

# S I G N A

JUNE 1974 — — Number 13

THE SPECIES IRIS STUDY GROUP  
OF THE AMERICAN IRIS SOCIETY



The Madonna of San Polo in Chianti

The floral offering of a bunch of *I. pallida* was placed there on the occasion of the first Iris Festa.

( See article on page 350 )

( By courtesy of the British Iris Society )

(From an Ektachrome by H. Castle Fletcher)

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SIGNA - - - Number 13 - - - JUNE 1974

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## GREETINGS FROM YOUR CHAIRMAN

By Roy Davidson

With another glorious iris season about over, we remain entranced. It was a joy to watch the wondrous ways in which our favorite subject, the iris, thrilled and exalted us with its many variations. We hope that during every future iris season, just as during the present season, the happenings in our garden will raise our spirits to a point high above worldly cares.

Some remarks, however, should be made concerning the stocking of back publications. We much regret a forced decision to discontinue stocking any but our own publications for distribution to our members due to a large misplaced shipment and irrecoverable dollars lost. Sorry to have disappointed some of you; if you have not received those B.I.S. publications (or a refund when a specific purchase was made), let the secretary know so that adjustment can be made. We had originally given the Cohen monograph of the Californicae with membership and hoped also to supply the Sibiricae one as well. Perhaps we were overly ambitious; it seems so. These may still be ordered directly from England, however.

Additional study manual material is in preparation, some to be issued annually. The next section will include appendices 1-5 which will go to all members. We continue to offer back issues of SIGNA as long as the stock holds out.

It is heartening to see increased interest in all irises, but especially in some neglected quarters such as the bulbous and beardless species as well as the Evansias. Your committee is rather proud of having been involved with this interest by making them available through seed. All members should have received the seed list and if you did not, let us hear about it. As our membership continues to increase, we try to meet the challenge of appealing (in print) to both experienced and novice gardeners, as well as making "rare" items available. If there are questions, just ask. Now, have another good year.

As ever,



The British Iris Society dues may be paid directly to them or sent to AIS secretary at: Tower Grove Road, St. Louis, Mo.

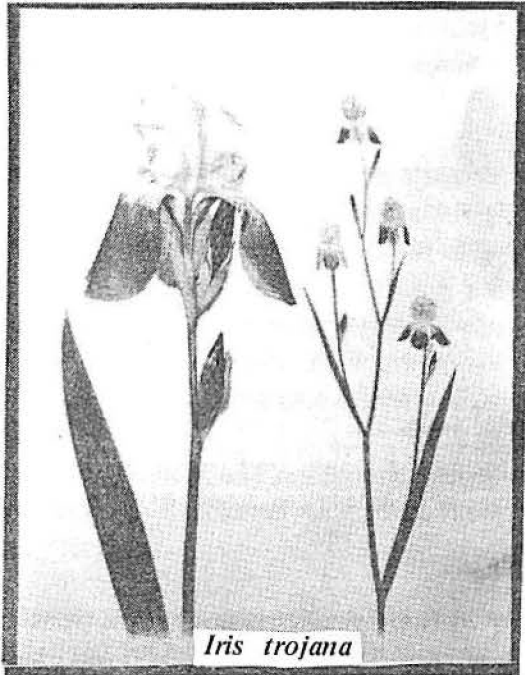
The Cohen Monograph of Californicae and the Gray-Wilson Monograph of Sibiricae are available at \$1.00 each (get an international bank draft in the equivalent amount). Send payment to: Miss M.C.O. Fowler, 58 Barkham Road, Wokingham, Berks, RG11-2RG, England.

Our publications: SIGNA, vol. 1 and 2, consisting of 5 issues per volume, are available at \$5.00 each and individual issues no. 11 and 12 \$1.00 each from our secretary, Homer Metcalf.

It is intended that the Study Manual complete with serialized parts be sent to all members. Additional copies are available from our secretary for \$5.00.

# DYKES: " THE GENUS IRIS "

Of all reference works on irises, the most famed and the most rare and the most valuable is the book "THE GENUS IRIS", by William Rickatson Dykes, published in England in 1913. It is a massive book, with twice the dimensions of an average book, and with many full-page color plates. Black and white photos of two of those plates, greatly reduced in size, and relevant abbreviated extracts from the text, are published below. Quotation marks indicate unedited paragraphs:



*Iris trojana* is a tall bearded iris species with a bloomstalk two feet or more in height, bearing about six or eight or more flowers per stalk. It has a terminal head of two blossoms, plus three lateral branches with one or two flowers each. The buds are of a long pointed oval shape. The standards are pale blue. The falls are predominantly of an attractive bright red-purple color, and in the haft area there is a whitish ground overlaid with chestnut colored veins. The harmonizing beard is white, tipped with yellow. The leaves of *Iris trojana* are distinctly narrow for so large a plant.

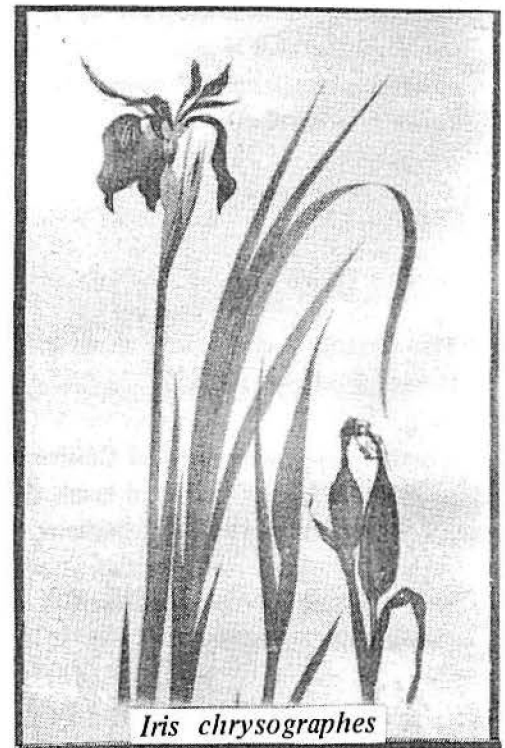
"By an oversight due apparently to the fact that the original description of the species contained no express mention of the beard, *Iris trojana* was placed by Baker among the Apogons. Struck by the description as being obviously that of a Pogoniris, I applied to the Vienna Botanic Garden and was most kindly supplied by the Director with a number of plants. When these arrived, it was at once obvious that *Iris trojana* was a Pogoniris. The flowers proved to agree exactly with the original description. This fine sweet-scented Iris is fairly common in gardens under the mistaken name of *Iris cypriana*, which is a much rarer plant. *Iris trojana* is easily distinguished by the long, narrow, purple-flushed buds and by the broader foliage. Cultivation is easy."

*Iris chrysographes* is one of the species in the Siberian Iris section. As is typical of the Siberians, it has hollow stems. The standards are narrow, divergent in stance, and deep violet in color. As for the falls, "the oblong blade narrows abruptly to the oblong haft, which bears at its base the projecting flanges, which are a marked characteristic of the siberica group. The haft bears a few broken golden veins on a deep violet ground. The broken veins extend some distance on to the blade, of which the rest is an intense violet-purple, of velvety texture."

"This iris is perhaps the most striking of all those recently introduced from Western China. I have had under observation about a dozen plants given to me as minute seedlings by Miss Willmott and labeled "Wilson 1304". When these plants flowered in 1911, it was at once obvious that they were identical with a specimen in the Kew Herbarium bearing the same number, which Mr. Wilson had asked me to determine."

"The foliage is somewhat scanty for a member of the siberica group and resembles most closely that of *Iris clarkei*. The flowers are slightly raised above the leaves. The colour in all cases is a rich velvety red purple, but the amount of golden veining is variable, in some instances most striking and in others less conspicuous."

"Cultivation is apparently easy in conditions favourable to the other members of the group."



The owner of the copy of Dykes from which the material on this page was extracted wishes to remain anonymous, but he does invite offers for the purchase of his book. Any offers received by your Editor will be forwarded to the owner of the book. Considering its age, the copy of Dykes which now is available is in excellent condition; it has no torn pages and no markings; with it goes its original cardboard packing box.



# THE IRIS — a collective name

Dr. George Rodionenko ( Botanical Gardens, Leningrad, U.S.S.R. )

Many years of study of the peculiarities of the roots, flowers, leaves, stalks, and growth phases ( ontogeny ) of various species of so-called "irises" have convinced me, as a botanist, that "The Genus Iris" is not just one genus, but rather that it is a "biological conglomerate" of genera.

It is apparent that in years past, the one and only characteristic which served to unite all the 'iris' species into one 'genus' was the "irislikeness of the flower" — typified by three standards, three falls, and three peculiar members which Dykes called 'styles'. The irislike shape of the flower was the 'key' which supposedly distinguished and separated members of the genus Iris from all other plants.

Professor M. G. Popov has noted, in the erudite perspective of hindsight, that many systematic botanists remained for too long a time "under the hypnosis of the flower". The flower's shape was the primary reason — and perhaps the only reason — why, during the second half of the nineteenth century, the genus *Iris* still was considered to include the distinctly separate genera *Xiphium*, *Juno*, and *Gynandriris*.... For a time, even the genus *Hermodactylus* and several species of the south-African genus *Moraea* were lumped into the genus *Iris*. It is a matter of regret that W. R. Dykes, in his monograph on THE GENUS IRIS, accepted the erroneous concept of the subject which had been defined by botanists who preceeded him.

Modern taxonomy bases its conclusions on a multilateral study of the plant, and such a study of "irises" shows that they have to be distributed among a whole series of different genera. This fundamental revision in classification is being promulgated by contemporary taxonomists; it is not yet concluded. A quite significant portion of this revision, containing the results of 15 years of study, is included in my book which was published in Russian in 1961. I regret that this study still remains inaccessible to most of the world's irisarians — for the reason that it has not yet been translated and published in the English language.

It is salient to note here that all those species which once were assigned to the genus *Iris* now are distributed into SEVEN different genera. These include *Iris* L.; *Iridodictyum* Rodion. ( = sect. *reticulatae* ); *Xiphium* Mill. ( the Spanish, the Dutch, and the English bulbous irises ); *Siphonostylis* Schulze ( sect. *Unguiculares* ) (*Ii unguicularis*, *lazica*, *cretica* ); *Pardanthopsis* Lenz ( *Iris dichotoma* ); *Juno* Trattinnick ( sect. *Juno* ); and *Gynandriris* Parlatores ( *Iris sisyrrinchium* ).



the author

But irises have attracted the interest of many others than just the botanists. The iris as a decorative plant has won the love of many thousands of hobbyists who have created, and who continue to create, beautiful new hybrid varieties for their gardens. The question raised by Bill Gunther, "which plants are to be regarded as irises and which are not", is well justified. The worries of the irisarians will be somewhat reduced if we bear in mind that even after a general revision, the genus *Iris* would still contain basic groups of plants which have been and remain the subject of work aimed at the improvement of their decorative qualities. The genus *Iris* still contains all the species of bearded irises such as the dwarfs, intermediates and tall bearded. Also included are the species of the section *Hexapogon*: *Oncocylus*, *Regelias* and *Pseudo-regelias*, and the species of the sub-genus *Crossiris* which is genetically close to the true

bearded irises. Individuals working with spuria iris do not have cause for alarm as all the species of the subgenus *Xyridion* presently remain within the genus *Iris*. Finally the enormous group of beardless irises (apogons) included in the subgenus *Limniris*, with the exception of the section *unguiculares*, also remain in the genus *Iris*. Therefore all the work carried out with all these species still remain in the care of iris lovers.

But what will happen if the improvements concern species which have been allocated to other genera? The degree of natural closeness to the true irises shown by these plants is far from being uniform. Examples of plants distant from the iris include: the species of the genus *Juno*, the species of the genus *Gynandriris* and the *Pardanthopsis* species. The degree of relationship has not been established for the species of the genus *Siphonostylis*. However, *Xiphiums* (Spanish, English, and Dutch irises) and the *Iridodictyums* which include *reticulatas*, are rather close to irises. It would be a great pity if the work with the latter found itself outside the care of the iris societies.

I believe that the word "iris" should not be given a collective meaning. However, formal bases should be established for the care of plants related to irises and previously known as irises. In each case, the rules of botanical nomenclature dictate that the real name of the genus of the species in question be preserved. For example, when speaking about species of the genus *Xiphium* we shall call them *xiphiums* and the species of the genus *Juno* — *junos*.

# FINANCIAL STATEMENT

SPECIES IRIS STUDY GROUP  
Financial Statement  
9 October 1972 - 20 May 1974

## RECEIPTS

Transferred from predecessor treasurer		\$580.42
Membership dues received:		
10/9/72 - 12/31/72	\$ 17.00	
1/1/73 - 12/31/73	351.60	
1/1/74 - 5/20/74	<u>60.00</u>	
		428.60
Sale of publications (back issues of SIGNA + BIS booklets)		204.20
Proceeds of Seed Exchange operated by Jean Witt:		
1971 Exchange	\$100.00	
1972 Exchange	175.00	
1973 Exchange	<u>200.00</u>	
		475.00
	GROSS RECEIPTS	<u>\$1688.22</u>

## DISBURSEMENTS

Publications Costs:		
SIGNA #10 (B. Richardson, ed.)	\$100.00	
SIGNA #11 (B. Richardson, ed.)	170.00	
SIGNA #12 (W. Gunther, ed.)	<u>151.20</u>	
		\$421.20
Study Manual:		
30 December 72 (R. Davidson)	\$136.00	
15 February 73 (R. Davidson)	174.50	
29 April 1974 (Ryding Co.)	<u>207.32</u>	
		\$517.82
	Gross publications cost	<u>\$939.02</u>
Miscellaneous costs		
Treasurer's office expense	\$ 14.07	
Transfers to Seed Exchange acct.	6.76	
Purchase of BIS publications	13.31	
Refunds on orders for BIS publ.	<u>2.00</u>	
		36.77
Transfer from checking to savings account, 1/18/74		500.00
	GROSS DISBURSEMENTS	<u>\$1475.79</u>
	EXCESS OF RECEIPTS OVER DISBURSEMENTS	<u>\$ 212.43</u>

# The AIS National Convention 1974

E. FREEMAN YENDALL

## THE NENON GARDEN

Eloise Nenon, a member of the Species Iris Study Group, did her part to publicize species during the 1974 Roanoke Convention, where her garden was one of the "tour gardens". Photo at right shows Eloise amidst some of the species irises in her garden. A number of the convention visitors were very attentively interested in species.



One of the tour gardens during the 1974 A.I.S. national convention was that of Mrs. Ulmer H. Nenon (Eloise), who is a member of the Species Iris Study Group. Understandably, her garden was of particular interest to species enthusiasts.

In Eloise's beautiful garden were a number of species irises. Among them, three of the diploid ( $2n=24$ ) "species" were in bloom; *I. cavarnae*, *I. sambucina* and *I. variegata pontica*. Only *I. variegata* is recognized as a true species in Garden Irises. The other two are considered to be natural hybrids. A white spuria flushed with yellow at the base was also in bloom. It was identified as *I. ochroleuca* by Bill Gunther and Eleanor McCown because of its reflexed falls.



These photos of species irises were taken in the Nenon garden during this year's AIS Convention. At left is the bearded species *Iris variegata*; note the heavily veined falls. The spuria species *Iris ochroleuca* is at right; a characteristic of this species is that the falls flare horizontally inward ( rather than outward ).

# SPECIES IN AUSTRALIA

Dr. Gordon Loveridge  
St. Ives, N.S.W., Australia

January saw the start of three very wet months in Sydney, Australia. Blooming well at the beginning of the month were *Iris kaempferi*, including some of the seedlings raised from seed from Shuichi Hirao. Most of these were 3 petal varieties having a marbled color effect in reds and whites, and whites and blues; but there were two doubles, both blue, and also a 3-petalled blue with a yellow blaze that had 3 branches. On January 15th, a bloom of *Iris unguicularis alba* appeared, but also in this week all my seedlings of *Iris dichotoma* turned up their toes and died overnight--cause unknown.

The following week *Iris decora* bloomed. There were several blooms; if I remember correctly each stays open for just one day. In February, the blue *Iris unguicularis* began to bloom and these (the blue shades and the white) continued to bloom throughout the autumn and winter.

At the NSW Region rhizome sale in February, I bought some seed of *Iris dichotoma* and planted them straight away, and to my amazement had almost 90% germination in 10 days! And they have continued to thrive. Bloomwise, there was nothing much more until July when one of the early reticulatas, *Iris vartanii alba* bloomed, and a very dainty bloom it was. I only had one bulb and when I dug it up at the end of the season, it had broken up into a dozen small bulblets which will now have to increase again. *Juno aleta* grew well, but as it is only in its third year from seed it will not bloom for another 2 years at least. August brought more sporadic bloom on the reticulatas, both the common reddish purple and the bluer SPRINGTIME.

The Evansia *Iris japonica* began blooming in late July, and *Iris wattii* in August, and these really excelled themselves in their display this season. Perhaps it was the fish fertilizer and Camellia and Azalea food I gave them but the *wattii* leaves were up to 4 feet tall and the masses of blooms were above and below these depending on the shape of the bloom stalks. The variegated leaf *Iris japonica* also bloomed more prolifically this year. In September and October, the blue and the white *Iris tectorum* also bloomed well and set seed too. Also in September a dark blue *Iris laevigata* seedling bloomed out of season and well down among the leaves, but I was able to coax a pod on it.

Also about mid-September the Californians (these used to be called Pacific Coast irises) began to bloom. There were some lovely yellow unbranched clumps of *innominata*, and then the hybrids in all ranges of colors from whites to pinks, blues and reds, varying in height from 6 to 18 inches, some unbranched, but mostly well branched having 3 or 4 side branches.

The Louisianas bloomed very well from mid-August until early November and some quite interesting seedlings bloomed, including some dwarfs, some of which were from hybrids involving *Iris fulva*.

September and October gave some arilbred bloom, but no pure arils bloomed this year, and the aril season was on the whole, poor.

The spuria species *Iris demetrii* bloomed from seed for the first time, but it was a disappointment. It was nothing like its description--certainly it was blue, but a very muddy blue and very strappy form. I shall have to wait for more clones to bloom for comparison. I did self it for some seed and when this germinates and blooms, I can see if this plant comes reasonably true from seed.

The spuria species *Iris ochroleuca* and *Iris monnieri* bloomed well, and for a change, I had one bloom of *Iris kerneriana*--a smaller yellow which is also characterized by the curling leaves. Also blooming were the dwarf *sintenisii*, also *graminea* and the spuria species (?) *lilacina*.



## SPECIES IN AUSTRALIA ( continued )

The sibiricas began blooming about mid-October. *Iris delavayi* put on good displays, as did a pinkish bloom possibly *Iris clarkei*, but these were all well after the iris show. Most of the seedlings of different forms of *Iris chrysographes* X *forrestii* and *wilsonii* did not reappear above the ground, so I must assume they have been lost. Also in November, a few Californians either bloomed late or rebloomed so I was able to try crosses both ways between the Californians and the sibiricas and I have a few pods of Californian X Sibirca, the seeds of which are now planted. Also in November, *Iris foetidissima* and *foetidissima citrina* bloomed.

In late December and up until February, *Iris kaempferi* bloomed--just before them *Iris pseudacorus* (golden yellow form) and the paler *pseudacorus bastardi* also bloomed well. Blooming with the Kaempferi were also two *Iris laevigata* seedlings--the dark blue which had bloomed earlier and a very pale blue (almost white). I set seed on both of these.

Most likely, the weather caused my freak late blooming, but for Christmas Day, I had in bloom *Iris tectorum alba* (which I selfed and got a pod), *Iris japonica variegata*, a Californian, a tall bearded, and *Iris kaempferi*. The same clump of *Iris tectorum alba* also bloomed again near the end of January, and now has another seed pod.

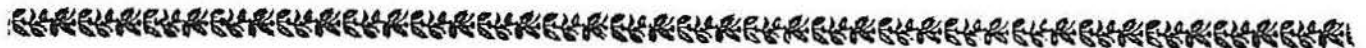
There were lots of disappointments when some plants did not bloom. These included: *Ii cristata*, *minutaurea*, *cretensis*, the seedling of *ungicularis cretensisk*, *ungicularis Winsome*, *ungicularis Starker's Pink*, *setosa* and *carthalinea*. *Humilis* died.

Of the sibiricas, seeds of *forrestii* and most of my forms of *chrysographes* have been replanted. My dwarf forms of sibirica continue to grow.

I had moved *missouriensis* (previously called *longipetala*), and it did not bloom but is increasing and looks very healthy.

Just released from quarantine are 2 triploid Louisianas--Triple Treat, a collected and named clone of *brevicaulis*, and Ruth Hollyman, a clone of *giganticaerulea*, and also Homachita, a named collected clone of *nelsonii* (one of the "Abbeyville Reds"). Also released were *pseudacorus variegata*, and *virginica orchid* and *virginica alba*.

Now, in March, the seeds are nearly all planted, the beds need weeding, and many clumps of all types need dividing, and when that is finished I'll wait hopefully for the next blossoms.



Editor's note: We are delighted that Dr. Gordon Loveridge, of Sydney, Australia, sent us this article. It is both appropriate and timely for this issue, because it lucidly spotlights the fact that members of the AIS Species Group who decide to go on the forthcoming Australia--New Zealand Iris Convention Tour will have plenty of species to see. The Loveridge garden is but one of the tour gardens which is "loaded" with species; among the others is the very notable garden of Hec and Jean Collins, in Tauranga, New Zealand. The Tour leaves from Los Angeles and San Francisco on next October 14; there are alternative return dates. For more details, see the AIS Bulletin and/or communicate directly with the tour director, Margaret Zurbrigg, at 903 Tyler Avenue, Radford, Virginia 24141.

# QUESTIONS, PLEASE !

"HE THAT NOTHING QUESTIONETH, NOTHING LEARNETH." Thomas Fuller 1608-61.

(READERS ARE INVITED TO SUBMIT QUESTIONS, AND MATERIAL FOR IDENTIFICATION, TO THE CHAIRMAN FOR SPECIES.)

Q. What is the origin of the purple base color found in some of the older garden irises, and why do we not have it in any being introduced today ? Could it have been a fashion of a bygone time ?

A. This is a most interesting question which we asked around about, but without very concrete opinions or replies. A very good number of both bearded and beardless iris species display the purple color you refer to, and at least one bearded introduction of last year, 'CAROLINA FRAGRANCE', was mentioned as being very strongly colored purple on the base of the fan. A good many kinds that have blue or purple flowers, but also many yellow-flowered species, are among those showing the trait. The coloring is not always purple; in some it is a pinkish hue to quite red, an intense ruby red in some, such as *Ii. missouriensis* and *versicolor*. *Iris virginica*, especially in some forms that were once known as "caroliniana", are stained on fan, stalk and spathe-valves, to the degree that it makes them of rather unique quality to the flower arrangers. The bearded iris showing the most of this stain was a seedling of the cross of 'HOOGSAN' x 'BLUE SHIMMER'. The idea behind the cross was to try for a plicata pattern of *Iris hoogiana* form with a silky finish, since the pod-parent 'HOOGSAN' was half plicata, out of 'SAN FRANCISCO' on *I. hoogiana*. No plics resulted and all were sterile dead-ends, one of them a deep royal purple half way up the fans and a silky flower of a color which very closely matched that of the leaf bases.

It would seem unlikely that much conscious breeding for this quality has taken place--it just happened within the lines of breeding as they were practised. It can be so striking in the garden that perhaps some efforts ought to be expended toward developing purple-based strains of various sorts of irises.

( Roy Davidson )

Q. In what parts of the U.S.A. does *Iris missouriensis* grow best? I am interested in the soil-moisture relationship, as I believe it is too wet here to suit it. Which forms would be the most valuable to work with in a breeding program? I propose doubling the chromosomes. My goal is not to have greater flowers, as I find those of this species to be perfect; I would hope to cross tetra-missouriensis with other apogon tetraploids and to achieve fertile amphidiploid hybrids. But I have had difficulty germinating missouriensis seed although I've succeeded well with Californicae by inducing very low germinating temperatures near to freezing.

A. Longipetalae irises usually grow where there is ample moisture through the flowering season, after which they may dry up completely with no ill effects. In general, one can say they occupy meadow sites of a continental type climate mostly within the interior of western United States, marked by cold winters, cool and often wet springs, and very warm, dry summers, at a variety of elevations from near sea-level in California (and formerly in Washington, where two Puget Sound colonies are now largely destroyed) up to 8-10 thousand feet, in the mountains of the southwestern U.S. I think the determining factor lies in water relations, and they almost invariably are limited to soils containing lime and which also have a high water retention capacity--mainly silts, silty loams and silty clays. They generally are absent from soils of sand stone derivation, and are limited by high concentrations of mineral salts such as accumulate in poorly drained soils.

The occurrence of *I. missouriensis* in Mexico is problematical in that there is but one recorded collection dating from 1880 taken at a hamlet called Los Lirios (The Lilies) in the Sierra Madre oriental of Coahuila or Nuevo Leon, and never relocated. The southernmost confirmed occurrence then lies in the Chiricahua Mtns. of southeastern Arizona, where they grow in two mountain parks surrounded by a forest of pines. The southernmost known occurrence in the extreme southwest is in the Laguna Mountains of San Diego County, in California.

At the other extreme of the range, there are confirmed specimens from Lake Atlin on the Yukon-British Columbia boundary in Canada, with several colonies reported from central British Columbia in the drainage systems of the Bulkeley and Skeena rivers. These latter populations exhibit non-vigorous tendencies as if on the margin of their survival zone. In addition, there is, in the Boreal Herbarium of the University of British Columbia, an unidentified specimen from the Takhini River area, west of Whitehorse, Y.T., that could be *I. missouriensis*, but field confirmation is needed. These sites all are west of the Continental Divide.

East of the Continental Divide, the northern limit of range is reached in the Milk River drainage of southern Alberta. There is no evidence of occurrence north of the Hudson Bay Divide in either Montana or Alberta. The easternmost limit of range is reached in the Black Hills of South Dakota, where the species is known from 4 counties. An 1870 collection ascribed to "western Nebraska" is unconfirmed by modern evidence.

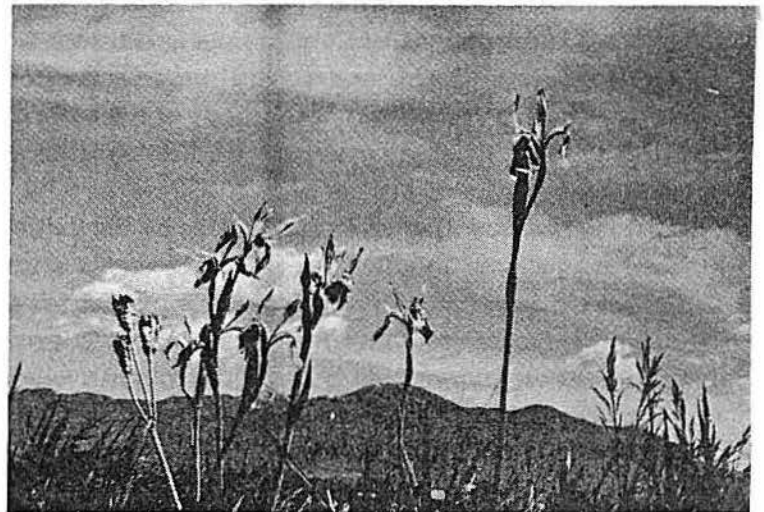
From the fieldwork, I have recollections of the most desirable forms of *I. missouriensis* for garden development as those of New Mexico, northern Arizona, and southern Colorado where the greatest intensity of flower pigment and branching of the scapes occurs. Over the whole range of the group, the number of flowers per head varied from 1 to 7, with three flowers the most common.

I found that the Longipetalae irises could be transplanted successfully up through the flowering period, but not afterward, due to their inclination towards summer dormancy after that event. We have suffered considerable losses from attempts at fall transplanting here in Montana. Seeds will germinate with greatest success when stratified at 41 degrees F for about 90 days, although seeds from the southern part of the range take a somewhat shorter period of time.

It is my belief that Simonet's chromosome count of  $2n=88$  for the Longipetalae is correct (and that some error influenced the count attributed to R.C. Foster). Hence, should you succeed in doubling that number in achieving autopolyploidy, you will have created plants with the highest known chromosome count in the genus *Iris*. I would anticipate some meiotic difficulties in breeding them, especially at the outset. However, I do wish you success, as their genetics and crossability with other species have never been studied extensively. I have attempted no outcrosses with them myself and Amos Perry's two reported hybrids with *Iris watsonia*--a variant *I. douglasiana* of the series Californicae--are about the only two such on record... though unverified. They are 'Monwat' and 'Longwat', and are portrayed in the published papers of that early 20th Century English breeder. There is a further report of *I. missouriensis* allegedly crossed with *I. susiana* (bearded X beardless!) which does seem most unlikely. Were I to suggest new interseries breeding fields with the Logipetalae, it would be to attempt crosses of the Longipetalae with the 44 chromosome *I. giganteaerulea* of the series Hexagonae, using the *I. gig.* as the pollen parent at first. If this type of cross fails, it might be worth trying to double *I. gig.*, and then proceed to reciprocal crosses.

( Homer Metcalf )

The native habitat of *Iris missouriensis* is vast in expanse. This species is found in the wild all the way from the Yukon to Mexico, and all the way from the Rockies to the Pacific Ocean. In this photo, the stark bloomstalks of *Iris missouriensis* are silhouetted against the "big sky" of Montana.





# Iris Species as Garden Plants

By Ernest G.B. Luscombe  
reprinted from the British Iris Society  
Year Book (1961)

*Iris graminea*. A species of the Spuria sub-group, flowering in May or June, the stem less than 1 foot tall, with small flowers veined violet on a white ground. The leaves are grassy, and in color a most attractive bright green. A good, easily grown garden plant which can be identified by its flattened stem with two sharpened lengthwise opposite ridges. A cauline leaf is borne just below the flower, extending upwards to two or three inches above it. The style arms and standards are pinkish violet.

*Iris innominata* is a very attractive dwarf species, with somewhat frilled straw-yellow or buff-gold flowers with darker veins, but it is difficult to obtain the true species except from imported seed. The species also produces flowers of white and violet-blue coloring, and other hues. The near-hybrids often sold under the name "*Iris innominata*" are very similar, and just as good from the gardener's point of view.

*Iris ensata* is a very variable species widely distributed in various parts of temperate Asia. It bears moderate-sized flowers, creamy, veined violet-blue in April-May, which are decidedly decorative, but some forms of the plant are not free-flowering, or take a long time to become established, or to mature from the seedling stage and produce flowers. The height of stem varies from 2 to 3 inches to 1 foot or more. The slender, elongated ovary has six longitudinal ridges. Like other very deep-rooted plants it resents disturbance, but withstands drought well. If, after the plant has become established, it becomes necessary to transplant it, this should be done in Spring after growth has started, or in early Autumn. It is suited to rather warm and dry soil. This iris has a short dormant season, and the young, yellowish leaves (and the flower buds in early-flowering forms) may be cut by Spring frosts, in exposed gardens. While it is quite true that in most forms of this iris the flowers are small and the blade of the fall-segments is narrow and pointed, there is a variety with ampler flowers known as *var. grandiflora*, which when it can be obtained is the best kind for garden purposes, flowering early. *Iris ensata* Thunberg is sometimes cited as "*I. lactea*" or "*I. ensata lactea*".

*Iris trojana* is probably the best of the taller-growing bearded species, with a well-branched stem, roughly 30 to 36 inches tall, with large violet-blue bicolor fragrant flowers freely produced.

*Iris danfordiae* is a very small plant with bright yellow flowers appearing in January, the pataloid style-arms and crests being relatively large and broad, which compensates for the apparent lack of standards. These are in fact present but are minute and thread-like, clinging to the other flower-segments and thus difficult to discern. This is a delightful iris to grow in pots or pans plunged out-of-doors until the colored buds appear. If then the flowers do not open fully in a cool, well-lighted part of the house or conservatory, they will unfold properly if the pans are brought into a warm room temporarily for a few hours.

*Iris xiphioides* is represented in our gardens by the cultivars known as "English Irises". These flower later—in late June to July, and the large flowers, having a broad, rather spoon-shaped slightly ruffled blade to the falls, have a restricted color-range, i.e. blue-purple, red-purple, and white. The wild prototype species is a plant which occurs naturally in moist alpine meadows in the general region of the Pyrenees Mountains. These irises, therefore, need a cool, loamy soil including garden compost, leaf-mould, or other humus-forming materials if they are to do really well. Preferably, the soil should be neutral or slightly acid, not limy, and the bulbs should not be lifted unless and until they become overcrowded. Top growth does not begin until Spring, and the plants are very hardy.

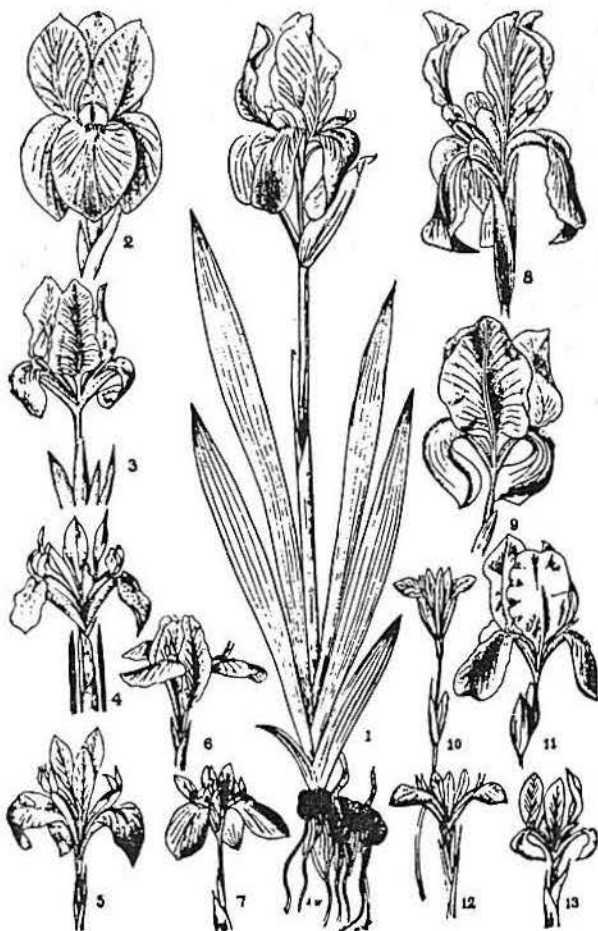


# FLORA OF THE U.S.S.R.

Published for the Smithsonian Institution, U.S.A.  
and the National Science Foundation, Washington, D.C.  
by the Israel Program for Scientific Translations

A translation of the Russian text, FLORA OF THE U.S.S.R., vol. IV now is being offered by the U.S. Department of Commerce. The address is: U.S. Department of Commerce, Clearinghouse for Federal Scientific and Technical Information Springfield, Va. 22151. The editor of this text is V.L. Komarov. The Israel Program for Scientific Translations is responsible for the translation from Russian to English. The price of this 586 page (plus maps) volume is \$6.00.

This book which describes species, devotes over 50 pages to the various irises native to Russia; 87 species of irises are treated by this volume. Two of the several plates illustrating irises are reproduced on this page in reduced size. This book would make a welcome addition to the library of those interested in species irises.



ABOVE: (plate XXXII) 1. *Iris dichotoma* Pall. 2. *I. lazica* Alb. 3. *I. humilis* M.B. 4. *I. tenuifolia* Pall. 5. *I. tianschanica* (Maxim.) Vved. 6. *I. setosa* Pall. 7. *I. laevigata* Fisch. 8. *I. musulmanica* Fom. 9. *I. violacea* Klatt. 10. *I. pseudacorus* L. 11. *I. graminea* L.

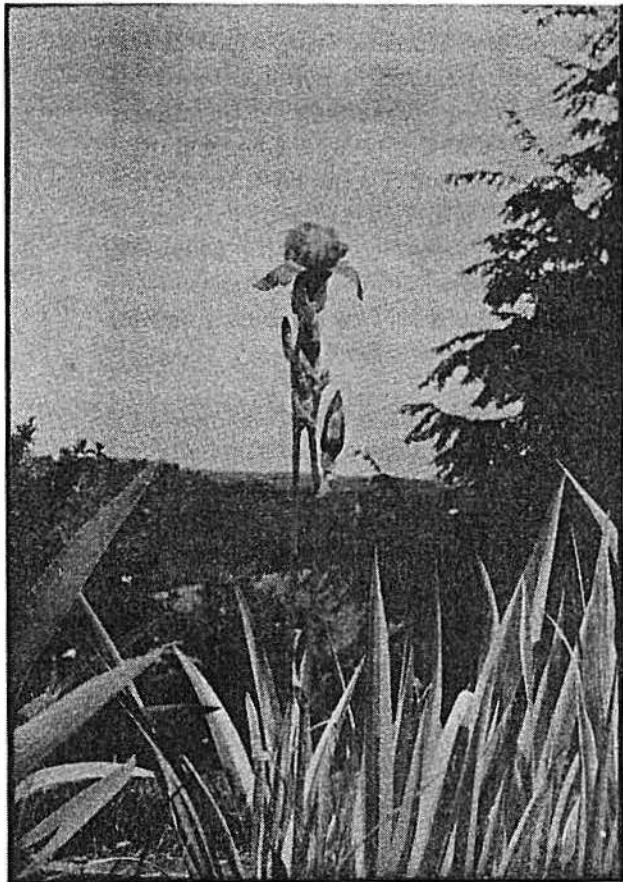
LEFT: (plate XXXIV) 1. *Iris Alberti* Rgl. 2. *I. Hoogtiana* Dykes. 3. *I. pumila* L. 4. *I. Winoogradowi* Fom. 5. *I. Kolpakowskiana* Rgl. 6. *I. tigridia* Rgl. 7. *I. maricoides* Rgl. 8. *I. stolonifera* Maxim. 9. *I. imbricata* Lindl. 10. *I. longiscapa* Ldb. 11. *I. aphylla* L. 12. *I. Potanini* Maxim. 13. *I. Timofejewi* Woron.

# The AIS National Convention 1974

notes and photos by E. Freeman Yendall

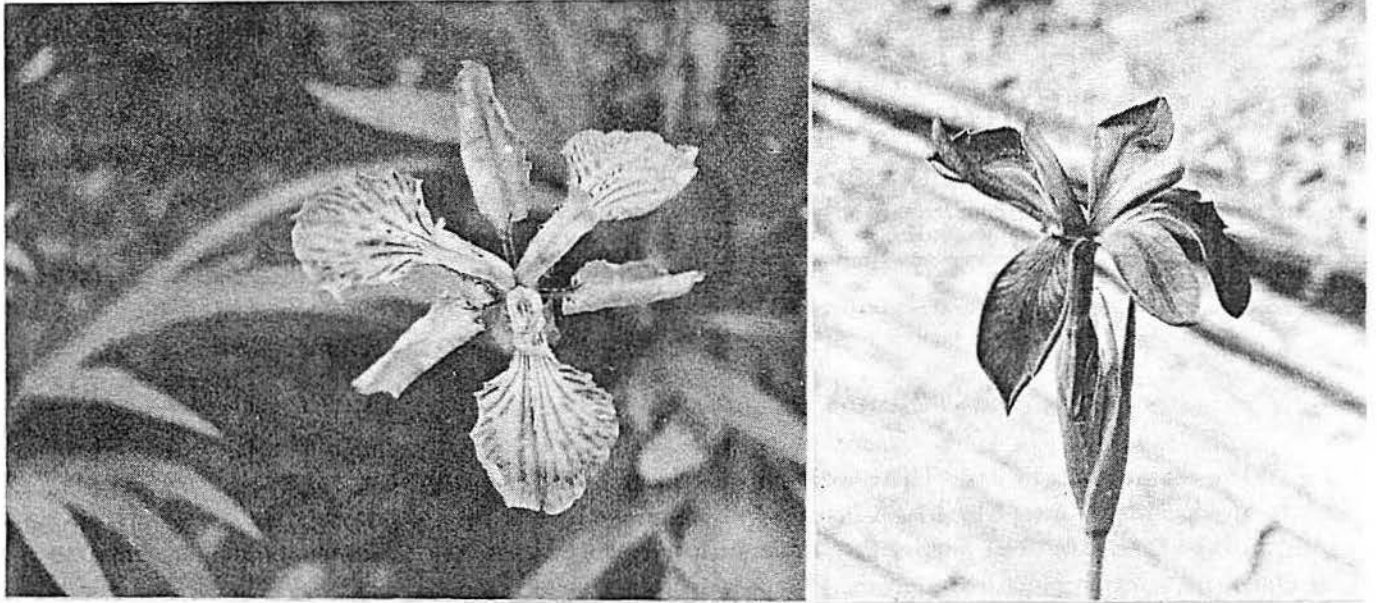
On page 327 of this issue is information about species irises in the Roanoke Convention tour garden of Eloise Nenon. Because Eloise is a member of the Species Iris Study Group, it was no surprise to see species in bloom in her garden. But it was a very unexpected pleasure to see a good number of species also in bloom in other tour gardens, the owners of which are not members of the species group. Photos and brief notations relative to those gardens follow:

At the garden of Mary and Arthur Davis, the tour admired a bearded iris with variegated foliage and simple blue flowers. It was labelled "ZEBRA". ZEBRA ( with 48 chromosomes ) is practically indistinguishable from the historical plant *Iris pallida argentea variegata*.

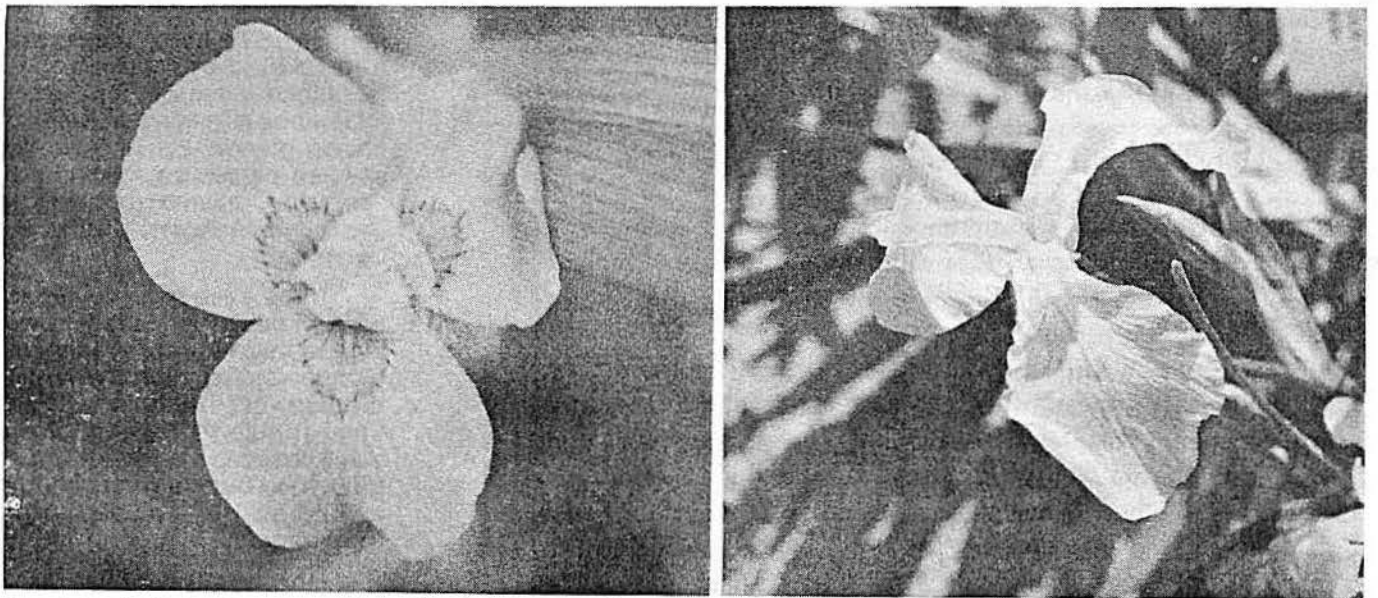


At the "Ingleside Gardens" of Fred and Adelaide Stephenson, there were three species in bloom in a dry location which was very suitable for one of them — *Iris croatica* — but not good for *Iris pseudacorus* and *Iris versicolor rosea*, which were abnormally short. The color of *I. versicolor*, pictured at left, was surprisingly full. There also were a number of good old diploids in bloom.

## The AIS National Convention 1974



At the Zurbrigg—Thomas garden there was a clump of *Iris tectorum* under a tree. Three blossoms were open; a photo of one of them is reproduced above left. A rust colored Louisiana marked *Iris fulva* was blooming amidst the TB rows in the field; a photo of it appears at upper right. Also at this location, but not on the main route of the convention, was an old diploid patch. Among these unlabelled plants were flowers typical of *Iris pallida*, *Iris variegata*, and *Iris varbossiana*.



At the Zurbrigg home garden there was a well grown clump of *Iris pseudacorus*. In richness of color, in breadth of falls, in substance, and in vivid delineation of signal patch, the blossoms of that particular clone were particularly attractive. The photo at above left was taken of a newly opened blossom of the clone in the Zurbrigg garden. For comparison, the photo at right is a typical blossom of the same species but of a different clone. This exemplifies "species variability"; it is one of the things which makes species collecting an interesting hobby.

Clumps of *Iris verna* and *Iris cristata* which are native to the Blue Ridge region were found in many of the tour gardens, but they had finished blooming before the time of the convention.



# The New Zealand Iris Society

(INCORPORATED)

A Society existing for the benefit of its members only and not for profits to any individual.

BULLETIN No. 72

MARCH 1974

## EDITORIAL

When is an Iris not an Iris? This is becoming increasingly difficult to answer. What is meant by Iris? What do WE mean by Iris—a plant of the Genus *Iris*, or a plant of the family Iridaceæ, of which the Genus *Iris* is, of course, itself a member? It appears that the problem goes even further. Does an Iris Society encompass all plants of the Genus or all plants of the family? Mr Bill Gunther, in the most recently received number of 'Signa' — the publication of the Species Iris Group of the American Iris Society — points out that, in the past, this ambiguity has not been of particular consequence, but that it is now becoming critical. The speed with which plant taxonomists are systematically removing the non-rhizomatous irises from the genus *Iris* and re-assigning them to other genera within the family Iridaceæ is becoming increasingly bewildering — the Juno irises, the Dutch, English and Spanish irises, the reticulatas, *Iris dichotoma*, all are involved in this regrouping which is promulgated by such leading authorities as Dr Lee Lenz and Dr Rodionenko.

One of the rather disturbing results of this re-grouping is that many species are no longer irises within the meaning of the objects of our own Society. Rule 4 of the Constitution states: "The object of the Society is to encourage, improve and extend the cultivation of Irises and to collaborate with Iris Societies in other countries to regulate the nomenclature and colour classification of Irises." It is up to us to look at this situation most carefully. Do we want to have our interest in the plants we have learned to know and grow as irises restricted to a dwindling number of members of the genus *Iris*; or should we broaden our understanding of "Iris" to include all members of the family Iridaceæ? The committee of the 1973 Iris Show in San Diego, California, seized this particular nettle firmly, and worded their schedule specifically to permit A.I.S. awards to members of all genera in the iris family. The result was an A.I.S. ribbon on a gladiolus at an iris show! A startling fact, but one which we will have to consider closely if we hope to keep the "irises" of the old classifications within the orbit of our Society's aims and objects. Surely, rather than narrow our interests, we should endeavour to extend our limits, and include more, not fewer, members of the iris family in our compass.

HON. EDITOR: Mrs W. J. Glasgow, 16 Tory Street, Nelson.

# Editorial



## We Bid You Merry.

Ben R. Hager

MELROSE GARDENS

309 BEST ROAD SOUTH • STONEMOUNT

Now for a little editorializing. We say if they enjoy digging into the musty libraries names and descriptions, that's their business. But, as horticulturists, and especially this proclivity of the Botanists is becoming more and more so, the names of species, (due to an obsessive use of the name on rarely known plants) are becoming more and more illogical. IT MAKES OBSOLETE all the species. Perhaps the horticulturist department then does the Botanist. Let the horticulturist be the one that is changed, and the Botanist's naming be ignored.

So it is here suggested that horticulturists own rules to be followed in their own re-arranging of published names of long standing be preferred to the little known names in both cases of previously known plants. 2. That we show that we are changing species names as follows (applied here to *Iris ensata*), *I. ensata* (bot. *bigulmis*), *I. orientalis* (bot. *unguicularis*), *I. aurea* (bot. *croceoloba*) botanical.

If the case is a proven actual difference in the family, genus, section, or species (and legitimate and horticulturists should agree on it). Examples: the recent change of *I. dichotoma* (division of the bulbous *Morea* and *rhizomatous* irises), putting *I. tenuis* into *Evansia* section (even the separation of the rhizomatous *Juno* iris. But can you imagine the confusion for English Iris, or Spanish Iris anymore! to change.

How about it? Let's think it over.

The above editorial was reprinted, with a few changes, in the catalogue of the Melrose Gardens. The changes are reprinted in SIGNA should not be made. If the proposals are supported by the Society, then SIGNA is glad to carry to the members the responsible proposals within this somewhat limited member of the Species Iris Study Group.



# Dr. John C. Wister

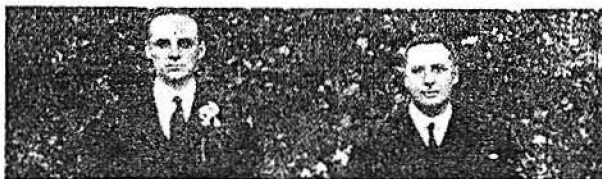
In response to SIGNA 12, plentiful correspondence was received, and to everyone who wrote, we hereby extend our appreciative thanks. Amidst that correspondence was one little note which we cherish most of all — because it came from the member of the Species Iris Study Group who we most revere. With his permission, a portion of his note is transcribed into print below:

135 Harvard Avenue  
Swarthmore, Pennsylvania 19081

*SIGNA 12 is a most outstanding number. Reading it was truly a joy. It made me want to get out to the garden myself and grow all those species again, but of course that is something I no longer can attempt. But I still can sit on the sidelines and enjoy cussing out the botanists who keep on messing up all the good old iris species names. My best personal wishes to you.*

*signed / John C. Wister*

Some of the younger members of the Species Iris Study Group may not recognize the name of John C. Wister. For their benefit, a photo of Dr. Wister is published below. In this photo, he is the man at the



left. This photo is not exactly a recent photo; it was taken a number of years ago. To be precise, it was taken in 1922. ( Yes, 1922 ! )

Long before that, while John Wister still was a student at Harvard's School of Landscape Architecture, he first became interested in irises. He then began assembling an iris check list on which he worked for a number of years with Robert Sturdevant. Before John Wister joined the military service in World War I, he formulated plans for a society devoted to the iris. On his return in 1919, he set the plans in motion that resulted in the organizational meeting of the American Iris Society. That meeting was convened at The New York Botanical Garden on January 20, 1920. On that date, John Wister was elected as the first President of the American Iris Society, and he faithfully filled that office for the following fifteen years.

It was in his capacity as President of the American Iris Society that John Wister visited England in 1922 — to assist in establishing the British Iris Society. The photo reproduced on this page was taken during that visit. The man who appears with Wister is William R. Dykes, famed for his monograph on THE GENUS IRIS.

William Dykes died in 1926, but John Wister still is with us: hale and hearty, alert, and still very interested in irises. Knowing that John Wister is a member of the Species Iris Study Group, and that he personally enjoys reading SIGNA, is just one of the many things which, in combination, transform all the work of editing this publication into a pleasure.

Bill Gunther

ringtime, 1974

Sid DuBose

DENS

CALIF 95206

the Botanists have their fun. s to find precedence in spe- g, why should we spoil it for is commercial horticulturists, mply a confusion. Discredit- prior description or previous : have been in the public do- ore years is ridiculous and ature on the subject of that more on the literature as a of the rarely known species but obscure description and

ists make a couple of their ed field. 1. That widely used l to changing to obscure and escription and use on rarely not ignorant by writing these s species): I. kaempferi (bot. : (bot. sanguinea), I. stylosa tc. The abbreviation bot. =

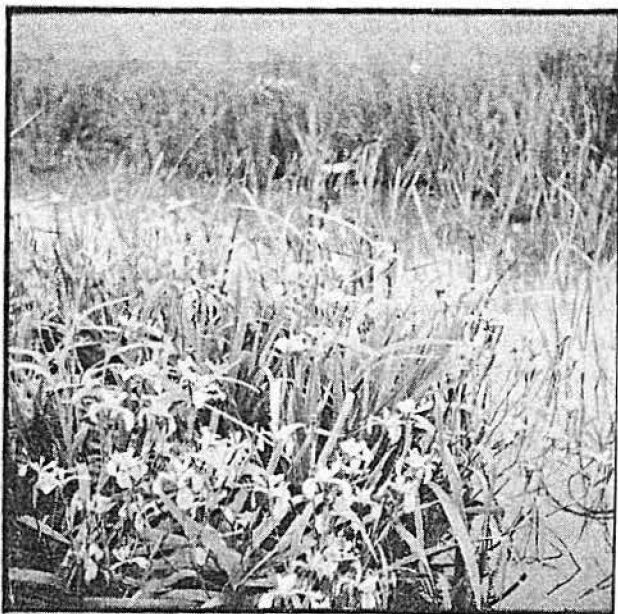
plants that suggests change ertain plant, this is of course I welcome such a change. to Paradanthopsis, or of the atious Dietes (not iris but he speciation of I. nelsonii, from the bulbous and the ? They won't be Dutch Iris, d never get the florist trade

ermission, from the 1974 hat the Melrose suggestions to imply that the Melrose ty group. It implies only e species group any ontroversial subject. Each ll make his own decisions.

# Royal Botanical Gardens

in CANADA

the writing by David Herrick.  
photos by Bruce Richardson.



The Royal Botanical Gardens in Hamilton, Ontario, Canada has some real surprises, particularly for those who reside in warmer latitudes. While many irisarians lament over their scrawny Siberians, the Siberians in this garden soar to an average of 6 feet with multiple branching. But those same irisarians might quickly recover from their pangs of envy when they see representative spurias in the Royal Gardens: they're quite small. Another unique feature of this garden is the influx of wild irises growing along the perimeter. These species irises extend the beauty that the Royal Botanical Gardens has to offer.

Catching this garden during its peak blooming period is a sight to behold. The peak period can be as short as a weekend; it generally falls somewhere between June 5th and the 15th. During this period, the iris displays are truly outstanding both in terms of the massive number of blooms and the beauty of the individual blooms. Several of the beds are organized according to special categories. Bed 1 consists exclusively of irises which have won the coveted Dykes Medal. Another bed shows important breeding trends in tall bearded irises. Bed 5 serves the worthwhile purpose of helping visitors to identify the "mystery" irises in their own gardens. Additionally, many exotic species irises grace the formal plantings.

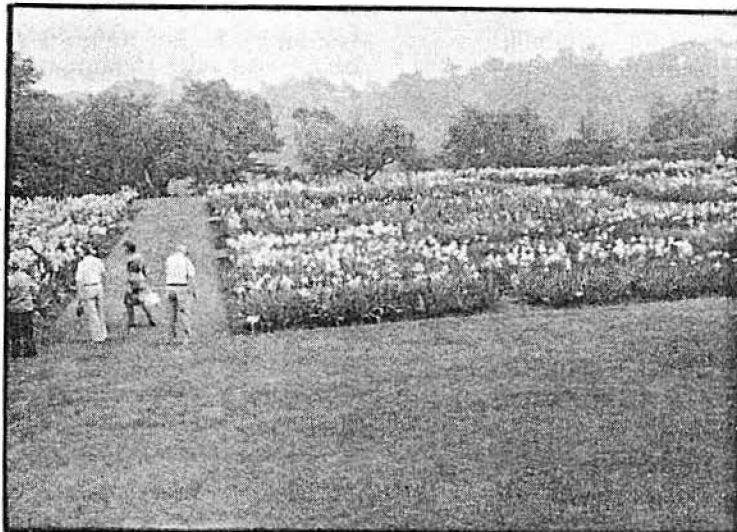
The Royal Botanical Garden is a must for the serious irisarian. The spectacular displays lend a unique aspect to this garden.



**Top:** *I. vericolor* growing wild in Red Hill creek, which is adjacent to the Royal Botanical Gardens.

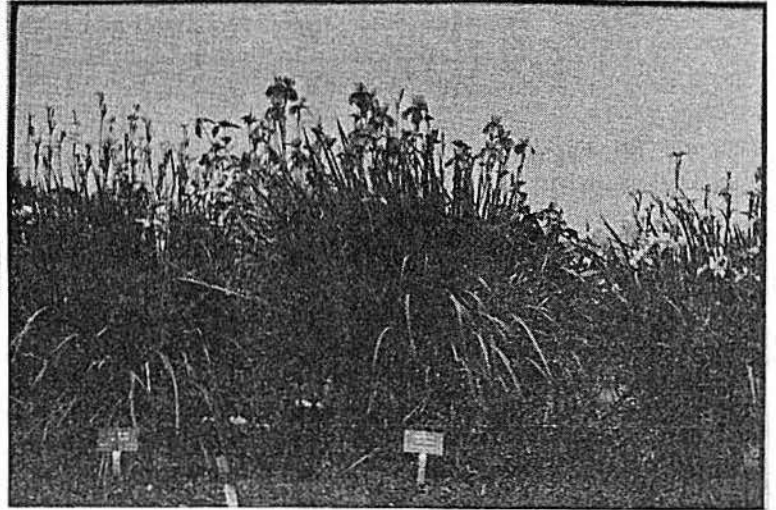
**Center:** The man in this picture is John Shipp, head gardener at the Royal Botanical Gardens. In size, he demonstrates the fact that spuria irises reach only waist high in Canada. Spurias, in Canada, generally have only one blossom per stalk.

**Right:** This picture vividly illustrates the peak period of Royal Botanical Gardens. Bed 2 is in the center foreground.





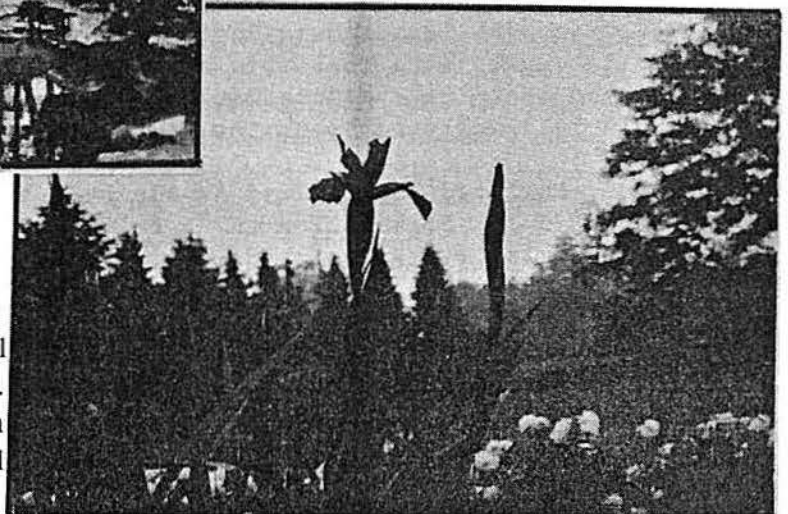
**Left:** A clump of spurias in bloom at the Royal Botanical Gardens in Hamilton, Ontario, Canada.



**Right:** Siberian irises particularly thrive in the environment of Ontario. This photograph shows the Siberians of the Royal Botanical Gardens. They are multiple-branched and they reach up to six feet in height.



**Left:** This sylvan setting at the Royal Botanical Gardens was chosen by a spring-time bride for the site of her wedding. To the left of the wedding party is a large clump of *Iris pseudacorus* in full bloom.

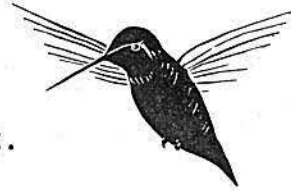


**Right:** This photograph accentuates the fact that the setting of the Royal Botanical Gardens enhances the beauty of the irises. The verdant lawn, trees and companion flowers all combine to provide a beautiful background staging for the irises.



# HUMMINGBIRDS AS IRIS POLLINATORS

Homer Metcalf  
Montana State University  
Bozeman, Montana 59715



Vogel, S.

1972. Iris fulva Ker-Gawl., a hummingbird flower.  
Yearbook British Iris Society, 1972, pp. 115-122.

Lyon, D. L.

1973. Territorial and feeding activity of Broad-tailed Hummingbirds (Selasphorus platycercus) in Iris missouriensis.  
Condor 75(3): 346-349.

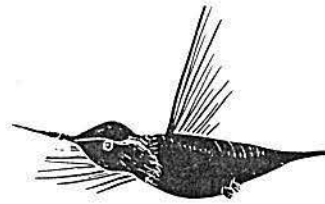
The appearance of these two papers serves to remind us of the fallacies of assumption and of the need for extended and careful observation of natural phenomena. This applies equally to those who are green-thumb gardeners and to those who are or seek to be professional biologists.

Because most of the iris flowers with which we come in contact have a structure seemingly especially adapted for pollination by bees, most irisarians have given little or no thought to the possibility that iris flowers may be visited by other organisms that may effect pollination in conjunction with their searches for food. Yet such is now demonstrated in one instance, with very strong evidence for it in another!

Stefan Vogel, a noted German (University of Mainz) student of floral biology, detected morphological characteristics suggestive of ornithophily (bird pollination) in I. fulva in an old color plate of this species. He arranged to procure plants from Louisiana and, growing them to flowering at Geisenheim, was able to confirm his suspicions. In addition to the unique brickish red color of the flowers of many clones (due to the presence of two glycosides of delphinidin and malvidin in combination with yellow in the epidermal cells), the lax perianth segments, the heavily developed style branches, the absence of significant odor, the lack of pollinator guide lines in the sepals, and the unusually well-developed anthers so-placed as to readily come into contact with a bird's head were taken as strong indicators of ornithophily. The most convincing argument for ornithophily was, however, found in the large size of the nectaries, the high volume of nectar production, and the chemistry of the nectar (mostly sucrose, in low concentration in comparison with that of insect-pollinated flowers). By experimentation with museum skins of the Ruby-throated Hummingbird (Archilochus colubris L.), Vogel found that this bird has a bill of sufficient length, which, coupled with the characteristic extensible tongue of hummingbirds, would enable it readily to reach the nectar supply in the floral tube.

The Ruby-throated Hummingbird is the only trochilid that could safely be implicated in the pollination of I. fulva since it is the only hummingbird present in Louisiana during the spring and summer months with any regularity (cf. Lowery, Louisiana Birds, ed. 2, Louisiana State University Press, 1960). The Rufous Hummingbird (Selasphorus rufus Gmelin) is reported as a rare but fairly regular winter visitor in southeastern Louisiana, whence it departs in northward migration in late March or early April, probably too early for it to be involved with flowers of I. fulva. Unfortunately, Vogel has not had the opportunity to study the Louisiana iris populations in their





natural habitat, and no one else seems to have observed hummingbird activity about the irises there. Hence, to really clinch I. fulva as an ornithophilous flower, someone familiar with the plants and birds needs to spend some time flower-watching in the swamps with a good pair of binoculars and telephoto-equipped movie camera. What about it, Louisianans?

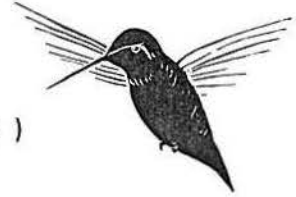
In the other instance, David Lyon (Cornell College, Mt. Vernon, IA) was able to study the activities of the Broad-tailed Hummingbird (Selasphorus platycercus Swainson) in connection with the small colonies of Iris missouriensis Nutt. isolated in mountain parks in the yellow pine zone of the Chiricahua Mountains in southeastern Arizona. This site is not far from the Mexican border and the irises there comprise the southernmost colonies of I. missouriensis currently known to exist. It is also near the northern border of the ranges of some hummingbirds mainly distributed in Mexico, e.g., the Blue-throated Hummingbird (Lampornis clemenciae Lesson) and the Rivoli Hummingbird (Eugenes fulgens Swainson). The Broad-tailed Hummingbird breeds in Mexico as far south as Guanajuato and Mexico City, but also breeds, in the United States, in the Rocky Mountains north into Wyoming and west to eastern California, apparently preferring mountainous country for this activity. Its distribution thus includes a goodly portion of the range of the Longipetalae irises east of the Sierras. Only the Broad-tailed was observed feeding in the iris colonies at Rustlers' Park in the Chiricahuas.

At Rustlers' Park, Lyon found that male Broad-tailed Hummingbirds established territoriality over the flowering iris colonies and were apparently in competition for nectar with bumblebees of the genera Bombus and Xylocopa as well as with sundry lepidoterans. The birds defended their feeding territories as long as nectar flow was significant but abandoned them in favor of other bird-flowers when it declined. Bloom was already at peak by the time Lyon's study started in mid-June; the colony was out of bloom by July 1.

The hummingbirds approached the iris flowers in two ways. The first, which is known in floral biology circles as the "legitimate" approach, involves probing the flower between the sepal and the style branch in much the same sort of entry as is made by the bumblebees. This approach may result in the bird garnering a pollen deposit on its head which can be transferred to the stigmatic flap of the next flower it visits, thus effecting a certain amount of self- and/or cross-pollination. In the present instance, studies with 5 birds indicated that ca. 25% of the flower visits were of the legitimate type. In the second type of approach, known as the "illegitimate" approach, the birds demonstrated that they had learned where the nectar was located by probing the flowers at the base of the perianth segments, an approach also used by the lepidopterans observed. This type of approach could not, of course, result in any pollination and seems unlikely to contribute to any trend toward development of a specialized ornithophilous flower in I. missouriensis.

Lyon did not study the structure of the iris flowers nor the chemistry of the nectar in the way that Vogel did for I. fulva, so that the two studies are not wholly comparable. Lyon's primary interest was in the birds' territorial behavior and whether selection pressure exerted by them might ultimately lead to the bee-specialized flower of I. missouriensis becoming morphologically modified for facilitation of ornithophily.

## HUMMINGBIRDS AS IRIS POLLINATORS ( continued )



Since no courting nor breeding activities were observed among the Broad-tailed Hummingbirds by Lyon, one may wonder at what point in the phenological progress of seasonal activities they may have been. In some areas, the Broad-tailed is known to raise two broods per season, often nesting at higher altitudes for the second than the first brood. If the population studied by Lyon was migratory rather than summer-resident in the Chiricahuas, then one might expect to find the birds utilizing as food sources colonies of Iris missouriensis that they might encounter at higher latitudes, but such utilization has yet to be reported. Clearly, there is a need for more field observations in other parts of this bird's range by ardent flower-watchers, in order that it may be learned whether the interaction between hummingbirds and I. missouriensis is a general thing or a phenomenon restricted to the colonies in the Chiricahuas.

In view of these two cases of interactions between iris flowers and hummingbirds, one can only wonder whether other western irises, such as the Californicae, may not be more commonly involved in bird pollination than has been realized. Indeed, Vogel (op. cit.) did observe a hummingbird of undetermined species visiting clumps of Iris douglasiana Herb. growing at the Santa Barbara Botanic Garden in California. Since several species of hummingbirds occur in the Santa Barbara area, no prognostications as to which was involved are warranted. However, since there are clearly more opportunities for interactions between hummingbirds and irises in California than anywhere else in the United States, it would seem but logical that Vogel's clue should be followed up. Let us hope that SISG members who go afield among natural iris populations will direct their keenest observational powers to include possible avian visitors to the flowers.

Homer Metcalf

### Supplemental Note

Persons wishing to extend their knowledge of floral ecology can glean a great deal of information from the following, inter alia:

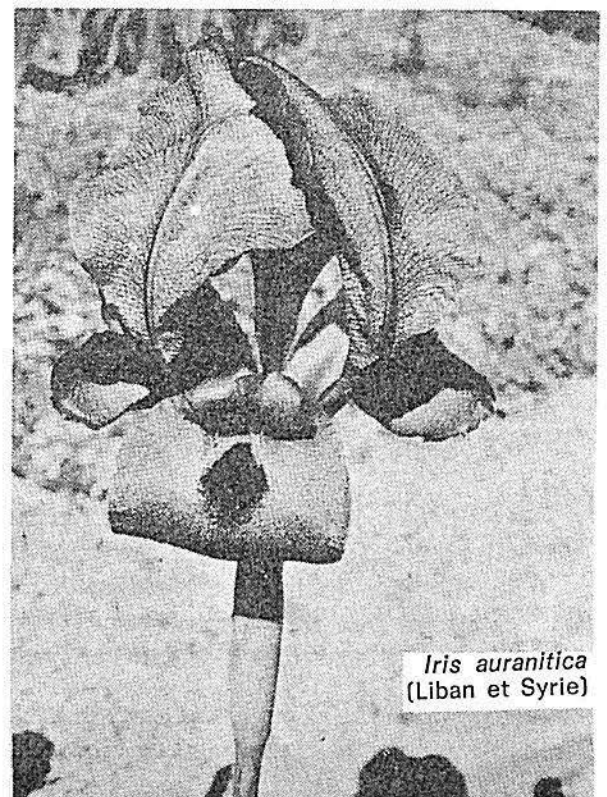
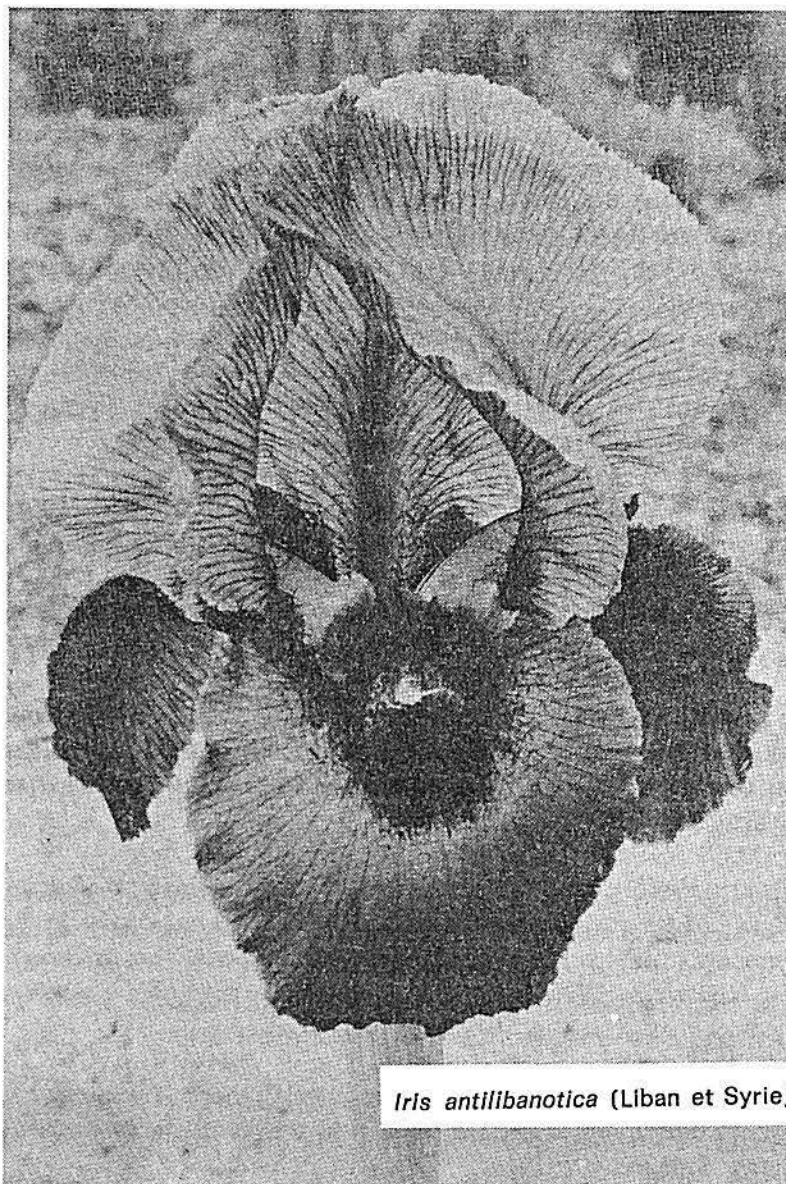
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1966. The principles of pollination ecology.  
Oxford: Pergamon Press.
- Grant, K. A. & V. Grant.  
1968. Hummingbirds and their flowers.  
New York: Columbia University Press.
- Meeuse, B. J. D.  
1961. The story of pollination.  
New York: Ronald Press Co.



# VEGETAUX EN PERIL...

photos by Dr. Maurice Boussard  
2, Place Des Onze Sieges  
F, 55100 VERDUN, FRANCE

The last issue of SIGNA contained a translated article by Maurice Boussard entitled, "Conserving the Species—unintentionally!". As a result of seeing this article, Mr. Boussard sent an autographed copy of the original. The pictures on this page are reprinted from that original article which was first printed in the French magazine, le Courier de la Nature. In both the original article and in the abbreviated version which appeared in SIGNA, the author documents the unintentional conservation of certain iris species which have symbolic or religious meaning in some parts of the world. Mr. Boussard stresses the need for deliberate and concerted efforts to preserve all those iris species which are imperiled.





# THE SPECIES SEED EXCHANGE

by Jean Witt

16516 25th N. E.  
Seattle, Washington 98155

As a topic for a spring issue of SIGNA, seed may seem out of season--but in order to reap a successful harvest, we must start laying our plans now. 1973 brought us an increase in the number of color selections, particularly of those old indestructables, *I. versicolor* and *I. pseudacorus*, as I'm sure you are all aware. This is a trend we hope will continue. Our members are definitely interested in "preferred" selections, even in species regarded as "common".

Hand Pollinated seed was more popular than ever--we could have sent out many times the amount we actually had. By next fall we will be caught in the crunch of increased postal rates, so the higher the percentage of H.P. seeds we are able to offer, the better off we will be. The seed exchange is not designed as a money making scheme, but it does help to support SIGNA; and it will be to our advantage to continue the present level of support. So think of us when you're out with your tweezers, and send us two or three pods of something worthwhile, either selfed or crossed.

In particular, we'd like to solicit seed of species which appeared on some of our earlier lists, so that we can offer them again: *I. brandzae*, *I. kerneriana*, *I. sintenisii*, *I. humilis* and the northwest Europe forms of *I. spuria*; *I. longipetala*; almost any of the dwarf, median, or tall bearded species--we'd especially like *I. timofedjewii*, or *I. furcata*; *I. gracilipes* and its alba form; *I. ruthenica*. We've had seed from named Louisianas, but could use some collected *I. fulva*, *I. nelsonii*, *I. giganteaerulea* etc. The pink *I. virginica* still eludes us, and we'd love to be able to offer the pink *I. prismatica* again. *I. verna* and *I. lacustris* may not set seed at all unless hand pollinated.

Also, let's make some real tries at far-out crosses. Several types of these have been reported in recent years, Sam Norris' X *Pardancanda norrisii* being undoubtedly the most successful, since it is fertile. The 1939 checklist is full of far-out hybrids of 40--50 years ago now largely lost or unavailable. Garden Irises has an appendix devoted to the subject. Several of us in the Seattle area have found the Californicae-Sibericae crosses rewarding: the more seed of this type we can set, the greater the chance of some lucky person producing a fertile tetraploid. Vericolor-Laevigata crosses also are showing considerable promise. Here, I'm inclined to feel that sterility is a virtue: no seedlings to weed out of the parent clump! In the species where we have both blue and white-flowered strains, let's intercross the two, to see whether advanced generations might throw pattern breaks such as blue/white bicolors or plicata dotting.

Or, has anyone ever seen a pink *I. missouriensis*? Hummingbird pollination of this species under certain conditions in the Chiricahua Mountains of Arizona recently has been reported. If this has been going on for any length of time, a shift in flower color from blue-violet toward red-violet could be expected in this area. Also, what ever happened to the 11-flowered *I. missouriensis* from Colorado? Does anyone still grow this strain in his garden?

A friend of my daughter's who spent last summer on Kodiak Island assures me that the *I. setosa* from Ouzinkie are indeed white-flowered. I hope that 1974 will be the year that somebody blooms a white flower in our gardens. Dr. Paim's seeds from Quebec should be watched closely for color variants, when they begin to bloom next year or the year after.

As of April 1, the seed exchange has sent out just over 1720 packets to some 98 customers, and orders are still coming in. It has been suggested that it would be desirable if the list could be sent out earlier in the fall, but due to the late ripening of many species, this does not seem possible at present. Seeds should reach the Director of the Seed Exchange by November 10th to be included in the current year's list. Late seeds not used as substitutes will be held over for the following year's list.

We wish we could have sent seeds of *I. koreana* and *I. sp.* Taiwan to all who requested them. As it was, we doled them out as sparingly as conscience would allow, and can only hope that they will thrive mightily and return to us in due time increased many fold.

Our card file of seed types is now quite complete, thanks to an extensive donation from Edith Cleaves. This has been a great deal of help in catching errors. So far we are aware of only one doubtful seed lot for 1973; we now have the parent plant under surveillance, and with luck may learn its identity this spring. The following numbers for 1972 are considered suspect, and should be watched carefully:

- 72 K 206 ? *innominata*, certainly a *Californicae* species--not *missouriensis*!
- 72 K 211 Abell hybrid; victim of a mix-up; seed apparently *dichotoma*.
- 72 R 223 *prismatica*, or *versicolor* hybrid? Or something else?
- 72 T 224 *dichotoma*, or advance generation X *Pardancanda norrisii* resembling the parent *I. dichotoma*?

If any of these bloom in your garden this year, please observe (and perhaps photograph) and report back to Jean Witt so that corrections can be made if possible.

Identification is needed on the following numbers of *Californicae*: 72 K 284 and 72 K 285. Some of these may bloom in 1974, so keep us posted.

We're trying to learn the "shelf life" of various types of iris seed. We know that it's from 5 to 10 years in the *Californicae*, and in *I. missouriensis*. Some 1967 seed of the latter has been reported as still viable, so we are continuing to send them out until a fresh supply of this particularly choice clone becomes available. We encourage those who are trying our "old seed offer" to report back on their results. (Don't give up until the second spring after planting!)

We've also been trying to collect survival data to use as a guideline in sending out seed to cold climates. So that they will be on record, and not just buried in our files, here are some comments from seed exchange correspondence :

Ann Branstetter, Laurel, Montana, reports limited success with the *Californicae* and somewhat better luck with the 40 chromosome Siberians... "an acid bed apparently is needed. A light covering of straw is all that is needed to bring them through our rigorous winters."

Mrs. W.G. Childers, Hamlin, W. Virginia: *I. innominata* and *I. douglasiana* seed planted January 19, 1972, gave her a dozen or so seedlings that spring, and about as many in the spring of 1973. The 1972 seedlings survived the winter, January temperatures down as low as 5 degrees above zero, and one of the *innominatas* bloomed in 1973.

Ellen Roach, Topeka, Kansas says: "Some of last year's seeds which we left in baggies of damp vermiculite on our breezeway suprized us by sprouting in the fall. (We had removed plants from them as they had sprouted in the spring, then got busy and forgot about the rest after their activity stopped with summer's arrival.)"

Frank Kalich, Albuquerque, New Mexico: "Years ago I grew *I. douglasiana*, *innominata*, and *tenax*. They did quite well here at this elevation of over 5000 ft., with our mild winters. Now and then we get quite cold in January; it can get down to zero at times. Our summers are hot and the rainy season is July and August...our normal rainfall is 8 inches per year. I have had *I. nepalensis* for many years, as well as *I. dichotoma*. The latter blooms like a biennial here. At times it blooms the first year after spring planting; *I. nepalensis* does the same some times."

Josephine Yordy, Lebanon, Pennsylvania had *I. biglumis (ensata)* 'Hyacinthiana' rebloom for her. She would like to know whether this is usual. "It's a very nice blue and certainly looks like the *I. biglumis* on pg. 300 of SIGNA...has no yellow on falls...bloom stems are shorter in fall, only about 2-3 inches tall.

# THE THREE GRACES

by Mary Benbow  
reprinted, with permission,  
from the BIS Year Book



With our trio of irises, *Iris spuria*, the Butterfly Iris, *Iris xiphioides*, the English Iris, and *Iris xiphium*, the Spanish Iris, one is immediately reminded of that well-worn theme, so beloved of the Italian Renaissance painters, the three Graces, not alike in every way but each equally lovely in her own right. It is not for me to say which is the most beautiful, but merely to discuss briefly their similarities and differences, with a word or two as to their origin and the culture needed to keep them young and fair.

## *Iris spuria*

It has been said that *Iris spuria* bears some resemblance to *I. xiphium*, but the sight of the flowers, poised and trembling on a windy day, just like the early summer butterfly, does make it distinctive. However, I must admit that there is a certain something, possibly the greenish central ridge of the fall of the Butterfly Iris and the yellow streak on the blade of the fall of the Spanish Iris, or the sub-quadrant crests of both, which gives them a rather sisterly look. There however the similarity ends, for *I. spuria* stems from a hard rhizome and *I. xiphium* from an ovate bulb. The standards of *I. spuria* are closer together, more ruffled than in the Spanish type, and the style-arms are smaller and narrower. The stem is sheathed in three or four reduced leaves hiding the internodes; this is a distinctive feature and a considerable aid to the identification of this iris. The capsule is oblong and beaded, with a double ridge at each angle, which is unusual and only occurs again in *I. graminea*. The seeds are brown, cubical and smooth, with a loose papery covering. There are many forms of this species, the native range extending from the Far East to France, Spain, the Danish Island of Saltholm, and even England where it is recorded in Dorset.



## THE THREE GRACES ( continued )

### *Iris xiphioides*

A superb iris this, with its broad and exquisitely-pencilled falls, often as ruffled as those of any modern tall bearded iris. The standards are somewhat similar in shape to those of *I. spuria*, but are rather short in comparison with the falls, whereas the Butterfly Iris and the Spanish Iris are perhaps a little better balanced proportionately. The colors of the English Iris range from purple and blue to white, but no yellow forms have yet been raised. The style-arms are broad, with triangular crests. The stem, often from twelve to eighteen inches long, has a terminal head of two or three flowers, and the leaves are of a glaucous green, with an inner surface of silver. It is interesting to compare the stems of the English and Spanish types. The capsule of *I. xiphioides* is about 4 inches long, considerable larger than that of its relative, and tapers at each end. The seeds are wrinkled, round, and dark mahogany in color. Clusius noted that the ripe seeds rattled in the capsule when shaken. It flowers later than *I. xiphium* and needs a damp situation, with plenty of sun in the summer. It is noteworthy that the tips of the leaves do not pierce the soil until after the New Year, whereas those of other iris species mostly appear in the autumn. Its native range is confined to the Pyrenees and to hills and damp pastures of north-west Spain. Under these circumstances it is strange that it should have been called the English Iris; in Clusius's history of Spanish plants (1575) he states that it had been brought to him from Bristol, to which port it had probably been shipped by traders and subsequently planted in local gardens.

### *Iris xiphium*

The last of our three Graces, and certainly not the least lovely, it has become the Florists' Iris, a fact which seems to be source of prejudice amongst some growers, although I cannot think why, as in all its varying modern color-forms it can be most decorative. It grows from an ovate bulb, producing bulbets in pairs, on either side. The stem varies from about 12 to 18 inches in height, and the spathe-valves, narrow and green, enclose 1-2 flowers. The falls are long and flaring, with a very striking yellow streak on the blades; the standards open strongly and are usually in a paler shade than the falls. The style-arms are broader than the haft of the falls; they are handsome. The capsule is long and narrow, but shorter than that of *I. xiphioides*, and the seeds which are small, yellow-brown and D-shaped, are quite unlike the round dark red seeds of the English Iris.

The answer to the question so often asked, "What is the difference between the Spanish and the Dutch Iris?" is that the Dutch growers have worked extensively in crossing *I. xiphium* with various related Spanish and North African species, and are now producing the great range of colors which appears in the florists' shops, and if we wish, can so easily be repeated in our gardens. Both the Spanish and the hybrid or Dutch irises are easy to grow in a sunny border, but as small bulbets form on each side of the parent bulb, they tend to deteriorate unless they are lifted and sub-divided. The species themselves, such as *I. lusitanica*, *I. tingitana* and *I. fontanesii* are more difficult to grow than the modern hybrids. The last-named is fairly hardy, but I have found it shy-flowering, and unless one is a real student of the species, it is better to grow the hybrids. Plant in full sun in well-drained soil, and replant every second or third year.

Try all three of these lovely irises, bearing in mind their likes and dislikes, and see what pleasure they will give you.

# *Iris setosa*

Heather Collins

Extracted, with permission,  
from BULLETIN No. 71 of  
the New Zealand Iris Society.

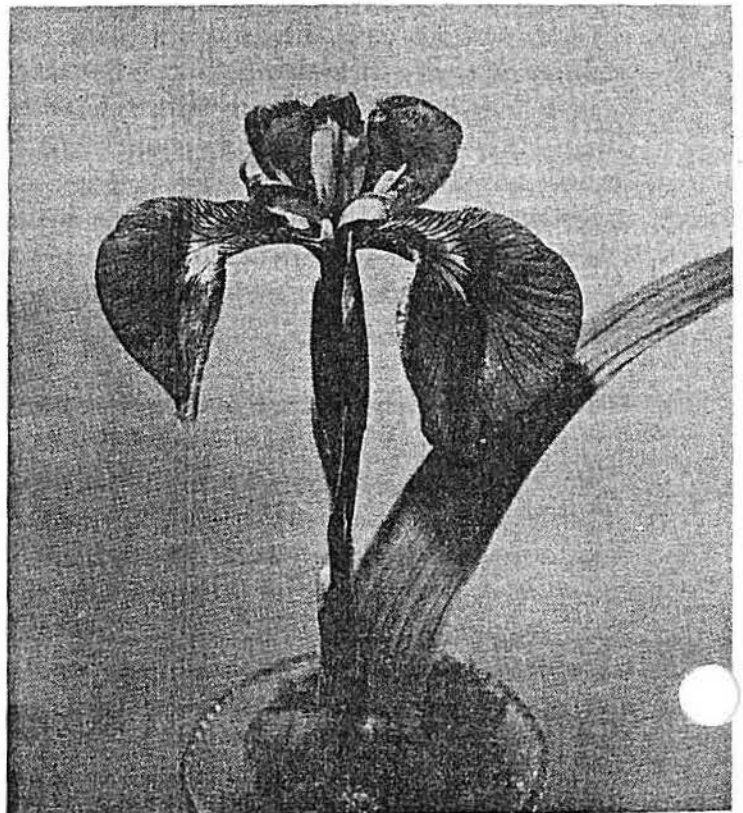
*Iris setosa*, which is classified within the Series Tripetalae of Subsection Apogon (Lawrence, 1953), can be grown relatively easily in home gardens, although the plants are sometimes short-lived. It grows best when sheltered from the hot afternoon sun, and it appreciates regular watering when the new growth appears in spring. Some people grow it as a water plant, but in our heavy soil I have found the crown rots away if there is too much moisture or if it is planted too deeply. The flowering period is during the normal springtime season. Seed sets readily, but as this weakens the plant it is wise to remove most of the spent blooms along with all associated immature seed capsules.

The flower stalk which grows approximately 10 inches is solid, carries a 2-3 flowered terminal head and 4 stem-leaves from which short branches appear containing 1-3 flowers; the falls are heart-shaped narrowing abruptly at the haft, violet to purple in color which deepens towards the center of the blade, all covered by a network of veins; the minute standards are erect, the edges rolled inwards, almost bristle-like (setose); style branches pale greenish-yellow at base, pinkish, mauve towards the top; crests violet, irregularly toothed. Stigma triangular; pollen deep cream; capsule or seedpod, barrel shaped, distinctly three-angled with middle groove down each side; seeds glossy mid brown, half moon shape with raised edge along one side; leaves stiff 5/8 inches at widest part, mid green, purple at base with firm ribs which can be felt; spathe-valves mid-green, sometimes flushed purple.

The color of the flower varies from pale violet through to deep purple — the Alaskan form is distinct by its large blooms of a rich violet color. There is also a white variety.

*I. setosa* "Pallas" ex. Link., 1820 Alaskan form and *I. setosa* Hookeri Perry 1829 (syn. Var. *Canadenis* M. Foster), appear to be the only two as yet universally accepted, but there are several other named varieties. One of these *I. setosa* Var. *tenuifolia* I grew from seed sent from the U.S.A. The resulting seedlings varied considerably in height and in the color and size of the blooms. One was particularly good with rich purple falls, smooth and shiny as velvet, which rebloomed each autumn. The seed capsule was unusual, its pale green accentuated by the deep purple ribs — this alone made it a worthwhile garden plant. However, I have yet to find out if any of the seed produces similar characteristics. *I. setosa* occurs naturally throughout the northeast of Asia and the far east as well as within the Arctic Circle in Alaska — the smaller variety, *hookeri*, is found in the northeast of North America.

( Editor's note: Readers are reminded that this excellent article originates from New Zealand, in the southern hemisphere. Accordingly, all references herein to dates of bloom, etc. are six months different from comparable dates in the native habitat of the species. )



# The AIS National Convention 1975

Bill Gunther

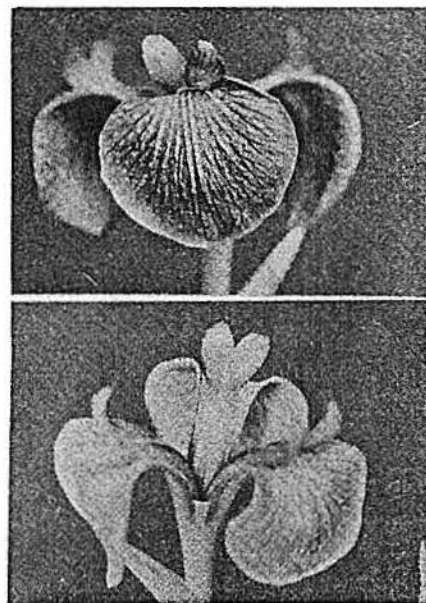
Almost certainly, more different iris species will be in bloom for the 1975 AIS Convention than for any prior convention, any place, any time. The reasons for this are that southern California irisarians are very 'species conscious', and that many species perform well in the San Diego area, and in that area the bloom season of many species coincides with the April 23 thru April 26 dates of the 1975 Convention.

Quite likely, every one of the 1975 tour gardens will have at least a few species in bloom. Equally likely, a substantial number of species will be in bloom at the Cordon Bleu Farms, in San Marcos, and at your Editor's garden, in Del Mar. Approximately forty different iris species are grown in each of those gardens.

Two different views of a blossom of one of the species irises which was in bloom at the Cordon Bleu Farms last month appear at right.

Look at the photos and try to guess the name of the species. Make your guess now, before reading on. Next, look at the photos again and note well that this species does not have any standards, not even a 'setose' ( or a bristle ) where the standards might be. Now make a second guess.

If either of your guesses matches that species name which appears on the last line of this page, upside down, in small print, you may pat yourself on the back. If neither of your guesses was correct, then get out your reference books and read up on this interesting species, and be sure to come to the 1975 AIS Convention in San Diego, where you will be able to admire it in bloom.



# The AIS National Convention 1976

Yes, species irises very truly are becoming a notable part of AIS National Conventions. So much so that in addition to the regular routine of asking hybridizers for hybrid 'guest irises', the 1976 Convention Chairman also is asking members of the Species Group for species irises for that convention.

The 1976 Convention will be headquartered in Lansing, Michigan. The Convention Chairman is Harold L. Stahly; his address is 8343 Manchester Drive, Grand Blanc, Michigan 48439. Hal writes that he personally will act as species coordinator for the convention, and he invites members of the Study Group to send species irises for the 1976 Convention directly to him. His own garden will be among those "on tour" during the convention, and he will establish a species bed in it. He anticipates that a few other tour gardens also will be happy to grow species, and he will make allocations of species to them.

Harold Stahly particularly requests that members of the species group who are willing to help supply species for the 1976 Convention be restrained by the following guidelines: (1) *Because of the very long rigorous winters of Michigan, plants should be sent in time to arrive there for planting between July 20 and August 15, 1974.* (2) *Send only those species which are sufficiently hardy to survive outdoors thru long bitter winters.* (3) *Send only those species which reasonably could be expected to bloom in Michigan during Michigan's TB season; the convention will be scheduled for that season.* (4) *Each plant should be clearly labeled including species name, series, blossom color, and form or subspecies if applicable.* (5) *For benefit of growers not already familiar with species, be sure to include simple directions for planting and care for all species which require special conditions or special treatment.*

Hal Stahly notes that his request for species was triggered by a comment by Freeman Yendall which appeared on page 294 of SIGNA 12. We thank Freeman for serving as a sort of publicity manager for species at AIS conventions, and we look forward to the 1976 Convention with happy eager anticipation.

The photos on this page are of the species *Iris tridentata*. It is indigenous to Florida, yet, surprisingly, it is quite hardy and readily adaptable to garden use. And in any garden — because it is so attractive and also because it has no standards — it becomes a conversation piece.



# THE ORRIS FESTIVAL

By Effie M. Osborn  
reprinted, with permission,  
from the Year Book of the  
British Iris Society

A field of *Iris pallida* in cultivation in San Polo, Italy. This species iris is the principal commercial crop of the area. The rhizomes are used in making orris root; they also are the prime flavoring component of Chianti wine.



San Polo in Chianti lies several miles south of Florence, Italy, and is set in the most beautiful Tuscan landscape. It is reached by an attractive wooded road which crosses and recrosses the tiny river Em. As one nears the village the terrain becomes steeper. The landscape is draped in ancient olive trees, with a few cypresses pointing to the skies, and with the ubiquitous grape vines often set in a carpet of fascinating wild flowers. The land is of course terraced, in some places broadening out into fairly wide plateaus. These when we saw them were sheeted with a mauve covering which proved to be *Iris pallida*.

The little village when we reached it was en fete, for we had been invited to attend the opening of the Festival of the Iris. Houses on either side of the long village street were festooned with garlands of irises; great bowls and jars of the flowers also were standing at the cottage doors. A large hall was devoted to the display of the numerous crafts and industries of this delightful district, chief among these being the cultivation of *Iris pallida*.

In recent years, the mauve colored *Iris pallida* for some reason or another has supplanted the white *Iris florentina* in the production of orris root, and certainly the fields of delicate mauve were much more spectacular than the white irises would have been.

We saw the selected rhizomes in bundles waiting to be trimmed and peeled by the skilled fingers of the village girls, who sat chatting over their task as if endlessly peeling potatoes. The rhizomes then are dried in the sun, eventually becoming as hard and as white as a bone. We were astonished to discover that dried orris root still is exported from Italy in great quantities, chiefly to America, to Germany, and to Great Britain, and that the province of Florence produces roughly five hundred tons annually. Orris root also is used to flavor the delightful Chianti wine which we were asked to sample, and which we found to be very good.

It was Sunday, so after an hour or so in the Exhibition the whole population trooped off to Mass. When we eventually reached the tiny church, tucked away in a remote corner of a neighboring valley, we found that it, too, was richly adorned with blossoms of *Iris pallida*, and the perfume of hundreds of blooms in the candle-lit building was almost overwhelming. Mass was offered by the Bishop of Fiesole, and the devout atmosphere of the service, during which two tiny altar boys hovered attentively around Monseigneur, was most moving.

As I said, San Polo was en fete, and we next were treated to a display of true peasant hospitality the like of which I never before have seen. An ancient building adjoining the church soon was crammed with about 150 guests and villagers. Members of the Italian Iris Society and their friends mingled with those whose interest in the iris was perhaps even greater, as their very livelihood depended upon it. Vast bowls of minestrone, mountains of chicken, huge local cheeses, and chianti wine served in tumblers were the high-lights of this memorable meal, and how we wished we could understand the speeches which followed and which caused our Italian friends to rock with laughter.

The afternoon was devoted to dancing, sport, and to the crowning of "Miss Iris". A few of us visited the Lord of the Manor, who owns this lovely spot, and who bears the famous name of Della Robbia. His villa, set on the hillside, was full of treasures, and we felt we had glimpsed life as it probably had been lived here since medieval days.

We left this peaceful village pondering the fact that orris root, the product of San Palo, would find its way into the cosmetics of the ladies in New York, and into the tobacco of the merchants of Hamburg, and into the toothpowder of children in London, - and we silently toasted the Iris in our last tumbler of Chianti.



## *Iris unguicularis*

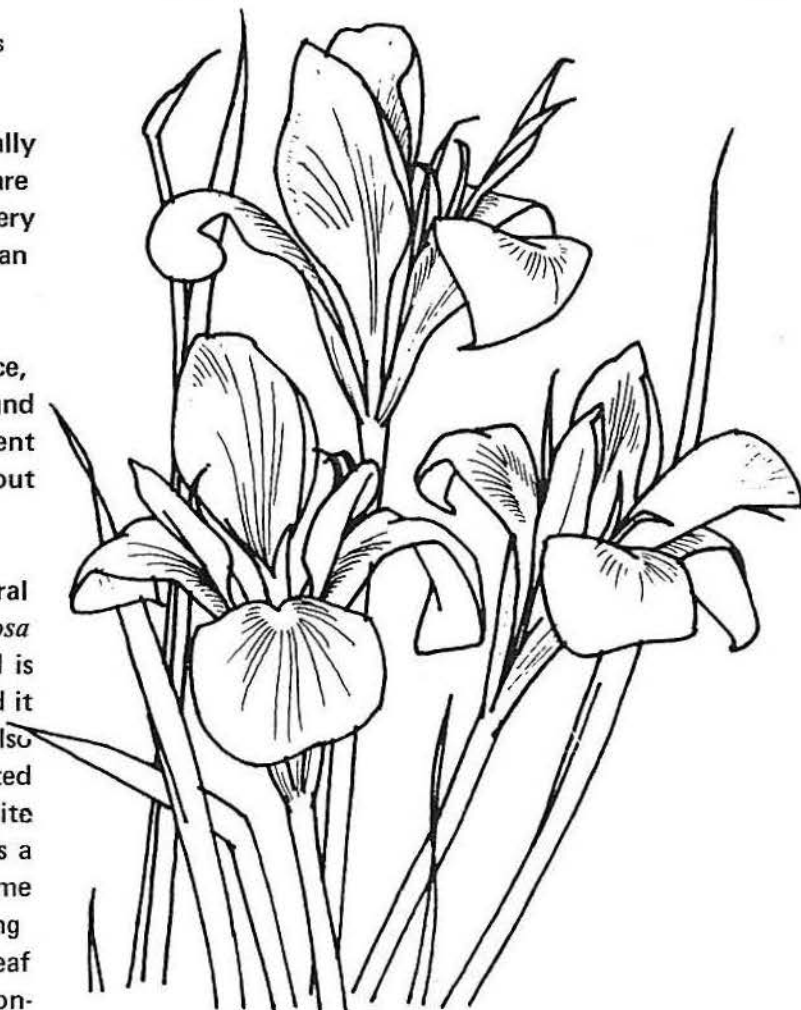
By Edith Cleaves

Many irisarians snub a beautiful iris which is really a blessing in the garden when all other irises are dormant. Formerly known as *Iris stylosa*, a very musical name, it now is called *Iris unguicularis*, an awkward sounding title for so lovely a flower.

Most of these plants are native to Syria, Greece, Crete, Algeria, and other southern countries around the Mediterranean Sea. Each country has a different form of flower and foliage, too many to tell about in a short article.

Here, in San Jose, I have four species and several hybrids. The species are *Iris cretensis*, *lazica*, *speciosa* and *marginata*. *I. cretensis* has a 12 inch leaf and is very slow to flower on its short stem. Having had it only two years and no flowers yet--no report. Also *I. lazica* (there are two types here) after being planted four years and transplanted once to see if a new site would help, has refused so far to bloom, but it is a spring flowering plant, so maybe 1974 will give me some help on this bloom. The plants are growing very well. The foliage has an indent on each leaf which is similar to the Evansias, thus creating confusion. My seeds came from Mrs. Marchant of England who was gracious enough to dig up some she had just planted and sent them on to me. She received the seeds from a gentleman who made scientific trips

Text and drawing extracted, with permission, from IRIS NOTES, bulletin of the Southern California Iris Society. Illustration by Alan Denney.



for this purpose — finding rare and different seeds and plants. All the seeds germinated, but I kept only two, giving the others to irisarians who were interested in species. *I. marginata*, a deep bluish-violet, has foliage about 20 inches high. This is its first bloom year so not very many flowers have bloomed yet. *I. speciosa* also bloomed with a good number of bluish-violet, large flowers, starting the season October 1st.

A few years ago I purchased, by mail order, an *unguicularis alba*. That plant was the scroungiest plant you ever saw with scrawny white narrow falls and standards. But, being ignorant, I crossed it with the dark blue, creepy IMPERATRICE ELIZABETTA, a vigorous grower--How I wish I could get another start of that plant! From this cross came two whites that are really lovely: 3 inches across, good substance, and the only coloring is the bright yellow signal. The flowers are similar, but the foliage is different. One has inch-wide foliage while the other is only ¼ to ½ inch wide. The former is called WINTER TREASURE and the latter is named WINTER SNOWFLAKE. The other outstanding hybrids are WINTER GAY, a 12 inch stem, deep lavender with pretty design around signal; WINTER GOLDBACK, a deep purple-lavender with gold dusted over the back of the falls; and WINTER MYSTERY, a silver-backed little 8 inch stem, low foliage. But this one has pansy violet color, the falls are scalloped, and the standards are domed for at least two days. There are others, but not enough unique characteristics to brag about!

The average flowering season opens just after Thanksgiving, and it lasts until mid-March. They are divided in April and late September. After bloom period, in late May or early June, I cut back the foliage to six inches. This will enable me to find the seed pods. Before they are ripe enough to gather (in June), I also pull out the straw-colored leaves, thus making it much easier to locate the capsules. This is not always easy on a large plant. You must reach down to the soil to feel if there is a pod (which is rather large generally). Some of them grow halfway in the earth; others are about one inch above the earth on this short stem. The perianth tube is very long so the ovary is near the ground. And do not give up looking easily, for they are well hidden. The seeds are rather large and of a rosy tint. They germinate easily.

Having planted the seeds in small clay pots, when they are about ten inches high I transfer them to their growing area, well drained and in full sun. They are not one bit fussy as to soil conditions, but they do like some fertilizing about once a year, say about in August or September. As they start their bloom season in October, many in November, they do not need a great deal of watering, but a deep watering is given about once a month. Frost kills the flower that is in bloom at that time, but they keep right on blooming very shortly afterwards. Thereafter, rain does not bother them either. I do not know about snow--we have so very little here, only on rare occasions and then not in the valley.

When small rhizomes are transplanted, they often will bloom that year. But others take until the second year to respond. They are not divided here, only if someone wishes some. Then I plant the extras in a tub where they grow vigorously. Some of them have been in the same area for over eight years.

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