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THE SIBERIAN IRIS

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Index

Illustrations

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THE PRESIDENT'S PAGE

Mrs. Grey did not write a page for this issue. She sent a note to say that due to the pressure of business and personal matters she cannot devote the time to the Presidency that the job should have and has submitted her resignation. I know we are all sorry to hear this; Peg has been a good worker since our founding.

So I am filling this page as Editor and a former president and member of the Board. It will not be a cheerful piece. There is no denying that we need workers. Our hardworking Secretary, Mildred Johnson, has informed us that she must resign as of the end of the year; this makes two major vacancies to be filled. And there are a number of vacancies on the roster of Committeeships, not all of which show up in the listings; some of those chairmen are holding the jobs until we can find replacements for them; others are willing to keep on but they need assistance. It is possible that one or other of our Vice-Presidents will take over the Presidency- that would replace one vacancy with another.

What are you going to do about it?

For ten years now the officers and board have been begging for volunteers for just about every kind of job the Society has to offer. I could count on my fingers those who did offer. We have been able to get a few workers by a mixture of begging and wheedling. And what is true of the management is equally true of the publication. Look at your old copies and the recent ones, and see how few new names there are in the later ones. This issue was largely put together by that rare bird, a volunteer- but he has had to depend very largely on the old familiar names. Most of us 'old hands' are written out and need to be turned out to pasture for a couple of issues to come up with new and fresh reading matter; meanwhile new writers must fill their places.

To be blunt, if you sit on your hands, the Society for Siberian Irises is just about dead. Are you going to be brave, get out your notepaper, and offer to do something? Or are you going to sit there, and complain that nobody (else) does anything?

You do not have to be an expert; none of us were when we started out. You can and will make mistakes; the Society has survived ours and it will yours. But it cannot survive the lack of volunteers with fresh minds and new approaches- indeed it cannot survive without some people to take on the jobs that are standing vacant. And I must emphasize that we need workers, not title-seekers; we have had a few of those and they are worse than no help- their names in the list can

prevent someone else who would do the job from making the offer.

Some of the jobs would take perhaps an hour a month; others might call for the equivalent of a month out of the year. Most would fall between these extremes. If you don't know what you could qualify for write and tell us how much time you could spare, and such other matters as whether you type, whether you have had experience in any capacity in other organizations, whether you are good at figures,- anything that might occur to you as possibly having a bearing.

And if you can't take on a job, couldn't you write a few lines about your experiences as a grower of Siberians?- what you have liked and what you have disliked of the ones you have seen, problems you have come across and solutions you have found, varieties you have had difficulties with and those which 'grow like weeds' for you.

And, didn't anyone take any black-and-white snapshots of any Siberians this year? We could use some clear, contrasty shots to illustrate and ornament our publication.

Now to change hats: I cannot begin to thank Kevin Vaughn for the job he has done in putting together the bulk of the articles for this issue. At this point I don't know whether we will have any room for the final section of the Check List; the material at hand has to be typed uniformly and it may not be as bulky as it looks at present! But it certainly looks like a full issue. This is not Kevin's only contribution to the Society. Again this year, he and Bee Warburton have put on an auction for the Siberian and Japanese irises plus other beardless kinds; our share of the proceeds was over $350. Bill McGarvey's Financial Report is just below. We may be wobbling in other ways but financially we are in the best shape ever.

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Financial Report:

Balance as of May 18 1971	$607.09
Receipts from Auction	359.00
subtotal	966.09
Payment for earlier printing bill plus postage to apply to this	150.00
Balance as of Sept. 16 1971	816.09

William McGarvey, Treasurer.

Note: there are some expenses to be paid out of this balance and it of course does not cover expenses for this issue.

NOTES ON HYBRIDIZING SIBERIANS

A: Gladys Wiswell
East Arlington, Vt.

I hesitated at first to comply with Kevin's request that I write about my work with Siberian irises, for I have had no particular training, and my work was at first hit-or-miss, cut-and-try. But perhaps some will be interested.

I began hybridizing about 40 years ago, when my children were small; for several reasons, among them that I had four lively boys and did not get very far away from the house. I'd like to quote Dr. Angelo Freeborn; when I asked her why she worked so muchwith plants, she said "Because they repay me with so much pleasure" and then added "and they don't talk back!"

A friend started me gardening. I kept putting her off but one day when she came, I was caught. The vegetable garden was being plowed and she suggested that I have them plow a small plot near the house for myself, and she would provide the plants. She gave me primroses, bleeding heart, oriental poppies, a few daylilies, and irises- the old fragrant blue Princess Beatrice, cream-colored flava, and two Siberians, White Empress and an unnamed blue. I was enamored of the white, and wished I knew how to increas its size.

Later I became acquainted with Mrs. Nesmith, of Fairmount Iris Gardens, and she told me she had a red Siberian, so I bought Red Emperor. I made two crosses: Red Emperor on White Empress, and Red Emperor on the unknown blue. From these crosses came Carrie Lee, named for my mother, and Claret. They stayed here all theseyears because of the unusual colors.

About fifteen years ago Mrs. Nesmith asked me to send her divisions of them to evaluate. After two years she asked if she could introduce them. One of their pleasing qualities is that they are low-growing, and huge bouquets in bloom; Claret is not as free-flowering as Carrie Lee. I don't know just when Sapphire Bouquet came into existence, but again, this is a huge blue bouquet in bloom. All multiply rapidly. Since they were introduced the demand has kept me too short of plants to advertise them.

I was still looking for larger flowers, and again from Mrs. Nesmith I bought Eric the Red, so prolific for me that I discarded it, after I had used its Pollen on Sapphire Bouquet and getting the Peculiar Tokay grape shades. I selected two of these, almost identical, a shade or two different and again forming huge low bouquets. These two were sent under number to the Wichita Convention; if they

performed well there they will be named. I feel that too free naming and introducingwould end up in a mass of look-alikes, and create all the confusion there is today in Hemerocallis.

Still looking for larger flowers, and still using White Empress, I decided that with all the queer crosses happening since the atomic blasts, I would try Tall Bearded on Japanese and Siberian irises. I got one, a blue monstrosity, which was six feet tall, and had a typical Japanese iris bloom. It lived a while and then gave up the ghost. The other cross, a yellow TB on White Empress, set seed but only one plant came up, which I watched carefully. After two years, it produced a butter yellow bud. I waited for it to bloom before moving it, which it resented very much. I've moved it twice since, and each time it has sulked by waiting two years to bloom. It did multiply. The bloom, a typical Siberian, is a pale yellow when fully open, but there the resemblance ends, for the foliage, wide for a Siberian, is about half the width of the TB, and the flower spacing is zig-zag, like the pollen parent, not top-blooming. To myself I called the plant Amazement, but I think it should be Amazing. It is perfectly hardy, has had no special care as I have been ill so much of the time, and it has had to fight both grass and weeds to survive. At present I have only seven plants, but there should be good increase this year. Having no scientific knowledge, I have no idea of the pollen count, but so far the plant is sterile both ways. The pollen being hard and grainy, I have tried taking it from the unopened bud and rolling it between my fingers to break it up, have dried it, taken it early and late, all to no effect. The pollen has set no seed on any plant it was used on, nor has the plant set seed.

I am stilltrying to get larger flowers, selecting and discarding, but so far my goal has eluded me. For as long as I am able to work, I shall continue.

(Note from Kevin Vaughn: Please note the corrected parentages: Carrie Lee is White Empress x Red Emperor and Claret is Unknown blue x Red Emperor.)

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B. Sarah Tiffney
Sharon, Mass.

I have been crossing Siberians for quite a number of years, and this is an informal summary of my results. It is an extension of the report I made in SSI in November 1967. Most of my work has been on flower color in the 28-chromosome group, our common garden Siberian hybrids which are descended from Ii. sibirica and sanguinea. The 40-chromosome group is another matter and I will discuss it briefly at the end.

In the 28-chromosome Siberians there are three major petal colors, blue, red and white. Blue (or if you prefer, blue-purple) is dominant as one would expect since it is the common wild color. To my eye all the purples and blues constitute a single series of gradations of one pigment, concentrated and saturated in the deep purples, more dilute in the lighter purples and medium blues, and still more dilute in the pale blues. Red (which as we know is not really red but a wine color) and pink, which is really lavender-pink, are to my eye another graded series of one pigment, although this series is not quite continuous as is the blue one- there is a gap between the paler reds like Carrie Lee and the pinks. The third color is white; in our garden Siberians we are accustomed to this being pure white without any admixture of other color. I am not, of course, speaking of the signal patch colors here, but only of the colors of the blades of standards and falls.

Blue-purple is dominant and white is recessive to it. Quite a number of hyrbidizers have gotten a number of whites from blue parents, especially from medium or light blue parents. I think by now the assumption is justified that the recessive gene for white which is carried in these blue plants has a dosage effect and that its presence makes the blue parent's color come paler. I therefore think it reasonable to say that one might get recessive whites by self-pollinating or crossing any medium or pale blue parents.

I ran a blue x white cross once and got the classic Mendelian pattern of all blue in the first generation, and three blue to one white in the second- so this white seems to be a simple Mendelian recessive.

In crossing garden hybrid whites with each other, I have always gotten whites and nothing else. This is true of White Swirl x Snow-Crest and a number of other crosses. I have to point out, however, that I think most of our garden whites are of predominantly I. sanguinea blood (or should I say 'sap'?) and that it is the sanguinea white gene we are dealing with; the white of I. sibirica is a different thing, which I will discuss later.

Red is recessive to blue. Crossing a red and a blue gives a first generation of all blues (this is assuming that there was no recessive red concealed in your blue parent). The interesting thing here is that the blue progeny all have a reddish tinge, which may result in a rich purple if the blue is deep, a somewhat muddy effect if the blue is medium, or a suggestion of lavender if the blue is pale. The recessive red gene has a dosage effect, adding a reddish tinge to the flower color. Knowing this, one ought to be able to get reds by self-pollinating irises with reddish-blue coloring, such as Zest and Zerita. In the second generation the

colors red and blue segregate again. I have made several test crosses of these F_1 plants back to the red parent and obtained the expected result of approximately equal numbers of blue and red progeny. Red also seems to be a simple Mendelian recessive (the best kind!) In crossing red x red I have always gotten more reds (except for Red Emperor, which is anomalous and which I will discuss later). Dr. McGarvey has described reds carrying recessive pinks, but mine were all homozygous for red.

The genetics of pinks in Siberians has been worked out and described by Dr. McGarvey in his admirable paper in the AIS Bulletin of October 1961. He showed, among other interesting things, that pink is recessive to red in the simple Mendelian pattern. I have not done any work in this line, except for crossing pinks with pinks which gave more pinks as expected. Those I have seen so far could perhaps do with more size and variety of form. They ranged from a pearly lavender-pink (being precisely halfway between those two colors) to almost white, and it is strange that they do not range in the other direction to deeper pink and red.

I have not crossed pink with blue. I assume that in such a cross the pink would act just as red does, as a recessive to blue, since I consider pink the same pigment as red but in a more dilute form.

Both white and red are recessive to blue; so what happens when we cross white and red? We get a row of blues- no whites, no reds; this is the result that most hybridizers have gotten from a white x red cross. There have been some reports of pink and red from such a cross but I have not seen it (Note: Mitsou (Ziepke 1964), lavender-pink and Carrie Lee (Wiswell 1963), light rose red, are examples of white x red giving reds and pinks; Mrs. Tiffney was not aware that the parentage previously given for Carrie Lee was incorrect- K. V.) To me the result of all blues from a red x white cross means that two factors are necessary to make blue, that one is present in the white flower and the other in the red flower, and blue does not appear until both are combined in the same flower. When I self-pollinated one of these forst generation blues, the result was 2 whites, 6 blues and 2 reds, a close approximation of the expected Mendelian ratio of 1-2-1 for segregation; although I am the first to point out that these numbers of plants are inadequate for proper study.

Pink crossed to white acts like red. A pink x white cross gives all blues in the first generation, rather light blues with a lavender tinge from the dosage of the pink component.

Over the years I have cooked up a theory of inheritance for these garden Siberians which accounts for most of the facts that I have

observed; there are a few exceptions which I will get to later. This theory is a pretty good approximation of the Occam's Razor principle in that it is the simplest explanation I can work out to account for my results. I am well aware, however, that it is only a working hypothesis, and I am not sure that when these inheritance patterns are fully worked out, they will turn out to be not thus, but otherwise- and more complicated, no doubt! Anyhow, the scheme I propose is entertaining, and one can waste a lot of happy time with it, drawing little diagrams and saying, "Let's see now, if this is so, then thus and such should follow".

I suggest that the results described in the pages above can be explained by hypothesizing three pairs of genes:

B- dominant, blue, and
b- its recessive, red

C- dominant, color or pigment (either blue, red or pink) and
c- its recessive, lack of color or pigment, white

S- dominant, saturated or deep or intense color, and
s- its recessive, pale or light color.

For instance, any white iris lacks dominant C, and any red iris lacks dominant B (which would make it blue if present). When we combine red and white and get all blue flowers, we are recombining B and C. If this scheme is true, then the white irises we have used must carry BB, and the reds must carry CC.

The last pair of genes, S and s, provides my explanation for pink being recessive to red. A pink iris must be bb and ss, and either CC or Cc. If we could get a pure white from selfing or crossing pinks, it would be a homozygous recessive for all three sets of characters, and that would be useful! (One can go on like this for days.)

If we assume that each gene of these three pairs has a dosage effect, as at least two of them can be seen to have, then we have a way of accounting for quite a range of tints and intensities.

The virtue of a working hypothesis such as this, even if it is not true, is that it stimulates the imagination and gives one a framework and direction, and suggests crosses to try. Whatever the results in terms of this theory, the long term result is bound to be an increase in our knowledge.

Miscellaneous Notes:-
White Edges: Nora Distin and Kenogami are purples with very narrow white edges. I had a blue seedling once from Gatineau that also showed

them. I have crossed all three, but while the progeny also have white edges, they are no more marked than those of the parents.

Quilled form: I have observed over the years a number of what I have called the "Quilled Form", which Dr. McGarvey calls the "Spatulate Form" in his interesting article in The Siberian Iris of October, 1968. As he says, it occurs only in whites, suggesting linkage, and it occurs in various degrees. In the most pronounced of mine the petals are so narrow and upcurled on the edges that they are almost quills. I have had them from various parents, including a very bad one from White Swirl x unknown, and I think they are not really uncommon, but they are discarded as soon as they appear. I once read a statement to the effect that you cannot get a bad seedling from White Swirl, but this is not so.

The Red Emperor Problem: I know of two exceptions to my theory of color inheritance as expounded here. The first is Red Emperor, a very tantalizing little iris in its history and implications- but that is another story. The point at issue here is that it is red, although more bluish than the other reds, and when self-pollinated it has given me both red and blue progeny in about equal numbers. I am repeating this cross because the numbers are not large and there is always the possibility of mistakes and mixups- but this is the only red I have seen that gives any blues when self-pollinated. One would say that it is heterozygous, carrying both blue and red genes, but then according to my theory it should be a blue flower. I begin to wonder of I. sibirica blood has something to do with this?

The White I. sibirica Question: The second exception is a more definite thing, and is clearly and specifically a case of I. sibirica being different. I suggested this possibility in my report of 1967, and I now have data on it. As stated in the first portion of this article, in our common garden hybrids white x white has always given me whites and nothing else: that is, these whites are homozygous recessive for whites, (recessive genes cc, lack of color) and so produce only more whites. I have come to think that these whites are derived from I. sanguinea. This is not unreasonable because the albino form of I. sanguinea, of which Snow Queen is an example according to the Check List, is a very pure, clear white and a relatively large flower, both characteristics which growers would naturally select in seedlings. The albino form of the species I. sibirica, on the other hand, is represented by the old Lactea; I have not seem it (it is not popular or widely grown) but I have seen seedlings which answer its description. These albino sibiricas are small flowered in the sibirica manner and are not pure white. They have an infusion of cream in the petals and a delicate tracery of gray-blue in the throat along with the signal-patch yellow. They are attractive to people who

like small graceful flowers, but would get lost in the race for size and strong color. Anyway, when I crossed these two kinds of white- sanguinea type white and sibirica type white, I got all blues. This was the result from crosses of the sibirica whites with Snow Queen, Snowcrest and White Swirl. All the progeny were medium-pale blues with a small flowered, tall, branched sibirica look. When self-pollinated they produced a second generation of one white and several blue-flowered plants. As a result of all this I rather think that most of our garden whites are sanguinea whites, and that the genetic behavior described in the main portion of this article applies to sanguinea whites. This leads me to wonder if the blue of sibirica behaves like the blue of sanguinea- and the red? For that matter, which does the red come from, or does it come from both? I wonder if the peculiar performance of Red Emperor might be explained in terms of sibirica ancestry? Actually we do not know too much about either of these species, their range of characteristics and their behavior. It would be most desirable to have many more extensive collections made from the wild in various areas, and careful studies made of them.

The Forty-Chromosome Group: These irises have been classified in the Sibiricae for years but as you all know they are quite distinct from our 28-chromosome friends. In my opinion they are no closer to the 28-chromosome group than are the Californicae, and I think they should be classed as a separate series. However, we still have them as Siberians, and we also have the problem of what to call them; this 28 and 40 business is very awkward. I understand that some members are working on this problem, and I should like to suggest a name for consideration. The very best would be "Chinese Irises" for they are all Chinese in origin except clarkei which has a solid stem and is debatably a member; but this name is impossible because it has already been used by Dykes and Lawrence as Series Chinense for a group of obscure little apogons of which I. minuta is the type. Therefore I suggest what seems to me to be the next best name, Oriental Irises. The only objection to this name is that I. sanguinea (one of the 28-chromosome species) was formerly called I. orientalis but the name sanguinea seems to be generally accepted and used now. Anyway we do need a name for them, and I hope it will be descriptive, and not just an arbitrary thing. (Maybe "Chinese Siberians"? That is better than "40-chromosome group", if not much shorter.) I like "Garden Siberians" for the 28-chromosome group.

I have made just two controlled crosses in this group of irises, of two "Leopard" types with a red form of I. chrysographes; in both cases all progeny were red, a paler red than the chrysographes parent. Leopard types are not uncommon; they are pale yellow flowers covered with dots or little streaks of gray-blue; they are I think hybrids

with both yellow and blue in their background. I could not attempt to guess which species went into them; all the 40-chromosome species cross freely. I hope someone else is working out this group. In any case the result of these crosses is unlike anything I have seen in the 28-chromosome group, and I can only conclude that the 40-chromosomers are different. This conclusion is rather surprising, for I have found the general pattern of the 28-chromosome Siberians in a number of other kinds of beardless irises, and I intend to record my findings for the AIS Bulletin shortly.

(Note: At the Wichita meeting the opinion was that all we need to do is say 28 chr. or 40 chr. But it isn't such a mouthful with "Chinese Siberians" although I think it would be good to put both common name and chromosome count in the registrations until people learn the common names. With the conversion to tetraploidy it will be extremely complicated to work with chromosome numbers in speaking, and that's not even considering interseries crosses. By this same chromosome labeling we would call the SDBs 40-chromosome Medians, which is just as ridiculous as 40-chromosome Siberians. As members of the Registration Committee Sarah and I have taken a stand but we are willing to listen to arguments pro and con.
(To me it seems that all the pinks are dirty whites; in fact they have been described to me as 'wishy-washy' which is a rather apt description. "Caesar's Ghost" which is from Sibirica Alba, has a definite lavender flush- more dirtied-up? Both the pinks and the sibirica whites are recessive to reds and when crossed to the sanguinea whites both give blues. If the pinks are just dirtied whites it would explain why there are no deep-colored ones. Just how much can you dirty a white? The pinks from diluting the reds are certainly brighter and better- I mean the Carrie Lee color- although I have yet to get them much lighter than Carrie Lee; though I have one that is a lavender-pink from Carrie Lee (a bee pod; sorry, kids!) so prehaps it is possible to get pinks by diluting reds.)

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C: D. Steve Varner
Monticello, Ill.

My professional training and schooling were in animal breeding and feeding, but W. W. II injuries changed my work frombreeding pure-bred cattle and swine to a job in a laboratory doing research. My avocation became flower-breeding, with Irises and tetra Hemerocallis predominating although I have produced some beautiful Peonies and one Clematis.

We bloom an average of 6000 new iris seedlings each year, mostly TB, but including BB, IB, SDB, and Spurias, and with over 2000 first-bloom Siberians this year.

I have introduced Tealwood, a 'flat' deep purple which won the

Morgan Award in 1964, and Illini Encore, a white with lilac tint and, notably, two descending alternating branches and a total of 9 buds. These two predominate in my screening crosses. Cloyd Sensenbach of White Haven, Pa., and I exchange seedlings with extra branching, and his Little Tricolor has been a good parent with mine. These are all 28-chromosome Siberians.

I have been breeding for smoothness of color, branching, substance, and personality. It is difficult to get all of these in one plant, so much of my work is in establishing dependable parents that pass on one or more of the desired traits. Due to the lack of pedigree data on most of our Siberians, it is difficult to plan successfully a cross with any degree of certainty of achieving the desired goal.

White Swirl has no pollen here (Note: see Warburton article- K. V.) and has set no seed to date. Tealwood is Caesar's Brother selfed. Now don't tell me that isn't the right data, because at the time I made the cross Caesar's Brother was the only Siberian iris here, and it was over a mile to the next known possible parent. Insects aren't normally a problem here; I hear of the bee pods others have, and am thankful I rarely have a pod if I don't apply pollen. Since Tealwood has only two and sometimes a single bud on a branch, it has been criticized for low bud count. Illini Encore, which is 3/4 Tealwood, has a surprisingly good stalk, but this branching is not easily passed on. In this year's seedlings from I got seedlings with terminal of 2 buds and 2 descending branches with only one bud each, for a total of four. I expect to add more buds per socket in succeeding generations; but why did I get four buds from two parents with a thirteen-bud total between them? On paper, there should be at least six. I suspect that the tendency of Siberians to propagate by bee pods in the past, probably being selfed, has something to do with the stable bud count.

I will describe some of my seedlings to show what various crosses produced this year (1971):

175 (Pirouette x Tealwood) 2 buds, medium purple, silver-dollar size falls, little signal.
177 (Sensenbach 6 x Tealwood) 2 branches, 4 buds, royal purple, White Swirl form. (One judge wrote me after bloom season 'I could never understand how anyone could want an iris badly enough to steal it but when I saw 177 I began to know how they felt')
178 (Gatineau x Tealwood) Tealwood color, erect standards.
179 (Tealwood x Sensenbach 19) flared ruffled medium purple.
190 (Sensenbach 6 x Illini Encore) short flared medium red grape, partial white signal.

191 sib to 190; deep blue-purple with large greenish white signal.
196 sib to above; wide red grape with sizeable off-white signal.
197 sib to above; 2 branches, 4 buds, wide red.
1103 (Little Tricolor x Tealwood) one branch, red grape wine with luminous signal area wash of blue, little white- chartreuse brown hafts.
1102 sib to above; short, 2 branched, color as in Little Tricolor.
1107 (Sensenbach 6 x Illini Encore) 2 branches, normal form, light navy.
1108 (Dreaming Spires x Tealwood) one branch, little signal, medium blue.
1109 (Carrie Lee x Tealwood) light red wine, blue wash, small signal, chartreuse haft.
1118 (white Maginficence x I. pseudacorus) large blue-purple flower, green-brown haft, little or no signal.(Many Siberianites have thought of this as a way to get yellow; apparently we should give up this idea; in any case we now have Dreaming Yellow- K. V.)
1119 (Sensenbach 6 x Tealwood) 4 buds, 2 branches, normal form, lighter bicolor, little signal, medium large flower, green haft.
1133 (Jimmy's Gem x Sensenbach 14) wide rose red, rib of style arms blue.
1135 (Sensenbach 6 x Tealwood) wide luminous medium purple, 1 branch.
1150 (Sensenbach 6 x Illini Encore) 2 branches, 4 buds, wide, hint of grape, medium red, slight signal.
1151 sib to above; wide, near self of aqua blue, light violet tint, turquoise style rib, almost flat form.
1152 (Jimmy's Gem x Tealwood) smooth lustrous purple, breast high, 2 buds.
1153 (Mandy Morse x Tealwood) light purple with flat form.
1154 (Gatineau x Dreaming Spires) 2 branches, 4 buds, large blue with purple cast. HC '71.
1161 (Carrie Lee x Tealwood) 1 branch, 3 buds, large medium purple-blue, white signal.
1162 (Dreaming Spires x Tealwood) 2 branches, 4 buds, bright medium blue-purple self, wide.
1163 (Bickley Cape x Sensenbach 14) wide wide lavender blue.
1166 (Gatineau x Dreaming Spires) 2 buds, chest high, wide lustrous purple, medium size signal.
1168 sib to above: later, more luminous purple than Tealwood, flares, and furls to a V at tip of falls.
1169 (Mandy Morse x Tealwood) 1 branch, 2 buds, big medium purple.
1171 (Sensenbach 17 selfed) 1 branch, big, deep deep purple-tinged blue.
1173 (Pirouette x Tealwood) 2 buds, large, flat standards, slightly furled deep purple-blue, slight signal.
1177 (Sensenbach 6 x Tealwood) 2 branches, little signal, turquoise midrib, wine-red-rose.

1178 (Bickley Cape x Sensenbach 14) 2 branches, big, veined light blue.
1179 (Gatineau x Blue Moon) slightly flared and ruffled warm white, light chartreuse haft.
1199 (Wisley White x self) spatulate, horizontally flared falls, all edges furled, white with light chartreuse haft.
1282 (Blue Brilliant x Tealwood) 24", blue-violet blend.
1290 (Wisley White x Gatineau) 2 buds, medium blue, big flower.

In closing let me repeat the first things I look for are personality and substance. If these are not present it is not worthy of introduction, regardless of whether it may have ample buds, good branching, clarity of color, good plant habits, etc. desirable as these traits are.

May 20 to June 1 is our normal peak bloom of Siberians. We do welcome visitors- come and enjoy their beauty with us.

(Note: There you have three approaches to hybridizing- Mrs. Wiswell makes a few crosses, enjoys her seedlings, lets her curiosity make a choice of parents, and is, like most of us, a happy amateur, a real 'Back Yard Pollen Dauber'; Mrs. Tiffney makes many crosses in pursuit of scientific information to back up, or break, or produce a theory- and probably has just as much fun in the process; Mr. Varner makes many crosses to find out what the parents can deliver in the way of useful characteristics for further breeding toward an ideal Siberian iris. And he probably gets a lot of fun out of it too!- though I do kind of shudder at the thought of having to line out so many seedlings each year. Each in his or her own way is making a contribution to our knowledge of Siberians. And from these different fields of work, these varying attitudes to hybridizing, have come and will come just about all the newer Siberians- P. E.)

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WONDERFUL SIBERIANS

Bee Warburton
Westboro, Mass.

In the beginning I told Kevin I would write him an article about using more kitchen-type utensils for the colchicine treatment.* Disposable Petri dishes, Panodrench, alcohol lamps, multipots, jiffy mix are all a problem to assemble. A test tube is a nuisance to a non-expert; it won't stand up, and you have to have a rack for it- how about plastic medecine vials? Filter paper- what's wrong with paper

*McEwen, Currier, Induction of Tetraploidy in Siberian Irises. Bull. AIS # 197, April 1970, p. 32

towels? Petri dishes- why not margarine tubs? Wonder if a strong creolin disinfectant would sterilize them enough? Or perhaps an alcohol bath? Pipettes- medicine droppers of course- and for forceps, eyebrow tweezers. As for an alcohol lamp, a match will flame the alcohol on the forceps.

For washing the seed after treatment, a nylon mesh bag made out of old curtains for each cross is fine (What about sections of old nylon stockings? P. E.), a great many will hang over the edge of a single plastic ice-cream carton taking little room in the sink or tub, while a slow stream of water runs through; Orville Fay says a half-hour is enough and that it isn't necessary to wash for the seeds' sake but only to protect your hands while planting the treated seeds.

At this point I had written a caution about the dangers of using Colchicine, and had sent a draft copy to Currier McEwen for comment. He added the following note in the margin, in part: "I don't know wherethe idea started that Colchicine is dangerous...there is no danger in the amount that one might get on his hands. The dose for the first day of treatment of an acute attack of gout is 4 to 5 milligrams by mouth, or 3 mg. intravenously, and the whole amount in the little packets I gave you was only 50 mg. I don't want to engourage careless handling, but also I don't want to see people scared away from using it. The candy type of aspirin for children is a lot more dangerous around the house than is colchicine which tastes nasty!" Since Currier is an arthritis specialist who deals with Colchicine professionally, his word on it may be considered definitive.

Kevin may not like it if I ramble, but it was a long time ago that he asked me, about the time my Siberian season started, early in February, with planting of seed in Petri dishes; and here I am at the end of June, still making crosses, sending in application blanks for four introductions- my first- and gathering, recording and counting up the failed tags from the pollinating experiment which Currier and I have done for our Scientific Committee. There is a report on this further on in this issue. It was interesting to do, and gave me enough seed material to treat with colchicine next winter, and some serendipitous discoveries, too; one of them resulted in the invention or a term for a measure of pollen.

For ten days after the first flowers came out on my White Swirl the poor row had almost no flowers showing. All were either stripped, or bagged, or tied up with strips of foliage before they could open. Part of the experiment called for using pollen from immature buds, and the only way I could get it was to ream it out of the unopened pollen sacs. While I was doing this, I noticed that the White Swirl anthers looked exactly like the ones I was working with, so naturally

I tried reaming them out too, and to my amazement found that they had about the same amount of pollen of normal appearance. In my exuberance over this discovery, I invented a measure for pollen: a 'teep', the amount that would carry on the small end of a flat toothpick, or 'teeper'. Each anther of White Swirl would give six good teeps, three from each side. One teep of pollen is more than ample for a single flower, but I have had good luck applying the entire teep to one of the three stigmas. Thus each White Swirl anther will pollinate six flowers, if you can hang onto it long enough to dig out all six teeps. A really full anther of a prize pollen-bearer might have as many as ten or 12 teeps, but six is a very fair amount. -In case you think this is funny, the term for the amount of powder that will stay on the last 1/4 inch of the broad end of a flat toothpick is a tk- see your Arasan package! And, although the round, pointed-end toothpick teeps better, a slight breeze will carry off the precious teep of pollen.

Currier uses the anthers straight, and he explains how he makes the anthers give up their pollen: "I squeeze the anther gently and wiggle it at the same time, and almost always (including White Swirl) the sacs open up.") (Note- I have opened unco-operative anthers by stroking gently along the opening-line of each valve with a fine sewing-needle and after three or four strokes most will pop open- P. S.) When I was in South Harpswell looking at the work he was doing, I had the good sense not to ask him if he knew that White Swirl HAD pollen, but rather to inquire whether he had ever GOT anything from White Swirl pollen. Of course he had, although he said that selfed seed didn't germinate very well, and he had only two seedlings which hadn't bloomed yet. I have a number of selfed capsules, but also a number of pods set on various seedlings, not too carefully selected, since my purpose was to test the pollen viability. Now I'll have to test its germinability too...and then- can a person who just lined out 338 40-chromosome Siberian seedlings from the Species Group Seed Sale, after setting 100 as the limit, resist growing ANY germinated seedling? (Two chrysographes hybrids of Kevin's led me into this trap by their luscious coloring.)

You see, there is a whole volume of stories in this past season. The colchicining went on all winter, and thanks to Currier's instructions and help with all the necessities and luxuries- colchicine all weighed out in packets, stacks of disposable Petri dishes, and Panodrench for seed-soaking- the seeds doubled properly; a few survuved and are lined out and growing; most of these are increasing and will no doubt turn out to be, if affected at all, chimeras at the lowest possible level of doubled cells. If I can turn out even one that is crossable at the tetraploid level I'll be happy, especially if it should be one from the most wanted combination, what I call 'shad'

for shadow- a pattern in deep blue with the center of the falls considerably lighter than the edges. This seedling and sibs backcrossed to White Swirl gives seed for treatment that is three times White Swirl- i. e. (White Swirl X (White Swirl x (White Swirl x Eric the Red))). In addition to using White Swirl seed entirely for the colchicine treatment, White Swirl also forms the backbone for my part of the pollinating experiments; one good thing about this is that many of the insects that befoul the Siberian flowers greatly prefer those with blue flowers, and this seems particularly true of the iris weevil, a small round black-snouted beetle which makes holes in the buds and mangles thr open flowers. It attacks bearded irises. almost exclusively ruining blue or purple ones, but breeds entirely in apogon buds. It undoubtedly came to me from I. versicolor in the swamp over the way. Like the iris borer it seems to be solitary- one to a pod- but oneis enough. He can finish off 75-100% of the seeds, and leaves any remainder dubious or contaminated. This interferes with the necessary sterile germination for the colchicine treatment, although Panodrench seems to take care of it.

The insect explosion of 1971 may be only the beginning. Mary Kanela told us that she had not one single good Siberian flower this year; all had been eaten out in bud by some unfamiliar beast in the form of a white grub which matures before the flower opens. Will somebody please investigate this critter before he ruins our plans for Siberian improvement and promotion?

This year I selected four of the 'Three times White Swirls' to register because it became evident that the tetraploid work is not immediately spectacular in all respects, and is going to be a slow process of improvement; and in the meantime, for the first time we have a going program of planned improvement in the diploids, with more and more hybridizers joining in. Not only are the new diploids gorgeous plants in themselves, but they are needed in the work to improve the tetraploids. It is my opinion with which many agree that White Swirl is crucial to both programs, and that without it, developing the tetraploids would be a very long process. Tetraploidy does sometimes result in larger size, but this to me (naturally!) is a dubious improvement. Tetraploidy does sometimes give velvet, but diploids such as Tealwood already have velvet which should be exploited for it greatly improves the reds and enhances the deep violets. Denis Wharton pointed out a narrow silver edging on the new tetras at Currier's, but this has limitations. Fringe at the midribs of the styles, which could be made into a distinctive feature, occurs in diploids as well as in tetraploids. I have plans for developing the 'shad' pattern; the big question is, what will tetraploidy do to such a specific color distribution?

Slowness in development of the tetras can be laid to the method of inducing tetraploidy which involves the run of a cross rather than selected seedlings. Thus the parent of my second White Swirl cross was a one-from-100 selection of the first, by Eric the Red. In this second cross, 69A, the quality was so high that I numbered over 50 seedlings, but even such a precentage is no guarantee that the one that doubles and proves fertile will carry through a wanted trait. It is because of this that the self-set White Swirl seed would be so important, for next to clonal doubling of a mature plant of White Swirl itself, a difficult assignment, a doubled seedling of White Swirl selfed would be our best chance of bringing the famous variations it imparts to the level of direct breeding among tetraploids.

Here let me admit that there <u>are</u> other forms than those the White Swirl derivatives show, and there <u>are</u> enthusiasts who prefer the downhanging, fluttery types. Currier's first big tetraploid shows graphically how a stiff flare can change, for instance, Gatineau's big round falls, which are pendulous from the end of the hafts, and stiffen them out horizontally into an absurd shape like a propellor. He keeps this plant out of sentiment, since it was his first tetraploid; but also to remind him that tetraploidy is not an end in itself, but a tool to be used with care in making better Siberian irises.

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A REPORT OF A RESEARCH PROJECT TO TEST VARIOUS METHODS OF MAKING CROSSES OF SIBERIAN IRISES.

Currier McEwen and Bee Warburton
South Harpswell, Me.; Westboro, Mass.

It is well known that Siberian irises are so readily pollinated by insects or wind that crosses made after the flowers have opened cannot be relied on so far as the identity of the pollen parent is concerned. Hence it is customary to artificially open unopened buds and use them for crosses. However there is uncertainty as to how mature the flowers which are to serve as the parents should be to permit a successful result. One common practice has been to 'strip' a bud (dissect it open and remove its anthers, falls and standards) and then cover it with gauze ('bag' it) to prevent pollination by insects while waiting for it to become mature enough to be fertile. Another method recently recommended by McGarvey is to dissect open a bud, remove anthers and standards, cross pollinate it at once and then tie up the falls. The latter measure is designed to keep the pollen deposited on the stigma from drying out until both it and the stigma have matured enough to be fertile.

The project here reported was designed to test the effectiveness of these methods. It was undertaken as a project of the Research Committee by Bee Warburton and Currier McEwen.

Method:

The following series of crosses of Siberian irises was made:

A- 30 crosses were made using freshly stripped buds of a size not expected to open spontaneously for 12-24 hours, and pollen from similarly opened buds of comparable stage of maturity. In the group the crosses were made at once and the flowers, from which anthers, falls and standards had been stripped, were bagged at once with gauze.

B- 26 crosses were made using immature buds as in method A as pod parents but with pollen from mature flowers. As in A, anthers, falls and standards had been removed from the pod parent, and it was bagged at once.

C- 28 crosses were made with immature flowers stripped as above and immmediately bagged. The gauze was removed next day to permit pollination with immature pollen as in A, and the gauze was then replaced.

D- 29 crosses were made as in C except that the pollen used the second day was from a mature flower.

E- 35 crosses were made using immature buds dissected open but with only anthers and standards removed. Pollen from a similarly immature flower was used at once and the falls were then tied up to enclose the style arms and stigma.

F- 26 crosses were made using immature buds dissected as in E except that the pollen used was from a mature flower. The falls were then tied up as in E.

G- 31 crosses were made as in A except that the buds of the pod flower were nearly mature and would be expected to open in another 1 to 4 hours. As in A, the pollen was from an immature bud, and the dissected flower was bagged as soon as it was pollinated.

H- 32 crosses were made as for G but mature buds were used for both pod and pollen parents.

I- 32 crosses were made using mature buds as in G but with the falls left on the pod parent, and pollen was taked from immature buds. The falls of the pod parents were then tied up as in E.

J- 33 crosses were made as in I, but mature buds were used for both Parents. The falls were then tied up as in I.

K- In addition to the above group of ten experiments done by both authors, an eleventh was carried out by Bee Warburton. This consisted of 20 buds opened artificially while still immature and stripped of anthers, falls and standards. They were not hand-pollinated and were given no protection to prevent subsequent pollination by insects or wind.

TABLE

Code	Maturity of Pod Parent	Maturity of Pollen Parent	Time of Cross	Protection Supplied	Number of Crosses B.W.*	Number of Crosses C.McE**	Number of Crosses Tot.	Number of Takes B.W.*	Number of Takes C.McE**	Number of Takes Tot.	Percent
A	Immature	Immature	At once	Bagged	18	12	30	0	6	6	20
B	Immature	Mature	" "	"	17	9	26	2	4	6	23
C	Dissected immature-pollinated mature	Immature	24 hours later	"	18	10	28	0	4	4	14
D	Same as C	Mature	"	"	16	13	29	10	7	17	58
E	Immature	Immature	At once	Falls tied up	19	16	35	7	5	12	34
F	Immature	Mature	"	"	17	9	26	6	4	10	39
G	Mature	Immature	"	Bagged	20	11	31	2	3	5	16
H	Mature	Mature	"	"	17	15	32	13	10	23	72
I	Mature	Immature	"	Falls tied up	20	12	32	3	9	12	38
J	Mature	Mature	"	"	13	20	33	13	12	25	79
K	Immature to mature	Not hand pollinated	None	None	20		20	0		0	0

* B. W.- Crosses made by Bee Warburton

**C. McE. - Crosses made by Currier McEwen

Results:
The results are summarized in the Table on page 21. It can be seen that crosses of immature buds with mature or immature pollen placed on the buds at once (A & B) were successful in less than one fourth of the attempts. Tying up the falls after such crosses increased the successful takes to about one third (E & F). Bagging stripped immature buds and crossing them the following day with immature pollen gave takes in only 14% of the tries (C) but the same procedure using mature pollen was successfulin more than half the attempts (D).

Clearly, the best results were obtained by using 'mature' buds for both parents. Immature pollen placed on a mature bud gave a successful result in only 16% of tries (G), but when mature pollen was used in the same manner 72% were successful (H). Tying up the falls after using immature pollen on mature buds doubled the rate of successful takes to 38% (I) as compared with G; and the same method after using mature pollen gave the best results of all, 79% successful takes (J).

Line K in the Table shows that not one of the 20 buds stripped of anthers, falls and standards and not intentionally pollinated set a pod in spite of the fact that they were not covered by gauze or given any other protection against pollination.

Conclusions:
The results of these experiments permit the following conclusions:

1. In making crosses of Siberian irises best results can be achieved by selecting both as pod and as pollen parents flower buds which are reaching maturity and can be expected to open in a few hours.

2. If such buds are used it probably makes little difference whether the buds are stripped of anthers, falls and standards and bagged or are stripped merely of anthers and standards and the falls then used to cover the styles, although the latter method is easier.

3. If less mature buds are to be used as either parent, it is preferable to tie up the falls after the cross is made.

4. The time-honored procedure of bagging stripped buds for crossing the next day is not necessary and its results do not warrant the delay and inconvenience entailed.

5. Preliminary results suggest that stripped buds do not attract insects and that it is not necessary to bag them. This will be te tested further next year, however, before it is stated as a firm conclusion.

THE 40 CHROMOSOME SIBERIANS

Jean Witt
Seattle, Washington.

My experience with species Siberians has been primarily with those of the 40-chromosome group from Eastern Asia. They are plants of damp meadows and streamsides, forming large clumps of grassy, deciduous foliage, with many slender erect stems, usually two-flowered. They more than make up for the two-flowered habit by the number of stalks per clump, sometimes into the dozens on a large plant. They come easily from seed, and once established, seldom need dividing until they have outgrown their space. Dividing is usually done in the fall in Seattle but can be done in the spring in colder areas.

For me, these species grow successfully under the ordinary border conditions that suit the garden varieties of Siberians; however, in our very porpus gravelly soil, they require extra moisture during the spring and early summer in order to bloom well. Drying spring winds just after the leaves start into growth seem to be especially hard on them, delaying bloom or preventing it entirely. I now have all my Siberians in a bed with extra peat moss added to help retain moisture, and a cover of bark mulch to keep the weeds down. Seattle's mild climate is no test of their hardiness- that will have to be done elsewhere. I. forrestii, at least, comes from a high mountain region and should be able to take harsh winters. The '40s' seem to suffer less from winter rot than do the I. sibirica-I. sanguinea derivatives; I. delavayi is perhaps a little more susceptible than the others.

At the present time six species of 40-chromosome Siberians are available in the U. S.: Ii. chrysographes, forrestii, wilsonii, clarkei, delavayi and bulleyana. I have seem material that may be I. Dyke dykesii, but will reserve judgement until I can locate some clonal material from England. I. phragmetitorum is not, to my knowledge, in cultivation.

To me, the '40s' are a much more intriguing group than the garden Siberians and their antecedents. Their color range includes yellow, and I. chrysographes has two anthocyanins instead of just one, a mauve malvadin in addition to the dark delphinidin. Hybridization appears to have split them into a wealth of color and form that the '28s' at present cannot offer. The ease with which bees effect crosses among the '40s' is nothing short of phenominal. This is great for the raising of new and interesting seedlings, but complicates the propagation of authentic species material from seeds. Seed lots can stray rather far from the type in a couple of generations where several species are grown in close proximity. With Dykes' monograph in hand, let us see what the various species should look like, and what we presently possess, descended from them.

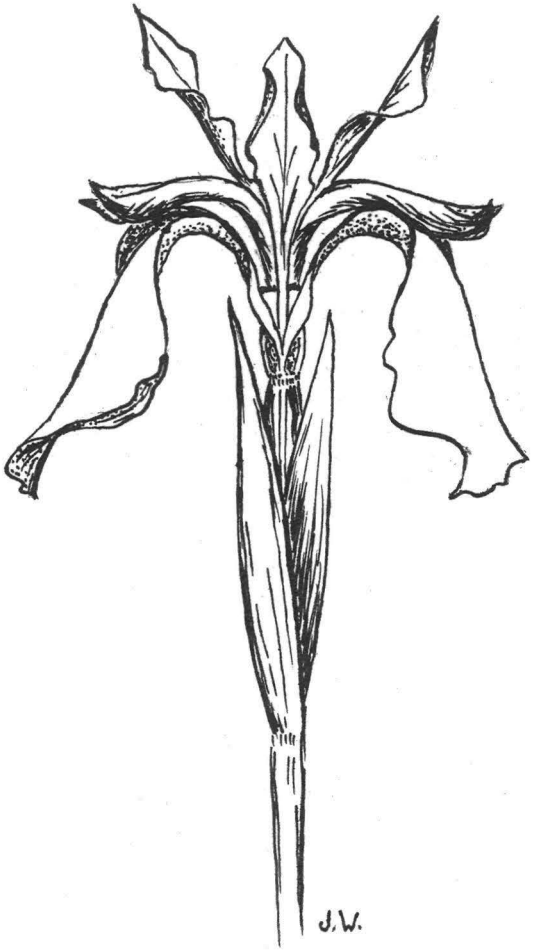
I. chrysographes (Dykes 1911) was collected in China by E. H. Wilson in 1908. It is illustrated in color in Bot. Mag. t. 8433, 1912, and in Dykes' The Genus Iris. It is found in Szechwan and Yunnan. The 'Rubella' form was collected by Kingdon Ward in 1921, in Western China. It received an A. M. from the Royal Horticultural Society in 1927. I. chrysographes is unquestionably the most striking species of this group, with its flowers cut from red-black velvet embroidered with signals of "golden writing". Its form is typical of the group- delicate nearly horizontal styles and standards, and large pendant falls- a distinctive form, far removed from current trends. My clones, mostly from seed, some of it direct from England, run the gamut from 10" to 3' in height, early to late bloom season, much to virtually no yellow signal, and from bright red-violet to deep blue-violet and so nearly black. 'Rubella', and 'Kew Black', are variations of the type distinctive enough to have received names. Many hybrids, particularly with I. forrestii, were named by Perry during the 1920's.

I. forrestii (Dykes 1910) was collected by George Forrest in the northwest Yunnan and has the common name, Yunnan Iris. As shown in Dykes' color plate it is a pleasing light yellow flower with erect standards and the same color pendant falls with a minimum signal of dark lines and dots. My best clones could have posed for that portrait and are almost butter yellow; others show increasing amounts of purple dotting, and I suspect that some at least represent F2aggregates from crosses with I. chrysographes. Some of these plicata-like spotted forms are very attractive; others are rather drab. Clones range in height from 10" to 3', and bloom from early to late June. Perry listed the variety 'Forrestii Major' in 1930, and made numerous hybrid combinations. Flowers from the cross I. forrestii x I. wilsonii were depicted in color in the Revue Horticole 109: 18, 542, June 16 1937.

I. wilsonii (C. H. Wright 1907) is from western Hupeh and Shensi and was collected by E. H. Wilson whose name it bears. It is taller and later than the previous species, with somewhat less attractive flowers of a paler yellow. Foliage has a slightly grayish cast. It is illustrated in color in Dykes' The Genus Iris. From the behavior of garden clones, I suspect that it has been well mixed with other species. Some of my very late, tall material is obviously of hybrid origin, perhaps involving I. delavayi; others show affinities with I. chrysographes and I. forrestii. A cross of (I. wilsonii x Chrysofor) X (I. delavayi x ...) is attributed to Perry, so this is not surprising.

I. delavayi (Micheli 1895) from southwestern China was introduced into Le Jardin Des Plantes in Paris in 1889 from seeds sent by the missionary Delavay from Yunnan. It flowered first in England in

I. WILSONII SEEDLING
showing pendant form.



1898. Forrest later found it on the Tali Range in 1906. Kingdon Ward tells of finding it in the Tsangpo Gorge. With me, this species is very tall and very late, with wider, scouter foliage that the others. Its flowers have pendant, almost dogeared falls in blue and violet with white signals. This year it went out of flower around the 1st of July just as the Japanese irises came in. It is pictured in color in Bot. Mag. 125, t. 7661, 1899; also in Dykes' The Genus Iris. Crosses of I. delavayi with Ii. clarkei, forrestii and wilsonii, as well as with species from other sections, were made by Perry in England in the 1920's. His 'Delavayi Pallida' received the British Iris Society's Silver Gilt Medal in 1928. His Del-For hybrids were pictured in color in the Revue Horticole 109: 18, 542 for June 16, 1937, and in black and white in The Garden 405: June 17, 1926* Mirza, (Yeld 1925) is a named I. delavayi seedling which is in the background of my spotted seedling Camouflage.

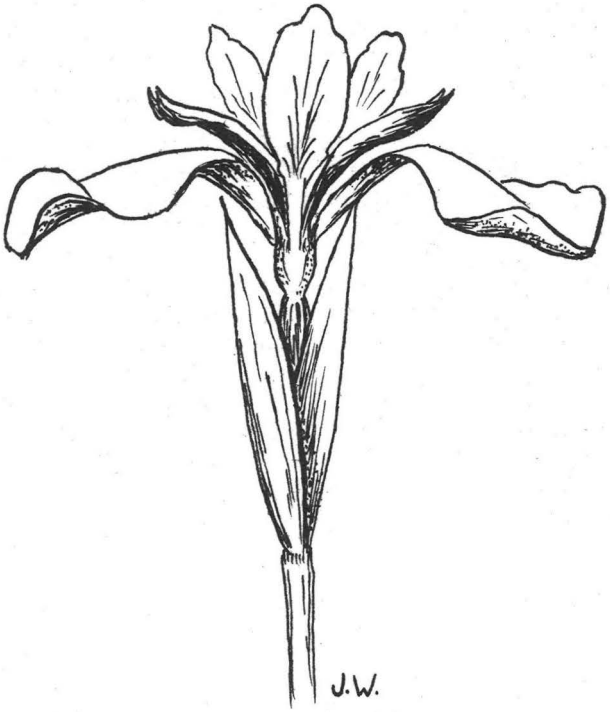
I. clarkei (Baker 1892) was described from Sikkim. It ranges from Western China to the Himalayas. Kingdon Ward encountered it in the Tsangpo Gorge, and George Taylor describes a form "with white-blotched, dark lustrous purple" flowers as common in the Tsangpo Valley. 'Azurea' and 'Purpurea' forms were listed by Smith in 1927. This species is also late blooming, toward the end of June in Seattle, and is the only one of the group with a branched stem. Two strains can be recognized in the current local material- one that resembles the plate in Dykes, with very pendant falls and dull veiny blue coloring- a rather dour sort of flower. The other has semi-flaring flowers in bright violet-blue, and a white and yellow signal in the outline of an inverted heart or butterfly. Ground color of the petals is white. My husband while in England photographed still another type, shorter and with purple flowers, possibly the 'Purpurea' alluded to above. It is recorded as having been crossed with I. delavayi; some of my clones appear to reflect such ancestry.

I. bulleyana (Dykes 1910) from western China has been the subject of much controversy. Its status as a species has sometimes been questioned- apparently incorrectly. Cowan in his book, "The Journeys and Plant Introductions of George Forrest", 1952, pp. 169-170, says that Forrest brought back herbarium specimens from S. E. Tibet and from Yunnan which are identical with the plant that Dykes received from and named for A. E. Bulley. This as any collector of Californicae will tell you does not rule out a hybrid origin, but does establish I. bulleyana as a wild entity.

Dykes' plate shows a pleasing flower of flaring form, rather than pendant, and spotted rather than solidly colored in blue violet over white, with the dotting gathered together into a well defined

* and July 16, 1927

PUGET POLKA
Showing flaring form



signal. No seedlings that I have been able to raise, either from English or American sources, bear any resemblance to the original and some are very far afield. The illustration on p. 33 in The American Iris Society's The Iris, An Ideal Hardy Perennial, 1947, shows the spotted pattern but not the flower form, and the statement made there that it is not a true species since it does not come true from seed suggests that the material pictured was already of hybrid origin. The flower illustrated in my article in AIS Bull. 166: 17, July 1962 is not I. bulleyana at all, but probably related to the old Siberian variety Grandis. Crosses with I. bulleyana began early. Correvon listed 'Bulleyana Carnea' in 1930, Vilmorin had I. bulleyana x I. forrestii seedlings in 1938, and in 1925 Perry had 'Bulleygraphes', a cross of I. bulleyana x I chrysographes which was illustrated in The Garden 405: July 17, 1926; also in 1930 'Bulleyana Pallida'.

I. dykesii (Stapf 1933) ? W. China, was found in Dykes' garden after his death. It is said to have been sent to him from Leningrad and came possibly from China. It is illustrated in color in Bot. Mag. 155 t. 9282, 1933. It resembles I. chrysographes but has disproportinately large falls of a deep violet-blue with a golden median line. Some of the plants we have in Seattle have these extra large falls, however, we usually think of them as simply super-chrysographes, since they are seedlings. Clonal material from England, so far as I know, is not available in the U. S.

I. phragmitetorum (Handel-Mazzetti 1925) was described from Yunnan in 1925. Flowers are said to be blue, but no further information is available. Now that the long-closed door to Red China seems to be swinging open, perhaps we can hope that we will some day see this one. China still holds a number of irises not presently represented in cultivation in the west.

Kingdon Ward, writing in the Bulletin of the Alpine Garden Society 4: p. 237, September 1936, tells of sowing seed of an iris of the Siberian section from Tibet (K. W. 11712) having standards of pale violet, and falls yellow or cream lightly veined violet, which he felt was "probably new". Did the seeds germinate? Was it new? Is it still extant? Prehaps some of our members will be able to unearth additional clues to this one.

From this brief sketch of the historical background, it is easy to see why such a host of color forms are appearing in seed lots of 40 chromosome Siberians today. It also raises some very interesting questions. Do all flowers with dotted patterns and flaring form as seen in the sketch of Puget Polka on the previous page descend from those original crosses of I. bulleyana? Or are dotting and flaring carried as recessives by some of the other species? Or has dotting appeared as the result of hybridization between either of the yellow-flowered species with any of the blue or purple flowered ones? Perry

named a series of Chryso-For seedlings in which colors broke or segregated into spotted types, some of which correspond rather well to Puget Polka. My Ugly Ducklings(raised from I. chrysographes seed, but apparently actually from a Chryso-For hybrid) also give spotted seedlings, mostly on yellow ground. I have one seedling related to I. wilsonii that is bordered with delicate lines and dots after the manner of Mme. Chereau. (Note: I have one also with brown stitching on yellow from Kitton yellows- K. V.) Another clone, of undetermined hybrid origin, has so little dotting as to appear white. My Camouflage, with darker dotting and pendant falls, is descended through 'Mirza Citronella' from I. delavayi, while a third seedling with the garden name 'Brizance' (so called because viewing its somewhat odd color is a 'shattering' experience) is striped as well as dotted.

Work with 40 chromosome Siberians seems to have languished during World War II, as might be expected, but was taken up again in recent years by M. E. Kitton. Ii. delavayi, wilsonii and forrestii are among the species he has used; and he also has produced spotted types as well as some with coppery tones. He described his seedlings Oyster Bird, Yellow Court and Barbara's Choice in BIS Yearbook 1964, pp 63-66.

While I have found the '40s' good garden subjects on their own merits, my current interest in them is for use in crosses with Pacific Coast irises. Dykes Medal winner Margot Holmes pales into insignificance beside some of the Cal-Sibe hybrids now coming into bloom in the gardens of various Washington and Oregon hybridizers. Their story will be told a few seasons hence. Suffice it to say now: Cal-Sibes are going to be a class to keep your eye on. It is my prediction that they are about to undergo the same sort of spurt of development that the SDBs have shown over the past twenty years.

A SORT OF SUMMARY

Peg Edwards

There you have it, kids- our 'Special' on hybridizing Siberians. Experiences of hybridizers, research to help hybridizers, background on material to be used by hybridizers- even talk of a new name for one group- and here I want to stick in my two cents' worth. I have two possible suggestions to offer. Inasmuch as most of the 40-chr. species either come from or at least are found among other places, in Yunnan, W. China, might we not call them the Yunnan Group? Or since apparently all come from the mountain complex called the Himalayas, which extends from West Pakistan through northern India and Tibet into China proper, might we not consider calling them the Himalayan Group?

SIBERIANS ARE THE GREATEST

Mildred Johnson

..You can say that again! What a tremendous season this garden had! EGO bloomed on a first-year plant so beautifully it was overwhelming. Pictures and descriptions are just nor enough to match the flower that popped up from the good green foliage- and on a first year plant, at that.

The color was so brilliant it fairly sparkled in the sun, and the form is perfection itself. It also has the quality of preserving extremely well- it hardly dulled down at all and did not even darked a full shade (as most flowers do when they are dried.) It had two stalks, one of which was crossed, the other preserved in Silica-Gel. That one is in my Magic Ball- the crystal I used at the Denver Convention showing off White Swirl.

Sorry to say, DaWFUL did not respond as well; it grew nicely but did not bloom. Wait till next year! Of the two species Dr. Hirao sent me from Japan, the taller dark purple bloomed and this was crossed to EGO and reverse. Probably it will set EGO breeding back 40 generations, but perhaps luck will help in making the next generation or two worth having. It's fun thinking of the possibilities when one makes these crazy crosses.

On a visit to the West Coast we saw SPARKLING ROSE in Lura Roache's garden in Los Angeles; it was exciting- such a glow, and so big! Now if we can make it do half as well in our hot summer gardens we'll be happy. While on the coast we visited the Southern California Iris Society Show and saw a nice display of Siberians- on a table labeled Pacific Coast Hyorids. We hate to complain so we casually mentioned that they looked like Siberians to us... they said they were, and we felt much better. The Pacific Coast irise s surely have some exciting brilliance and color, but the Siberians held their own.

At the Utah Iris Show in Salt Lake City, we put in an educational exhibit of many Siberians; now everyone wants to know 'Where can I get Siberians?' Perhaps a listing of sources in our publications would help.

Judging at Salt Lake and Logan, Utah was exciting, and we also visited the Ogden, Utah show, making this an iris season of delight.

I have been and will continue, experimenting with the effects of warm soil and full sun vs. cool soil and little sun to prolong the bloom season. The following results seem to carry out some of my suspicions: (dates when bloom started)

April 28, South exposure . . . . . Mrs. Rowe
May 5, Southeast " . . . . . Mrs. Rowe
May 11, South " . . . . . Butterfly, Lady Northcliffe, Morning Magic
May 13, South " . . . . . My Love
May 14, " " . . . . . Snowcrest
May 17, two inches of snow fell
May 23, South exposure . . . . . Gatineau, Silvertip, Tycoon
May 24, " " . . . . . Mandy Morse, Periwinkle
May 25, " " . . . . . Cool Spring, Congo Drums
May 29, North exposure . . . . . Joretta
May 30, East " . . . . . Seedlings- Joretta x Cool Spring (none earth-shattering)
June 5, Nothr " . . . . . My Love, Kingfisher
June 11, " " . . . . . Snow Flare, Mountain Lake, Cool Spring
June 14, " " . . . . . Velvet Gown
June 16, East " . . . . . Tycoon
June 20, North " . . . . . Ego
July 4 & 7, rebloom . . . . . My Love

When all clumps are well established I can then obtain more positive data of the effects of photoperiodism on bloom of the Siberian irises.

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BACK TALK

Peg Edwards

One nice thing about being the editor of a publication, for as talkative an individual as myself, is that you can fill all the gaps at the bottoms of pages and even, sometimes, a full page that results from the fact that a sheet of paper bound into booklet form has four sides. I tried in preparing this issue to edit things down just enough to get it all into 28 pages- seven sheets; but I found that I could only manage that by putting Jean Witt's two beautiful drawings on the same page, which would be too crowded and would not show them to the good advantage they deserve. So we went to the next size, 32 pages, included Mildred Johnson's article, and here I am with a little over a page to play with.

I'd like to take someof the space to pay a greatly deserved tribute to Kevin Vaughn who gathered and pre-edited this 'special' issue on hybridizing. Kevin is still not through High School yet, which may be why he has the gumption and the drive to take on these jobs- special edition, special auctions- he is not yet old enough to have been touched by the fear of failure that so often stops us older

people from even starting to do something. Certainly in view of how he's done so far he hasn't any reason to fear failure- both last year's and this year's auctions have been highly successful- (of course he had Bee Warburton as coadjutor there, or was it vice versa?) and looking over the pages I have typed up I must say he has succeeded in putting together a very interesting, informative and useful collection of articles. Good work, Kev!

In fact my only complaint is that the last part of the Check List has had to be put off to the spring issue. That will include corrections of errors in the last batch. I guess we are not going to get a perfect Check List until the whole thing can be gathered into one cover- which I hope will be some time in late 1972 or early 1973. It can be expanded to include registration and introduction information on varieties that were not included in the original version of the three previous issues of TSI, primarily because the information was not yet at hand, at the time I was dealing with that part of the alphabet.

Again in this issue you are getting a dose of my daffy typing. I wish someone would volunteer to type up the pages for the printer. We have twice tried using a good typist but in both cases these were people who didn't know much about irises, and while their typing was excellent, they did in several cases make errors of matter; misspellings of technical terms, misinterpretations of unusual words, etc. So we really need a competent typist who knows what the stuff is all about. In the meantime I guess we'll just have to make out with me.

Did I ever tell you how I got into iris breeding? (Kind of appropriate for this issue.) It was all Dr. Sidney Mitchell's fault. When I was faced, in 1949, with having the care of a garden on a low budget after years of living in apartments, I did what comes naturally to me- I bought a book. Then I learned that irises came in more than just the old dingy whites, small yellows and gawky purples- heck, they even had pinks! But the prices were way beyond my budget and I didn't know anyone I could steal them from- so I bought another book- Dr. Mitchell's. He told me how to make my own irises, and I squeezed out enough to buy one plant of Pink Cameo, to work with. This led to my downfall, and now I am hooked. C'est le premier pa qui coute, as the French cuckoo said while eating his foster parent.

I hope that this issue will inspire someone to attempt to investigate other aspects of the Siberians not covered here. I wish, too, that someone would take on the job of doing karyotype analyses of the group, both the pure species and the garden hybrids. I have a suspicion about the 40s; on analysis they might prove to be tetras. In some ways they act like it. -Well, enough chat. End of page.

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