in your favor that you have a hybrid before the seeds have even been planted is critical if you don't care to waste time and garden space.

Anyone who has done any hybridizing at all is familiar with the usual instructions to break off falls, standards, and anthers as soon as a bud begins to loosen. Most who've paid attention have noticed that the pollen at this point is already beginning to fluff up and loosens quite easily from the anthers. If you've let the bud open enough, you may even have noticed a few thrips or, on some species, ants have already managed to wiggle into the unopened bud.

This method of stripping the petals from the pod parent differs considerably from the

usual approach in that falls, standards, and anthers are removed as an entire package as soon as the bud is mature but well before any of the petals have begun to loosen. Depending on the species, this can be anywhere from 2 to 4 days before the bud begins to noticeably "plump" (See figure 1). At this stage, the pollen is still held tightly to the anthers so there's almost no risk of accidentally selfing a bloom. This is very important. In addition, the structure of the unopened bud is such that when the petals are stripped, the back of the anthers slips easily past the stigmatic lips.

Let me describe at this stage what else I do for my nearly perfect method of making crosses. I make three tiny snips centered at the very base of the falls and disconnect the petals. As I make the cut I draw outward ever so lightly on the base of the petals. As each unit is cut, it also loosens their hold on the style arms (See figure 2). Now I can grasp the bud by the tip and by giving it a firm tug upward, I can remove the still tightly wrapped petals and stamens. This allows the style arms to easily unfold (See figure 3). Done correctly, only the style arms remain and no damage at all is done to the perianth tube. This is of prime importance because when these buds are opened early, the style arms are usually held more upright than most people will be familiar with. As these age, they'll assume the more normal arch everyone is familiar with.

With a bit of practice, buds can be stripped, pollinated, and tagged in a matter of seconds. The petals are arranged around and slightly distant from the perianth tube. Each species differs in size of petals so I begin each season by getting "a feel" for just how deeply to cut in order to sever the petals without damaging the delicate perianth tube that supports the sought after style arms.

Pollination can be a bit trickier done at this stage since the stigmatic lip is held tightly against the style crests. Pollination is accomplished easily enough though by simply grasping the tips of the style crests and gently rolling them back over a finger to gain access to the stigmatic lip.

Some hybridizers suggest that opening a bloom this early lessens the chance of pollination. And, while I can't argue this notion, I seem to have had good results more often than should be expected. When time allows, I immediately pollinate a freshly stripped bloom, tag it, then apply pollen from the same parent again a day or so later. Stripped of unnecessary petals, the plant can, I believe, put more of its energy into the process of reproduction.

Over the years, to be doubly certain that blooms wouldn't be repollinated by anything else, I've experimented with covering the newly fertilized style arms with everything from nylon to tin foil. I have come to the conclusion that this actually does more harm than good because I don't predispose the style arms to physical damage. I have found that these coverings add weight or bulk and that wind or jarring can easily snap off these delicate reproductive pieces. Controls (stripped but unfertilized buds) are done every year and in six years none have set any seed even without using a covering! It seems highly unlikely that any of the pods harvested from a cross using this method

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will have been caused by insects or wind.... Especially when seeds are evident in all three chambers.

I harvest pollen for use in my crosses in the same manner. (If the number of cultivars I'm working with at the moment is limited and are easy to identify, the unopened bud makes a nice little carrying case that can be popped into a shirt pocket till I'm ready to head indoors again.) Once inside, I carefully remove the anthers from the bud and allow the pollen to mature out of direct sunlight for a couple of days in an area that will get good air circulation. This slow drying out is important.

To keep things organized and cut down on space while waiting for the pollen to ripen, I prefer to use black plastic film canisters (with the lid off at this stage) and the name of the pollen parent on the exterior of the container. Over time I've found these have additional benefits. Ripe pollen can easily be seen against the black plastic and due to a tiny amount of static electricity, easily collected with a small soft brush. (My brushes are dedicated to only one pollen parent at a time and are washed in hot soapy water at the end of the day.) Any excess pollen, especially from plants whose bloom time would normally follow something I'd like to cross it with, can quickly be frozen for use the following year.

Stripping a Bud

Step by Step

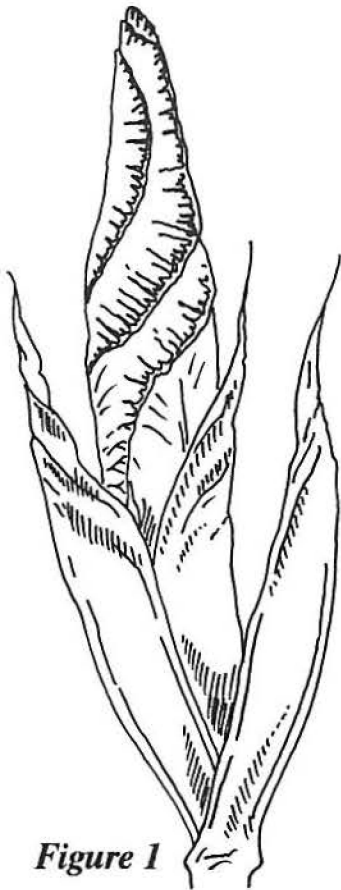


Figure 1

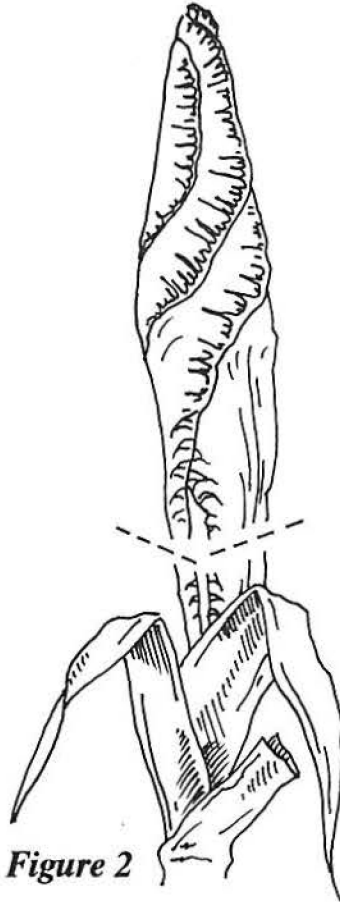


Figure 2

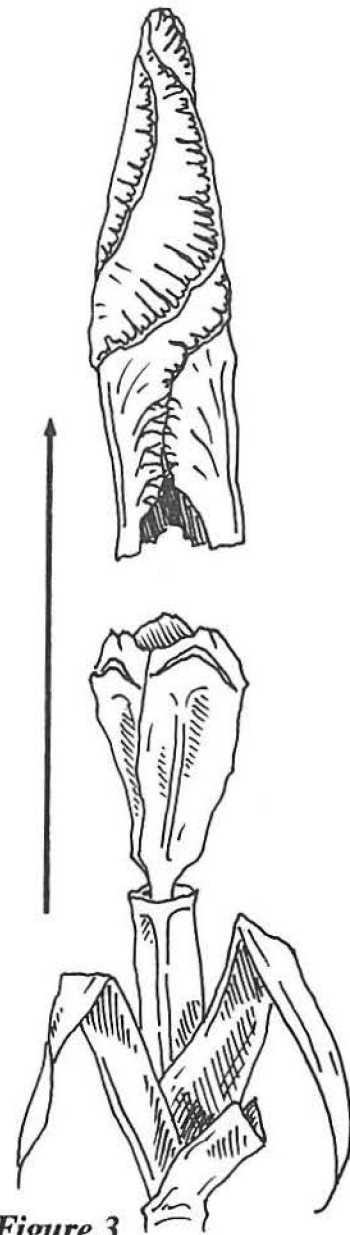


Figure 3

(1) Quite often a bud will be mature enough to use before it clears the bud sheath.

(2) To facilitate removing the petals, clear the bud sheaths out of the way either by bending them or trimming them off completely. Cut just far enough into the base of each of the groups of petals, centering on the very lowest part of the falls, to disconnect falls, standards, and stamens without damaging the perianth tube. Slightly drawing the base of the petals outward as each unit is cut, loosens their hold on the stylearms.

(3) Grasping the bud by the tip and giving a firm tug upward removes the still tightly wrapped petals and stamens and allows the stylearms to unfold.

Iris cristata and *Iris lacustris*, a study in isozyme diversity

by Gary Hannan & Michael Orick, American Journal of Botany:2000; 87

Reviewed by Graham Ware with permission and cooperation

North American species *Iris* are always full of surprises and cruising the Web one night, I came across an article in the American Journal of Botany entitled, "Isozyme Diversity in *Iris Cristata* and the threatened glacial endemic *I. Lacustris* (Iridaceae)" by Drs. Gary Hannan and Michael Orick. These gentlemen hail from the Department of Biology at Eastern Michigan University and Schoolcraft College in Michigan respectively.

Drawing upon research that strongly suggests that factors such as bottlenecks, range expansion from refugia, reproductive biology and population size have the potential to influence levels and patterns of genetic diversity, they did a number of tests to verify the composition of the two species through an isozyme analysis.

Isozymes (or isoenzymes) are chemical components that have what is known as kinetic characteristics. The method employed to understand the molecular and chemical composition is *electrophoresis*. This method separates molecules or colloidal particles by an electric charge and sets up further analysis through chromatography. This stage in turn allows for the researchers to look at their isozyme bands that allows for deeper interpretations of genetic makeup.

When all of this complicated methodology was completed they began to understand some very important differences between the two species.

Iris cristata they concluded was "highly variable by all measures of genetic diversity, both at the population and species level." (p. 293) *Iris lacustris*, however, "exhibited no polymorphic loci, according to our interpretation of banding patterns." In other words, *I. lacustris* does not exhibit "forms".

The authors in this article then focus on the reasons that there was such a difference in the banding patterns and the geological and evolutionary processes responsible for the lack of "polymorphic loci" (centers of different forms of genetic expression).

With *Iris cristata* they found a species that was widespread; had many outcrossing species; were long-lived and perennial in nature; and, employed both sexual and asexual methods of reproduction. *I. cristata's* wide geographic range (central Ohio to Oklahoma and Georgia) in a variety of forest types coupled with sophisticated pollination systems (*entomophilous*), lead the authors to conclude that it had a high level of genetic variation. This was also true within small populations.

Conversely, *Iris lacustris* occupies a very narrow ecological niche- that of the shorelines of Lake Huron and Lake Michigan. It grows primarily on calcareous substrates and most often near the margins of northern white cedar (*Thuja occidentalis*). All populations of *I. lacustris* that were examined through electrophoresis by the authors showed that they were genetically uniform. *I. cristata* is the

only other crested Iris in eastern N America. The electrophoresis studies of *Iris lacustris* showed that it had, "identical electrophoretic mobilities to those of *Iris cristata* (which) leads us to accept our hypothesis of a geologically recent origin of *I. lacustris* from a single, genetically depauperate *I. cristata* gene pool." The authors believe that this event has taken place most likely within the last 11,000 years that coincides with the last Ice Age.

Thanks to these authors and their research, we now know that *I. lacustris* is simply an offshoot of *I. cristata*. They both have a chromosome count of 32. In terms of genetics, *I. lacustris* adheres to the *founder principle* i.e. the proposition that a small pioneer community that is establishing itself in genetic isolation from the main population will only possess a small and possibly nonrandom selection of genes from the parental gene pool. (*Penguin Dictionary of Botany*)

It seems, according to Hannan and Orick that, "*I. lacustris* is of recent origin from a very limited *I. cristata* gene pool exacerbated by repeat bottlenecks and founder effects as *I. lacustris* populations were displaced by lake-level changes over the past 11,000 years." The lake-level changes isolated a population of *I. cristata* and the result was *I lacustris*.

(Full text available at NANI web. See Editor's Corner for full address.)

Errata ex #65

Please note the *authorship* on the following:

p. 3331-3333 'Rare Iris of Russia'-
Editing by *J. Waddick* (initial) &
G. Ware (final)

p. 3342 'Profile of Harald Mathes'
G. Ware

p. 3351 'Hail to Hager'- Reprint
AIS Oct.'99

p. 3352 'Lorena Reid'- *G. Ware*

1999 Reg.'s & Intros- *B. Pries*

SIGNA Welcomes New Director

SIGNA is pleased to announce that Dennis J. Kramb of Liberty Township in Ohio has accepted a position as Director at Large. His term lasts until 2003. Dennis replaces John Taylor who has resigned for personal reasons. Thanks John for your service and welcome aboard Dennis.

APPALACHIAN WOODLAND IRISES

by Don L Jacobs, Ph. D. (delivered at the St. Louis Symposium, 1995)

(Edited by G. Ware)

The rich arid varied flora of our Eastern Mountains includes only two native *woodland* Iris species. They are quite ubiquitous and varied and adapt admirably to woodland and rock gardens. The only other native *Iris* are *wetland* species that occur in sunny coastal plain or upland, bog sites. To realize the potential of these plants in gardens fully, we need to examine their natural habitats.

Unlike the youthful Western American Mountains with high, rugged peaks, and dramatic vegetation zones, our ancient Appalachians are worn down with few domes over 6,000 feet high. They have experienced little catastrophe in the last 100 million years, or at least in the last 65 million years since the events that terminated the Cretaceous Period. Even glaciations of the last one hundred thousand (100,000) years have affected them minimally. There are no treeless summits or alpine meadows. There are spruce~fir summits on the tallest mountains, but all slopes are characteristically smothered in rich deciduous forest, bathed with adequate rainfall most of the year. In some rich coves, the long list of oaks, hickories, beech, basswood, buckeyes and maples is augmented with groves of hemlocks or white pines as token conifers and the broad~leaved evergreen

rhododendrons and laurel may form an impenetrable understory

Even though the rainfall is adequate for the forest trees, they draw out the surface moisture so efficiently that the herbaceous plants on the forest floor must cope with drought conditions during the summer months. The forest floor receives generous sunlight from November until April, but low, variable light intensifies in summer. Forest soils are always acid, and the rain, which is also acid, leaches the soil of nutrients, especially calcium and magnesium, from the root zone. Such are the conditions that forest perennials must cope with, and in this context *Iris cristata* and *Iris venra* do so very well.

Iris cristata

Few *Iris* species are better adapted to shady deciduous forests than our native *Iris cristata*. This highly variable little plant rambles happily through woodland litter, from which it extracts nutrients with its lacy surface roots, while anchoring itself tenaciously with deeper reaching wiry roots. Their new leaves and flowers expand in early spring before the trees leaf out, so the forest floor is then well lit. Octopus-like rhizomes spread rapidly from the thick overwintering rhizomes, constantly

invading fertile new territory. Efficient, thin, but broad, leaves send sugars to the new rhizomes as long as adequate moisture is available. Even when the trees are in full leaf, and surface soils in the forest are pumped dry by the shallow tree roots, *Iris cristata* can utilize moisture from dew and light showers that never descend beneath the litter. But when late Summer drought prevails, they shed their leaves and rest until spring. The size of over wintering rhizomes is dependent on nutritional factors, such as length of moist period, denseness or degree of competition in the colony, availability of nutrients and amount of light available, as well as on genetic determiners. Even rhizomes less than 1/4 inch wide can produce flowers, but some get to nearly 3/4 " wide.

The specific name of this iris was derived from the two or three raised ruffled, parallel ridges or "crests" on the basal portion of the sepals. This area may be white but usually contains a golden blotch. These may be very prominent or nearly absent. The petals and outer portion of the sepals are usually some shade of purple, from pastels to deep colors, but may also be pure white. Some plants have smaller (1 1/2") flowers, and smaller, stubbier rhizomes resulting in more compact colonies. I have found much natural variation among the *cristata* and 'Eco Little Bluebird' is one such named cultivar with the aforementioned compactness. Larger cultivars may have leaves over 1 inch wide and flowers to 2 1/4 inches broad. 'Eco Royal Ruffles' and 'Eco Purple Pomp' are two such varieties. The

former has unusually prominent white ruffles; the latter has the deepest purple flowers with ruffles in the orange zone. The largest clones such as 'Eco Orchid Giant' may have 3 inch wide flowers. All of the above named cultivars were registered in 1993. *Iris cristata* occur in woodlands from Virginia arid Georgia to Missouri and eastern Oklahoma.

Iris lacustris

On the shady margins of bogs and woodlands near the Great Lakes may be found a diminutive crested Iris- *Iris lacustris*. It is not only smaller in all parts than *Iris cristata*, but also produces unique overwintering rhizomes resembling the slender, flat scaly toes of a Horned Lizard, except they are bright green. The one inch flowers are usually blue with gold and white patches on the sepals. A rare white form also exhibits gold patches. *Iris lacustris* is an attractive addition to shady rock gardens or small shade gardens.

Iris verna

A Southeastern native that is often compared to *Iris cristata* is the near evergreen Violet Iris, *Iris verna*. Other than size and open woodland habitat, it is very different from the Crested Iris. It has no beard or crest, is pleasantly fragrant and retains some tough, slender, fibrous, dark ribbon-like foliage year round. Its scaly, slender, cylindrical rhizomes, with fibrous, though shallow, roots run through the soil, not over it as in

Iris cristata. Foliage, flowers and most roots arise from terminal thickenings of the rhizomes. Leaves always project backward from the advancing tips, which is quite deceiving if you try to dig the plants. Branches arise from these thickenings, which may be separated by as much as 4 inches of 1/8 inch thick scaly rhizomes. In the subspecies *smalliana*, the slender rhizomes are quite uniformly 1/4 inch thick and produce denser colonies with branches only an inch or so apart. Its leaves are broader (to 1/2 inch), flowers slightly larger and seed capsules nearly 1 inch rather than under 3/4 inch long. This is a more upland plant from Pennsylvania and West Virginia on down to Alabama and Northern Florida, whereas the more slender subspecies *L. verna* var. *verna* occurs in the Coastal Plain and lower Piedmont from Maryland to Georgia. Flowers are usually deep violet with bright orange blotches on the sepals, but paler, blue and white forms may be encountered, all with orange spots of varying shades. One or two 2 1/2 inch flowers seem to rise directly from the leaf clusters.

Cultivation is simple in sandy, acid humus of deciduous woodlands. Flowering can be enhanced with an occasional top dressing of balanced fertilizer and dolomitic limestone where rainfall exceeds 40 inches annually. I utilize a dolomite top dressing primarily on new plantings. Established plants are able to extract adequate calcium, magnesium and other nutrients by recycling from

decomposing forest litter, even though acid tends to leach them.

Working primarily with *Iris verna* var. *smalliana* because of its more compact habit, I have selected the following cultivars which were registered in 1993 : 'Eco Blue Boy'-violet-blue (RHS 98C) with yellow-orange (23B) signal fading to ivory outward; 'Eco Violet' - violet (RHS 94B) with dark violet crescent around orange signal; and, 'Eco Snow Bunting'- white with yellow-orange signal. 'Eco Crown Jewel'- dark violet with snow-white signal will be registered in 1995. All of these selections have sweet fragrances.

Conclusion

Additional selections from the wild are likely to be made, but adequate germplasm of both species is now in cultivation to allow for a planned breeding program to enrich our gardens. In addition, interesting mutations continue to occur. A mutation in *Iris cristata* that induces all six perianth parts with orange signals is under observation but not yet distributed. The full potential of Appalachian woodland iris is yet to be fully discovered by gardeners.*

Don Jacobs gardens in the foothills of Georgia and is forever botanizing and sport-fishing throughout the southeast. He is the sole proprietor of *Eco Gardens*.

OUT OF THE SWAMPS

A SHORT HISTORY OF THE LOUISIANA IRIS

By Tom Dillard, Little Rock, Arkansas

(Delivered at the NZ Iris Symposium 2000)

Many people in past years fell victim to the beauty and garden worthiness of the iris. Those of us with ancestors in the temperate zone of Europe, most of North America, and the drier regions of Africa and Asia--and, of course, Australia and New Zealand--those ancestors grew bearded irises. Generation after generation, families grew irises that originated on the sunny perimeter of the Mediterranean or the mostly dry Middle East. These "flags" grew under a variety of names, some esoteric (such as *Iris foetidissima*), some so romantic that even Shakespeare would gush (such as *I. florentina*, the source of the fabled Orris root, used in cosmetics to this day), and some names are mysterious--at least until their history becomes known. The so called "cemetery iris" is a good example. Botanically known as *I. x albicans*, the cemetery iris is a lovely white iris that adorns burial grounds throughout those portions of the world conquered by Muslim forces. The ghostly flowers flutter in the breeze, serving as a beautiful reminder of those who have gone before us.

In more recent years, gardeners have discovered the remainder of the iris universe, especially those that we call beardless irises, and in particular the Louisiana irises from North America. Beardless (or Apogon) irises usually offer the tremendous benefit of being strong of constitution, resilient and, most notably, free of the scourge of rot! Plus, these beardless irises, the Louisiana irises in particular, are beautiful to behold, with a natural grace and charm that that has to a large degree disappeared from the modern bearded irises.

The name "Louisiana Iris" originated with the famed naturalist and artist John James Audubon. In the 1820s, while living in Louisiana, Audubon painted a pair of Parula Warblers. And, as

Audubon was prone to do, he included some local flora in the background--in this case a tall and radiant specimen of *I. fulva*. In his notes, Audubon referred to the flower as a "Louisiana Flag," and, in so doing, he coined the name by which we still know this iris and its relatives.

We speak of the Louisiana iris, but actually this name applies to a grouping of related species called a Series in botanical parlance. The iris genus (let's think of it as a "family" for simplification purposes) is a huge one, comprising some 200+ species. These species range from tiny little *I. danfordii*, a bulbous iris native to Turkey that blooms in very early spring on stems no taller than three or four inches, to *I. pseudacorus*, a robust giant of six feet that has become a noxious weed in much of the world. To bring order if not reason to this disparate family, botanists and taxonomists, have grouped the irises into various divisions. We've already mentioned the great divide known as bearded vs. beardless, but it is further subdivided into fifteen Series.

The Hexagonae Series

Species: *Iris hexagona*

The five species that comprise the Louisiana irises are given their own series name, the Hexagonae. The series takes its name from the first of the species to be named in a journal of botanical recognition. *I. hexagona* was recorded in 1788 by one Thomas Walter, a Hampshireman who published just before his untimely death at age forty-nine, a text entitled Flora Caroliniana. This iris was reported from coastal Georgia and South Carolina, but it probably extended into the Gulf of Mexico, perhaps as far west as the

Gulf of Mexico, perhaps as far west as the swamps around the mouth of the Mississippi near modern New Orleans. It is an attractive iris usually described as "blue" but actually it also has a goodly amount of lilac tones in the flowers that are up to four inches wide. Stalks, usually no taller than 36 inches and often shorter, are usually straight but sometimes slightly zig-zag.

Species: *Iris fulva*

An exciting addition to the iris world came in 1812 when J. B. Ker-Gawler, a British botanist and the subject of a scandalous adultery trial, published a description of *I. fulva*. This iris, in addition to being painted by Audubon, is famous for the rusty-brown color it brought to the series. Often referred to as the "copper iris", *I. fulva* has to be seen in flower to properly appreciate its dusky red coloring. In the tall bearded iris world, a dark brown with slightly reddish undertones is generously referred to as "red." The red of *I. fulva* is, when at its best, exactly the opposite: a dark red underlaid with a hint of brown. On top of that, the better selected forms of *I. fulva* have a sheen about them, giving the flowers the texture of deep velour. Stalks are normally about two-to-three feet tall, usually straight but sometimes with a zig-zag form. Through the years iris fanciers have collected specimens of unusual colors, including a fine yellow. *Iris fulva* has a large distribution range, being found in middle and lower ranges of the Mississippi River Valley, including Illinois and Ohio where the winters regularly see low temperatures below zero degrees F.

Species: *Iris brevicaulis*

The least imposing garden subject among the Hexagonae is the species *I. brevicaulis*. Described in 1817 by Constantine S. Rafinesque, *I. brevicaulis* is a veritable dwarf- with 10"-14" bloom stalks. The stalks, which often have a pronounced zig-zag pattern, are often held in contempt for their tendency to lie prostrate upon the ground. Regardless of any shortcomings, *I. brevicaulis* offers a pretty flower, usually blue but sometimes white, and it is known for its winter hardiness. Like *I. fulva*, *I. brevicaulis* is native to a large expanse from the Gulf of Mexico to the

snowy reaches of Indiana. This species has been used to produce Louisiana irises that are more winter hardy.

Species: *Iris giganteaerulea*

As the name implies, this species is the giant of the series. *I. giganteaerulea*, despite its imposing size, was not described until 1929 when Dr. John K. Small of the New York Botanical Garden authored several species he had discovered. None of the other irises held up to more intense botanical and taxonomic examination, but *I. giganteaerulea* did not wither and still shines brightly in the Hexagonae firmament.

Sometimes reaching six feet in height, *I. giganteaerulea* is a truly imposing iris. Imagine coming upon a clearing deep within a cypress swamp, and suddenly shafts of sunlight illuminate vast drifts of this dazzling blue species with its rigid stalks hoisting large six inch flowers of the most wonderful blue, lilac, lavender, and on to pure white. It is breathtaking. Signals are often large and brightly colored, providing a nice contrast. This iris is found in a narrow band along the Gulf coast of south Louisiana and east Texas. This limited range gives a hint of the cold tender nature of this beautiful iris.

Species: *Iris nelsonii*

The fact that this wondrous species was ever identified is quite a miracle. Discovered in the late 1930s by W. B. MacMillan and given the name *I. nelsonii* in 1966 by Professor L. F. Randolph, this iris was found in a limited range near Abbeville, Vermilion Parish, Louisiana. For years it has been the subject of considerable taxonomic debate, but the consensus seems to be that it is a hybrid between *I. fulva*, *I. giganteaerulea*, and *I. brevicaulis*. A hybrid, yes, but a natural, stabilized hybrid and thus worthy of species status.

The "Abbeville Reds," as the finer specimens of this species were called, brought great excitement to the iris world--and new genes into the breeding of hybrid Louisiana irises. Like *I. fulva*, *I. nelsonii* is reliably winter hardy through much of the United States.

Small & The Age of Collecting

No one knows who first collected the species and their hybrids collectively known as the Louisiana irises. We can well imagine American Indians delighting in the beauty of these irises, and perhaps growing them along the meandering banks of rivers where villages were often situated. Without a doubt the early French explorers, hunters, and trappers noticed the irises of the waterways. It is truly ironic that the Louisiana irises we know today are so identified with the French-speaking Acadian (Ed: corrupted to Cajun by the people of the time after they went to friendlier confines than Cape Bréton, Nova Scotia, Canada where the United Empire Loyalists fled to [from New England] after the American Revolution) culture of coastal Louisiana, for these were the sons of a country where the fleur-de-lis (Ed: Flower of *I. pseudocorus*) is inextricably linked to the national culture (since the 6th. C) as well as the provincial flag of Quebec.

Although a review of the literature turns up nothing on specific irises collected by the "Cajuns", there is some evidence of Louisiana irises being collected from the wild and planted in gardens before the Civil War. By the time W. R. Dykes published his great treatise, *The Genus Iris* in 1913, he had already registered two hybrids of *I. fulva* X *I. brevicaulis* (named 'Fluvial' and 'Fulvala Violacea'). This was quickly followed by E. B. Williamson of Indiana who made the same cross and registered the beautiful 'Dorothea K. Williamson,' a distinctive blue of robust species form that looks just as classy today as it did in 1918 when it went on the market.

All of this activity is a mere prelude, for it took an energetic and stoic New York botanist to put Louisiana irises on the map. His name was Dr. John Kunkel Small, and to this very day Louisiana iris specialists still speak of him with reverence and wonder. Small, a scholar with a Columbia Ph.D. in botany, was a genius. As an undergraduate he published a pamphlet on the mosses of Lancaster County, Pennsylvania, his home state. In 1901 Dr. Small ventured into Florida to conduct field work for his employer, the New York Botanical Garden; for the next thirty

years he had a botanical love affair with a state not yet ruined by urban sprawl and commercial agriculture. And during all this time, Small was researching irises of the southeastern United States.

Small found Florida captivating, but he described south Louisiana as the "iris center of the universe." On a train trip through the New Orleans area he was astounded to observe veritable fields of irises flashing by as he sat stunned in a speeding train. Soon he was driving around southern Louisiana in a Ford Model T dubbed "the Weed Wagon," collecting in his own inimitable fashion. Small was a man who would not hesitate to wade up to his waist in a Florida waterway in order to free his stranded boat; on other occasions he could be old-fashioned, even formal. In one particularly evocative photograph, Dr. Small is shown dressed in coat and tie while collecting seeds of *I. giganticaerulea*. Imagine the heat of that August day in Louisiana, no hint of a breeze to disturb the mosquitoes, and the perspiration drip, drip, dripping down his well-clad back.

In 1931 Small named a veritable menagerie of new "species"- forty-one altogether. These included the seductive *I. vinicolor*, a "species" Small described thusly: "The flowers of the blue types are beautiful as those of *Iris fulva* are odd; those of *Iris vinicolor* are exquisite." It was indeed a beautiful iris, but the problem was that it was not a new species. The same could be said for all the other species he placed in the Hexagonae series- excepting the stately *I. giganticaerulea*. In the end, a fellow collector and professional herpetologist by the name of Percy Viosca Jr. published a masterful analysis of Dr. Small's taxonomy of the Hexagonae. Small's reach, Viosca concluded, had apparently exceeded his taxonomic grasp. However, this hard working New Yorker did much to attract national attention to the irises native to the Southeast. The lowly "swamp irises" were finally getting some attention from the gardening public.

Amateurs: Their Contributions

Like the British and many Europeans, North Americans have a tradition of dedicated if not

obsessive devotion to natural history. In recent years the Louisiana irises have attracted the attention of a cadre of admirers, a number of whom were avid collectors in the years following Dr. Small's introduction of Louisiana irises to the national public. The late Joseph K. Mertzweiller of Baton Rouge, Louisiana, himself a pioneer in developing tetraploid Louisianas, has written of the role played by amateurs:

"Following the work of Small, some 20 years passed before hybridizing really came of age, but this was not a static period. It was the most important period of collecting."

Small was an unusual scholar for he not only published in the professional botanical journals, such as *Addisonia*, but he also felt a mission to share his passions with a larger public. His articles in the *Journal of the New York Botanical Garden* were written with an appealing mixture of scholarly authority and horticultural enthusiasm. In 1931 he published heartfelt appeals to save "the vanishing iris," by which he meant the beardless irises of the lowlands--the same areas in Florida and Louisiana being drained in a frantic effort to "develop" the economically depressed South.

In the minds of many people, especially gardening enthusiasts who lived in the "Cajun Country" of south Louisiana, Small's appeal was a clarion call to action. In Mary Swords DeBaillon, the Louisiana iris found someone who had Dr. Small's promotional skills if not his academic degrees. Mrs. DeBaillon, who lived in Lafayette, the defacto capitol of the far-flung Cajun domain of coastal Louisiana, was a woman of storied enthusiasm and indefatigable energies.

At her home near Lafayette Mrs. DeBaillon assembled a huge collection of native irises, including many she collected herself. Here's how W. B. MacMillan, himself a legend in Louisiana iris circles, recalled his first meeting with Mrs. DeBaillon:

"Fortunately, I had the advantage of meeting Mary DeBaillon in a Camellia garden a short distance north of Jacksonville, Florida. She had heard of our discoveries in Vermilion Parish not far from Abbeville, of an apparently new type of native iris which quickly became known as the Abbeville Reds, now *Iris nelsonii*. She was quite eager to see it and invited me to come to her place some two or

three miles beyond the outskirts of Lafayette. Perhaps you can imagine my amazement when I first saw Mary and Dan DeBaillon's spacious home and beautifully landscaped surroundings covering several acres. Mary was pampering some Camellia grafts that she had made herself, though she was well advanced in her last illness. When I had explained more fully about those Abbeville Reds, she was in our yard the next day with her chauffeur, a spade for digging, wrappings and boxes for collecting, plus a heavy blanket for a pallet when the pains might strike her as they did before she was through that day."

Mrs. DeBaillon died in 1940, but not before she managed to distribute Louisiana iris plants far and wide. A network of her friends traded both rhizomes and seeds. W. B. MacMillan tells of another encounter with Mrs. DeBaillon while visiting her home. At the end of the day his host gave MacMillan "a small bag of Iris seed taken from her finest plants but she had not identified specific pods. They were shelled and all together; so we will never know what produced 'Bayou Sunset' and 'Aurora Borealis'...." These two irises became early standouts, and, fittingly, 'Bayou Sunset' was the winner of the DeBaillon Award in 1949.

The death of Mrs. DeBaillon seemed to spur on further work among other amateurs. Significantly, she left her iris collection to a respected naturalist, Miss Caroline Dorman, proprietor of Briarwood, a 100-acre nature "preserve" in north central Louisiana. Miss Dorman immediately began evaluating the irises, and over the following years introduced at least eighteen irises under the name DeBaillon-Dorman. But greater things were to come.

In a few years, the Society for Louisiana Iris was organized and a concerted program was started to create vigorous hybrids for landscape use. Some 60 years later, there are now thousands of modern hybrids.

However, every grower of Louisiana iris should pay homage to that dedicated band of intrepid collectors that first wandered into the swamps to seek out these natural wonders. And, out of the swamps, arose the Louisiana iris.

The *Ancoral* Concept in Iris

by G. I. Rodionenko

The '**Ancoral Concept**' was originated as a response to our attempts to acclimate species of the section *Regelia* to the St. Petersburg Botanical Garden. Of all the species in this section, only *Iris hoogiana* was well adapted to our hard conditions of life.

Speaking of "hard climate conditions", one means late springs, short summers, early autumns and winters with frequent thaws and instant heavy frosts.

Species with such highly adaptive features as *Iris hoogiana*, was named as an *ancoral species* (from Latin *ancorus* or anchor). Like an anchor, this species can be dropped far beyond the borders of its distribution area. Its highly adaptive properties of an *ancoral species* can be transferred to closely related species by hybridization. The later hybrids relate to the anchor like links in a chain. For example, there are species of the section *Regelia* and many in the section *Oncocyclus* which, at first introduction to cultivation outside of the limits of their area of distribution, turned out to be unsuitable for culture under our conditions. Further experiments permitted us to make important conclusions. Due to the genetic heterogeneity of a whole species, a single population may act like an "ancoral unit". Another example of such a population was a northern ecotype of *Iris ensata* which we very lucky to obtain and were able to grow well in our climate. The concept or method culture of "ancoral species" can be used, not only in irises, but within many herbaceous and arboreal species as well.

Iris hoogiana

This species was named by C. Ledebour after the name of an owner of Van Tubergen and Co. and has interested me so much that I traveled to collect this species in the wild in the Tien Shan Mts. In nature, *Iris hoogiana* grows on loamy, rich, stony soils among shrubs at altitudes of 1700-2300 m on northeast - and northwest slopes. It frequently grows among dense perennial and annual herbs, but due to the "mobility" of its rhizomes (Fig. 1, p. 3391, Hissar Range 1800 m.) this species struggles successfully for survival. Its thin long stolons are able to move to more open places.

The beauty of its pale sky-blue flower is surprising and its pleasant aroma is so strong that it is detected at a distance of five or six meters. It seems strange that nowhere else have I found an indication of its aroma and that no other species of the *Regelia* section have an aroma (although I have found a separate population of *Iris stolonifera* that does have an aroma). In the Hissar Mountain range, a white flower form of *I. hoogiana* (f. *alba*) sometimes occurs.

This species was transported from the Hissar range in 1950 and for forty years grew in St. Petersburg. It passed through many phases of growth, produced flowers (Fig 3 [photo], p 3391) and gave many fruits with normally developed seeds. It demanded only slight shading and annual adjustment (top-dressing) of its protruding surface rhizomes (See Fig 2 p. 3391).

An *ancoral species* within the *Regelia* irises was found, but we could not produce hybrids with other species in the *Regelia* section.

Iridodictyum winogradowii

The second species in our research that reveals *ancoral* properties is *Iridodictyum winogradowii* (= *Iris winogradowii*). This extremely rare species has been listed in the World Red Book. It is found only on Mt. Lomtis (Georgia) where it grows between *Rhododendron caucasicum* and sub-alpine plants. Fifteen bulbs of this species were taken by T. Shuljkina in 1969 for our Botanical Garden and well adapted to grow there. They grew under the canopy of *Larix sibirica* on light loamy soil (pH 5.0). This species produced numerous flowers at the end of May (See p. 4010) and with hand pollination it produces fertile seeds (natural pollinators are rare at the early time in the garden). It multiples well and produces 'daughter' bulbs.

Our region turned out to be unfavorable for the other species of in the genus (*Iridodictyum*). The majority of species cannot survive prolonged growth only *Iridodictyum winogradowii* which starts blossoming eight to ten days later than the other species and it continue to grow in St. Petersburg for 30 years.

In 1978, 100 bulbs were "repatriated" to the Gagra mountain range. Here G. Mustafina, N. Alexeeva and I replanted bulbs on the rocky talus among other sub-alpine plants (See p. 4010). These bulbs are considered to be "repatriates" as *Iridodictyum winogradowii* was previously found growing in the Gagra range and disappeared later. Results of this replanting experiment are unknown. Today due to Abkhasian - Georgian conflict, the Gagra mountain range is closed for visits.

Further fate of *Iridodictyum winogradowii* will depend completely on persons using the species in inter-specific hybridization. Introductory selective potential of this species is extremely high. It can become not only the parent of highly cold-resistant hybrids, but these hybrids might be very beautiful as cv. 'Katherine Hodgkin'.

Alatavia winkleri

This extremely rare and nearly unknown species and its close relative *Iris kolpakowsianum* were referred to the new genus *Alatavia* (Rodionenko, 1999, English version 1996). (ED: See *SIGNA* #63, p. 3273, for a detailed discussion by *Rodionenko*). It was found in Tien-Shan Mts. by Albert Regel in 1880 and described by his father Edward Regel in 1884.

This species has a little known botanical and introductory history. It is an interesting species, as it is a native to high altitudes. In cultivation in northern regions it can exhibit some highly adaptive features. This species may be important in establishing *A. kolpakowskiana* and other *Iridodictyum* species (well known as the section *Reticulata* irises) in more northern climates.

These ideas originated because of the successful experiment with this rare species by Olga Fedtschenko. In 1899 she managed not only to find this rarity in the Tien-Shan mountains, but also to cultivate it in Moscow region.

It has turned out to be of very difficult to repeat collecting of this super rare species in Tien-Shan highlands where the snow leopard is found. Searches by botanists including our two attempts have produced no results. It was thought that this species might have disappeared from its original collection area.

This sad idea was proved wrong by Latvian botanists Arms Seisums and Janis Ruksans in June 1997. Having support for an expedition from Gotheborg Botanical Garden, they managed to find a flowering population of *A. winkleri*. Now is the time for introduction and selection of *A. winkleri* to determine its adaptive and genetic properties. (ED: Ruksans now has this species available commercially). Great hopes are put on the discoverers of this rare species. I hope that that prominent Canadian grower of bulbous irises, Alan McMurtrie, will have great experiments hybridizing with *Iridodictyum* and will participate in this work. (ED: See *McMurtrie* photos in the Photo Gallery at end of this issue.)

Japanese Irises

Let us discuss briefly the matter of the northern advance of Japanese Irises. In this example, instead of the use of a species, I studied just one of its more northern population.

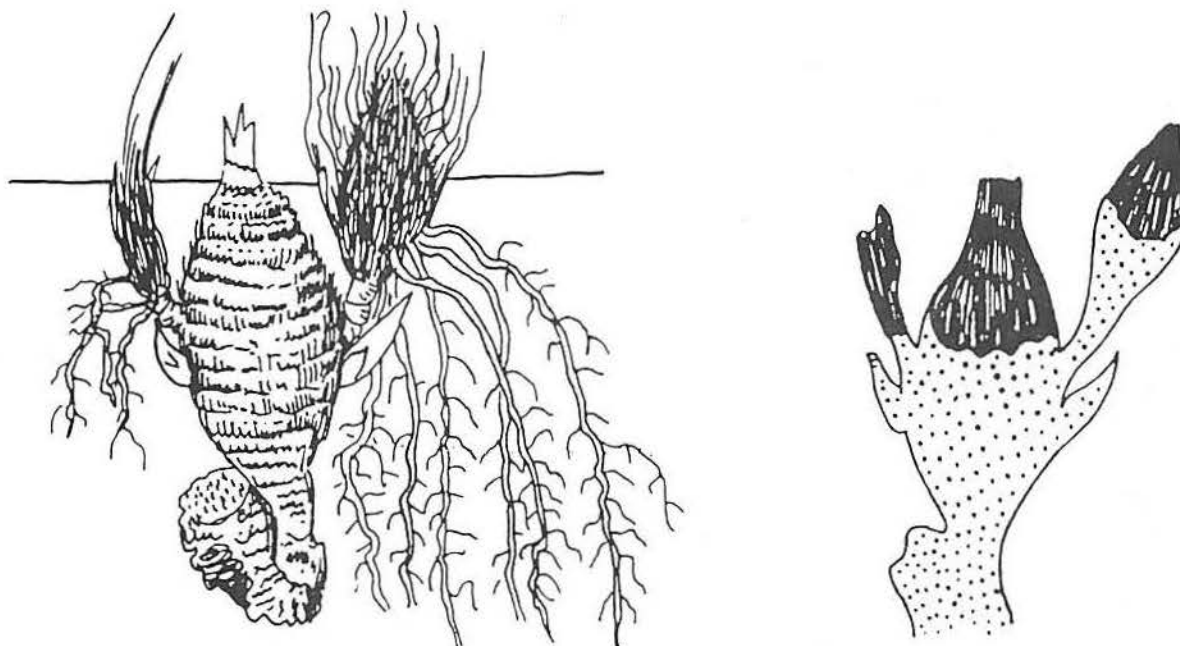
I began to deal with this interesting group in 1947 when I managed to transport a large lot of *I. ensata* (= *I. kaempferi*) cultivars from the Black Sea coast. W. Alferov was working with Japanese cultivars in a park in Adler.

At the latitude of St. Petersburg (60° N. Lat.) our 36 years experiment on the cultivation of Japanese Irises did not succeed. No adaptation to our northern conditions was observed in the majority of cultivars. In winter, frosts damage the plants (See figures below); then in spring, the plants are too retarded to begin growth; and by summer, due to low sum of warm temperatures, no flower buds are formed.

In my analysis of the situation, I decided that good crosses should be used for hybridization not with a weakly frost resistant Japanese cultivar, but with a more northern population of the species *I. ensata*. Plants of this population grow wild in the area around Vladivostok. From I. Wereshchagina's experiment in Altai, we already knew that plants of this Vladivostok population are able to survive -40 °C (under snow cover certainly).

In 1956 the first highly frost resistant cv. 'Vasil Alferov' was selected (See p. 4009). It was obtained by pollination of the cv. 'Sano Watanashi' by pollen from a more northern population of *I. ensata*. Even after more than forty years without winter cover, these plants grow and produce plenty of flowers in our collection. Dr. C. M. McEwen uses this hybrid in selection in USA.

In 1998 we created a small garden (with an area of 80 m²), the only one in the world for display of frost resistant Japanese irises. There are eight cultivars and series of forms in the flora of Primorje.



Frosting of rhizomes of Japanese selection of Japanese Iris a) mature rhizome
b) longitudinal section (tissue destroyed by frost is denoted by black)

Iris albertii

I started introduction of bearded irises in 1947 when a special **Iridarium** was constructed at the Botanical Garden of St. Petersburg. Until now Bearded Irises represented the main decoration of irises on exhibit. For more than fifty years over three thousand taxa were trialled. Studies were done to determine the specifics of growth, development and causes of loss. Having analyzed the information that was obtained, one can easily conclude that the majority of Bearded Irises that were grown show difficulties in introduction to the northwest regions of Russia. The weakest feature of Bearded Irises is the lack of cold and frost resistance.

Without discussion of details on this complicated matter, one can note that for many cultivars of Bearded Irises (especially the Tall Bearded Irises) a drop of temperature down to -7°C without snow cover is very dangerous. In such weather flower buds in a cultivar such as 'Rippling Waters' are typically killed. Repeated winter thaws and sudden frosts on bare land are typical of our climate.

In the winter of 1993-1994 we lost more than 180 cultivars of Bearded Irises due to sudden frosts at the end of November when snow cover was completely absent. Temperatures of -17 to -19°C lasted more than two weeks. The apical bud in many cultivars is damaged by temperatures under -7 -9°C . When the temperature drops to -14 or -15°C there is irreversible damage to rhizomes of the most resistant cultivars. Survival of the most valuable cultivars is increased by covering their rhizomes with dry leaves and plastic film (Fig 8).

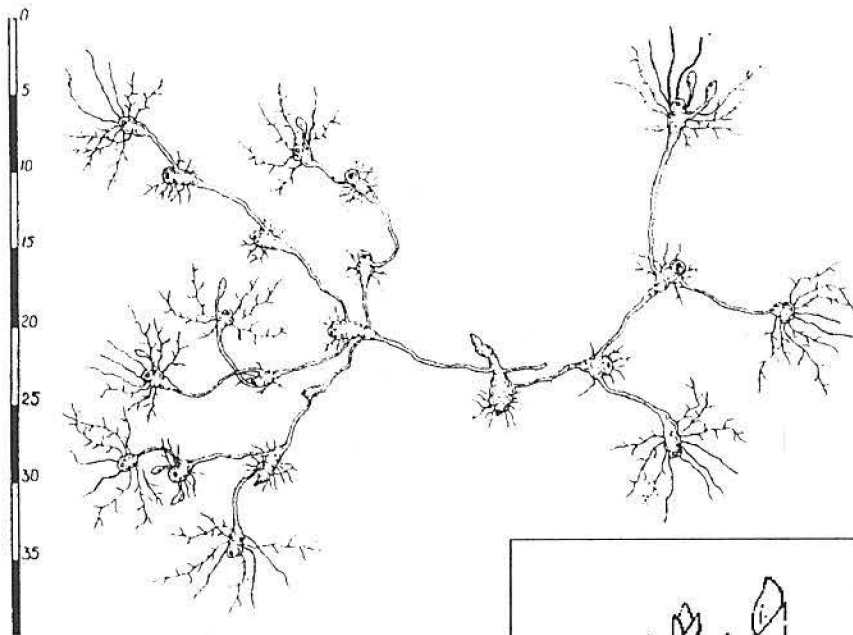
Such low winter and frost resistance of Bearded Irises is explained by their origin. In first stages of selection, the main parent forms were *I. pallida*, *I. variegata*, *I. germanica*, and *I. aphylla*. All of these species are of European origin and belong to species with sufficient winter resistance. In further selection and trying to improve the beauty of flowers and flower stalks, such species of extremely south origin as *I. trojana*, *I. cypriana*, and *I. kashmiriana* were used in hybridization. All these hybrids have decreased vitality and less winter resistance in new cultivars especially the Tall Bearded Iris cultivars. I suppose that nobody has looked for wild species that could increase the vitality and winter resistance of new hybrids and cultivars.

Under our conditions, in some years, at the second half of the growing season, warm weather combined with rains can cause mass damage of rhizomes by bacterial infection. We started to search among for a bearded irises species with higher winter resistance and anti-bacterial properties. A sub-alpine population of *Iris albertii* was given to us by O. E. Knorring in 1947. (This remarkable species was named after the collector, Albert Regel. Complete information about this species was given by Clarence Mahan in The Iris Yearbook 1997 of the British Iris Society in the article, "Iris albertii".)

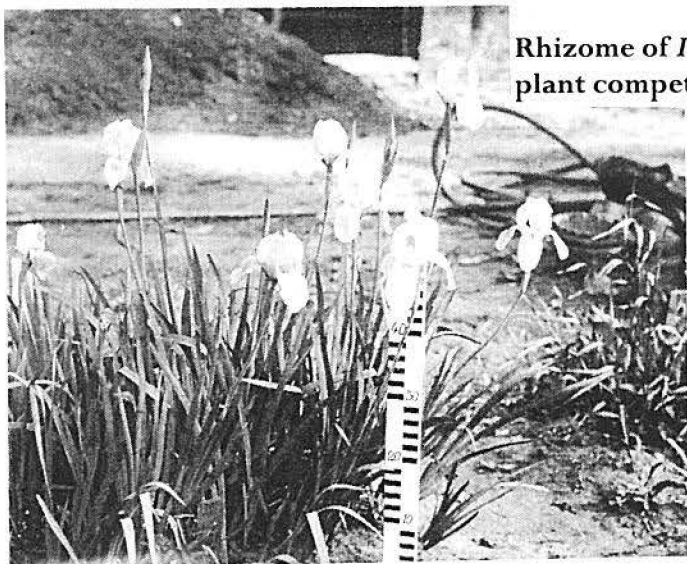
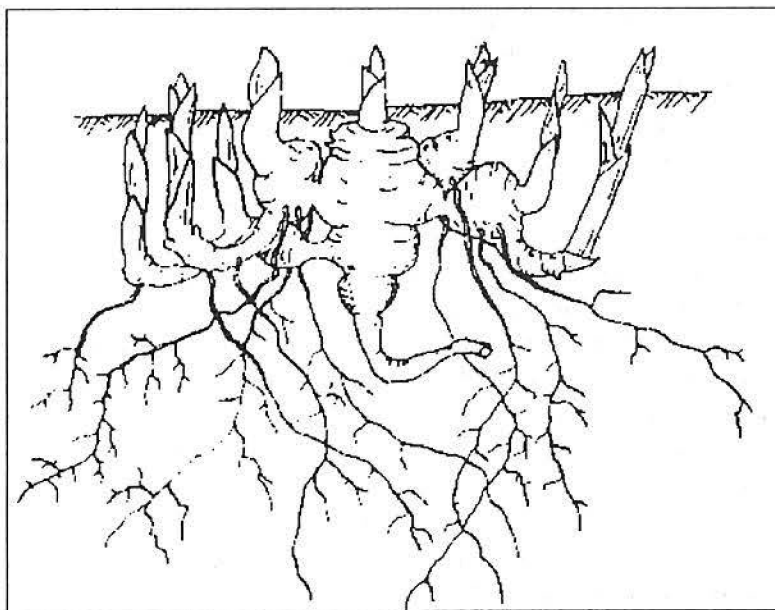
In our collection it goes under No. 466. Later we received samples from five more populations of this species, but they turned out to be less viable. Rhizomes of the No. 466 were infected several times with bacteria agents, but they continued to grow. Their cold resistance is high and they have been growing here for more than 50 years. The valuable feature of *I. albertii* is early flowering. Using *I. albertii* as seed parent we have produced F1 and F2 hybrids. The first F 1 under No. 1100 was a result of pollination of *Iris albertii* by a mixture of pollen from *I. germanica* and *I. imbricata* (= *I. sulphurea*). In further hybridization it was used as seed parent as it posses undeveloped stamens. Hybrid No. 1100 has features that suggest *heterosis* is occurring: its flowers and pedicels are 1.5 times larger than the seed parent plant.

Flowers of this hybrid, No.1100 (See p. 4009), like flowers of *I. albertii* are not sufficiently decorative. This drawback was removed in the second-generation (F 2). Flowers have become brighter in color and their form more graceful (See p. 4009, cv. 'Mokwi'). We were expecting the third generation (F3) by the summer of 1999, but it was destroyed by one of the visitors to the Botanical Garden.

(Submitted and edited by **James Waddick** with further editing by **G. Ware**)



Rhizome of *Iris hoogiana* under competition of neighboring plants. Hissar Range 1880m



Rhizome of *I. hoogiana* formed without neighboring plant competition. St. Petersburg Botanical Gardens.

I. hoogiana St. Petersburg Botanical Gardens

Dietes robinsoniana, and other Down Under *Dietes* Dazzlers

By Bernard Pryor, Sydney, Australia

One would think that living in New South Wales, I would have a keen familiarity with the blooms of *Dietes robinsoniana*. To the contrary, however, although I grow it, blooms are reluctant to grace my garden. Perhaps this is because I relish any plants with increase and I am compelled to divide them within an inch of their lives. Probably it's greed! But I could defend myself by declaring that I really just love sharing unusual plants. So many people ask me for *Dietes robinsonian*, that I just cannot keep up an adequate supply for my garden stalls and the stock plant is divided at least twice annually. Needless to say it isn't given the chance to flower at all well.

Dietes robinsoniana originates from a sandy Pacific island off the northern coast of New South Wales called Lord Howe Island. Here in Sydney (and in the rest of Australia probably) this cultivar is commonly referred to as *The Lord Howe Island Wedding Iris*. The preferred habitat, therefore, is for very well drained, sandy soil, filtered sunlight (as there is dense foliage cover on Lord Howe Island) and light moisture. I try to not let mine dry for more than two days.

I feed ALL my iris plants constantly, no matter what the gardening gurus dictate, such as "only in spring", etc. I find all iris forms to be greedy feeders and all respond for me with a hunger of leonine proportions. Therefore *Dietes robinsoniana* has a diet of slow release

fertiliser twice a year, bone meal each month and liquid fertiliser whenever I remember to use it (about once every 3 weeks). "That's a lot of food!" you're probably scoffing, but I do find that it all works and my plants have leaves about 4 feet tall. (They can reach 6 feet in their natural habitat.) Now all I have to do is leave it alone and maybe it will flower its head off!

It is interesting how very wide the leaves are on *Dietes robinsoniana*. When you view most *Dietes* species and cultivars, the leaves are narrow (about 1.5cm wide), but *Dietes robinsoniana* surprises one with leaves 6cm wide. Also, the leaves are not the harsh, deep shade of green seen in other forms, rather they are lovely, soft, mid-green shade. Flowers appear in summer (they really do!) and are large and pure white and about three times the size of other *Dietes*. (ED: See pics!)

One must remember that in South Africa, the source of most *Dietes* forms, it is a land of drought and harsh conditions, as is most of Australia. Thus, *Dietes* prefer well-drained conditions and will tolerate very harsh conditions such as roadside and kerbside plantings. However, they also respond amazingly to regular fertilising and regular light watering. Most will tolerate full, harsh and unrelenting sunlight, but also find filtered sun equally agreeable. The only resulting difference is that the leaves

tend to be about 30 cm longer and more flimsy and arched in shady spots.

However, I believe that *Dietes* are not cold hardy below 15 degrees F. If you are in USDA zones 1 through 7, then perhaps you should grow your *Dietes* in pots. They are wonderful pot plants, responding well to any attention. Remember that when contained, you can move your pots into warmer spots or under eaves if you have a colder climate. You can use any standard inexpensive potting mix, but ensure that you include about 20% coarse sand. I also stir in a generous tablespoon of slow release fertiliser and about 1/4 cup of bone meal. Do not use garden soil at all, as it will not be sterile and will retain too much moisture by becoming thick and boggy thus depriving the roots of the oxygen and carbon dioxide exchange they so badly crave. *Dietes* have roots that are like hair and loathe moisture staying around for long.

PROPAGATION

Division is easy as *Dietes* rhizomes snap apart or can be cut apart readily. Do not under any circumstances however 'cut the leaves down' as you would with an iris. It is totally unnecessary as the plant will not faint and flop as iris has a tendency to do. It also seems to set them back in terms of photosynthesis, vigour, etc. and they seem to take far longer to fully recover (even up to 12 months). I find that simple division results in the rhizomes becoming independent within about 6 weeks wherein they begin to send out new, white roots. Keep one's pots shaded and moist during this phase.

Germination from seed is easy and rewarding. Simply sprinkle the seeds on top of potting mix that already has slow release fertiliser mixed in then cover

them with 1/4" of mix without pressing down too firmly. Keep lightly moist in a sunny spot and be patient. In my experience, germination takes about 12 weeks in areas with high temps (80-90 deg. F.) In areas with temps in the 70 deg. F zone it will take much longer. Just be patient.

I would like to comment about a couple of newer cultivars that are available here in Sydney.

Dietes 'Lemon Drop' has the standard narrow leaves and growth patterns of *Dietes iridioides* but differs in its bloom. 'Lemon Drop' has 3 pure white petals (inner segments) with the three outer segments being white with a dappled streak of clear, bold yellow. The flowers do not seem to last as well as those on *iridooides* in summer heat, but it increases (and divides) well.

Janet Hutchinson of Pymble, Sydney, will be releasing her dramatic and lovely *Dietes* 'Tiger Toes' in 2002 through Iris Haven Nursery. It is a bee-pod hybrid from one of several hundred *Dietes grandiflora* clumps that grace Janet's long driveway down into a lovely shaded dell. The leaves and strong growth habits of 'Tiger Toes' are like those of *grandiflora*. The spikes are even more floriferous than *grandiflora* with multiple branches.

It seems that few people are indulging in hybridising *Dietes*, so this may be an area for someone other than Janet Hutchinson to dabble in. My seeds from SIGNA in 2000 have germinated! so watch out world!
Dietes are a garden delight as they are so easy to grow in a warm spot and respond so well to a little attention. Now if I can just leave my *D. robinsoniana* alone long enough, I might just get to see some gorgeous blooms this year!