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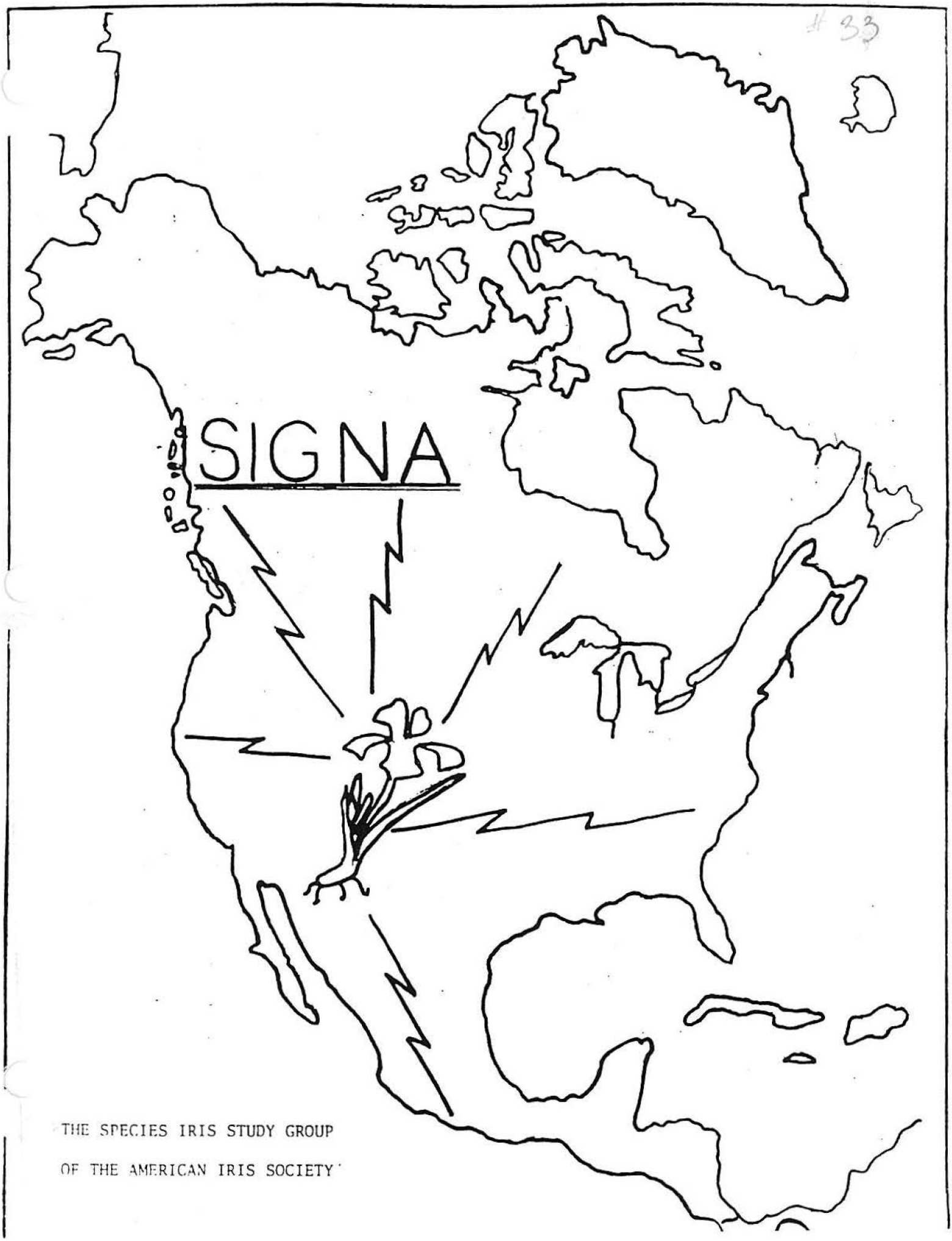

THE SPECIES IRIS STUDY GROUP

OF THE AMERICAN IRIS SOCIETY

SIGNA

SPECIES IRIS GROUP OF NORTH AMERICA

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CHAIRMAN'S MESSAGE

One of the great things about belonging to SIGNA these last fifteen years is that it always knew why it existed and where it was going. Nothing is more tiresome than turning to the editorial or executive message in a magazine and finding the same old debate about ends and means, ways and means and so on. I hope SIGNA during my chairmanship will continue to be so responsive to the needs of its members that we need never waste time on that sort of thing.

Those of you who know me at all will acknowledge that I am rather underqualified for this post, especially when compared with the last two Chairmen. But I think we have a very good Executive group helping the Chairman, full of experience and enthusiasm.

I am Elaine Perry Hulbert, born and raised in Minnesota, a resident of suburban Connecticut for twenty years, and now gardening in the Blue Ridge of southwestern Virginia. I'm afraid I dozed through first year Botany, and I didn't own a trowel till I was thirty. But once acquainted with the genus Iris I became mad for irises and have grown every kind I could get hold of. I am still not much of a gardener: I recognized early on that I was more a collector and student than a grower of beautiful things.

I take my selection as Chairman as a cue to work a little harder on promoting species iris in the eastern half of the continent. The middle states of the U.S. and Canada have seen the light and are growing a very wide range of species in their cold, hot, arid climates. In the East, alpine gardening is catching on, and with it should come new interest in iris species. The coastal climate, and that of the Southeast, should be excellent for most of our native irises, and not a few exotic ones too. Since the West Coast has always led the way, I see our Group's scanty representation in the East as an immediate challenge.

(There: I used the word "challenge". Now I feel like a real Chairman.)

Elaine R. Hulbert
Floyd, Virginia
September 9, 1984

Top l to r: I. amoena, I. germanica
Bottom l to r: I. pallida, I. squalens

Reduced size copies of Redoute prints available as full color stationery from the New York Metropolitan Museum of Art.

BACKGROUND TO "LILIES AND RELATED FLOWERS"

Brian Mathew (June 1984)

It was a fortunate day for me when Dr. William T. Stearn found himself too busy to accept an invitation by Felix Gluck to write a new text for a set of Redouté's Liliacées plates. Fortune smiled even wider when Stearn suggested to Gluck that I would be a suitable alternative author, and shortly after this I received a visit from this likeable and courageous man.

Felix Gluck was a German Jew and like so many of his fellow people was placed in an extermination camp during the war from which he was mercifully released by the advancing Allies. After a year or so of recuperative treatment in a Swiss clinic he came to England, hoping to follow his earlier career of an artist. This was not to be, but he started a "package" publishing firm specializing in reproduction of early fine art works, presenting a completed package deal to the larger publishing houses, notably Michael Joseph. Several books were produced in this way, for example, Jean-Jacques Rousseau's Botanique, published as Botany, A Study of Pure Curiousity. This contains many illustrations by P. J. Redouté. Butterflies and Moths was published in 1978 and contained numerous beautiful 18th century engravings by Christian Sepp and his son, J. C. Sepp.

It was 1979 or 1980 when Felix approached me with the proposal that I should write a new text for a selection of 110 Redouté plates from the sumptuous Les Liliacées. Needless to say I accepted this eagerly for the chance to be associated with the work of such a great painter may not come one's way more than once. The original text is heavy going with long botanical descriptions in French and almost no interesting readable information such as geographical distribution, variation, economic uses, garden value, etc. This is understandable, for the writers actually set out to describe the plants which were illustrated, and quite a number were being described botanically for the first time, so this was important material. For the rewrite, we considered that a different approach could be made since there was no real need to describe these known species again and we felt that a text providing more general interest would be of greater appeal and use.

A great deal of money was invested in the book and it was decided that the Swiss printers should work from one of the copies of Les Liliacées which had been personally retouched by Redouté to pick out highlights on the plates. The copy chosen was the one from the Longleat library, one of the eighteen copies which received the attention of the great artist subsequent to publication of the work.

The final part of the story is almost a tragedy. Felix Gluck became very ill from cancer and died and the firm collapsed before the book was finished. The whole thing was more or less shelved but eventually the firm of Michael Joseph saw it through into print and it now remains as a memorial to a brave man, published 1982.

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And so, herewith is presented to SIGNA by Brian Mathew (via LeRoy Davidson) copies of Les Liliacées which we now regognize as members of the Genus Iris.

P. J. Redouté

LILIES
AND RELATED FLOWERS

Brian Mathew

Iris amoena de Candolle

The plant illustrated here and described fully in the original text by A.P. de Candolle is very different from the group of garden plants known by iris fanciers today as the Amoenas. The present definition of this group, quoted from the recent American Iris Society's publication *The World of Irises*, is 'a bearded Iris with white standards and colored falls'. The colour of the falls is not necessarily blue and it is possible now to have Amoenas with, for example, pink falls and white standards.

No plant exactly matching Redouté's *Iris amoena* is known in the wild and we may assume it to be a hybrid involving *Iris variegata*. As mentioned in the text on page 188, this eastern European species is extremely variable in colour and some of the forms have purplish veining on a white, rather than yellow, background. In its flower colour *Iris amoena* therefore resembles some forms of this species; but in its grey-green leaves it differs, for those of *Iris variegata* are normally quite green with no markedly glaucous appearance. There is, however, a rather ribbed aspect to the leaves, which is a feature of the Variegated Iris, so it seems fairly certain that herein lie the origins of *Iris amoena*.

Iris cristata Aiton — DWARF CRESTED IRIS

This beautiful miniature iris is placed in the same group of species as the oriental *Iris japonica*, namely the Evansia section of the genus. This may seem rather remarkable in view of the considerable differences in appearance between these two species, but they are brought together by one point in common: both possess a raised yellow portion, or crest, on the outermost three segments, or falls as they are more generally known. This is not in the form of a beard as in *Iris germanica* and other members of the bearded group, but rather a prominent ragged ridge like a cockscomb. Hence its local name of Dwarf Crested Iris in its native lands of the central-southern states of North America, where it is one of the most beautiful of the small spring flowers. Widespread from Maryland to Missouri and south to Oklahoma and Georgia, it tends to be a moisture-loving species of lowland woods.

Farther to the north, in Illinois, a near relative, *Iris lacustris*, occurs in gravelly or sandy places on the shores of Lake Huron and Lake Michigan. In fact the two are so similar that the northern plant is sometimes treated botanically as a variety of *Iris cristata*. Both are of extreme delicacy and from a gardener's point of view there is little to choose between them, although *Iris lacustris* is rather smaller with narrower leaves than its southern neighbour. There are extremely beautiful white forms of both, which retain the yellow crest in spite of being albinos.

Iris japonica Thunberg — figured as *Iris fimbriata*

This very elegant iris belongs to the group known as the Evansia irises, named by R.A. Salisbury in 1812 after Thomas Evans who introduced the first living material of the species into Britain. Since 1794, when C.P. Thunberg first described *Iris japonica*, several others have been added to the group, but it remains a small section of less than ten species, distinguished from other irises by the presence of a cockscomb-like crest on the three outer petals, or falls. Unlike many of the rhizomatous *Iris*, this species produces rather slender tough green rhizomes which send out long stolon-like shoots, rooting down at the apex and giving rise to further fans of glossy green leaves. With this habit of growth it can rapidly form extensive patches and is a most impressive sight when flowering freely. Unfortunately it does not always do so and appears to require a good warm summer in order to produce strong flowering-size fans.

Iris japonica is thought to be native in China and Japan, although one cannot be sure of the origins of a plant which is so easy to propagate and distribute.

The form illustrated here is of a slightly darker lavender than is usually seen, but there is a little variation in flower colour between different plants of *Iris japonica*. There is also a form with strikingly variegated leaves, which is worthy of cultivation as a foliage plant.

Iris albicans Lange — figured as *Iris florentina*

It is unfortunate that the plant illustrated so beautifully by Redouté was not the same plant as the Florentine Iris, from the rhizome of which the perfume and medicinal agent known as orrisroot was obtained. The plate actually depicts an Arabian species, which was later described by J.M.C. Lange as *Iris albicans*. The true Florentine Iris is the more well known of the two and is also white-flowered, but is almost certainly nothing more than a colour form of the common *Iris germanica* and not a distinct species.

W.R. Dykes, in his superb monograph, *The genus Iris*, sets out the differences between the two plants and there can be no doubt about the identity of Redouté's plant. The pure white flowers immediately attract attention since those of the Florentine Iris have a very slightly pale blue tint. The greyness of the rather broad leaves, noted in the original text for this plate as being rather unlike those of the 'Iris de Germanie', give an additional clue. It is, however, the way in which the flowering stem branches that provides the more definite proof of identity. The lowest flower is shown to be, and is described as, sessile, whereas in *Iris germanica* and its white variety the lower branch is some 8 to 10 centimetres long.

In Arabia and Yemen where this plant is apparently a native it occurs in both white and blue forms. It is fairly certain that the white form was distributed throughout the Muslim world, as a plant with which to adorn cemeteries, white being the colour of mourning, and it has long survived in Spain and Greece the disappearance of Islam.

Iris foetidissima Linnaeus — GLADWYN

The Gladwyn, Stinking Iris or Stinking Gladdon has tough evergreen leaves which

release an unpleasant odour when bruised, but in spite of this undesirable feature it is a most useful and attractive garden plant. The flowers are rather dull in their colours, although there is a yellow-flowered variant—variety *citrina*—whose blooms are much more desirable than the usual muddy purplish form. However, it is in the fruiting stage in mid-winter that *Iris foetidissima* really comes into its own; its large capsules split open to reveal brilliant orange-scarlet seeds which remain attached for a long period, even when cut and dried. Also, the evergreen leaves make quite striking clumps and there is a striped variegated form which is of value in dull shady corners of the garden.

This curious iris has no near relatives in the genus and is placed by most authorities in a section of its own. It is a native of western Europe from Spain northwards to England, where it occurs in woods particularly on the chalk and limestone hills.

Another name commonly used for this plant is Roast Beef Plant. The smell of the leaves has been likened to roast beef, boiled milk and wet starch, three quite dissimilar aromas one might think. The name Gladwyn is probably derived from the Latin *gladius*, sword, referring to the sword-shaped leaves.

Iris germanica Linnaeus — GERMAN FLAG IRIS

The origin of *Iris germanica* is a mystery which will probably never be solved. It is an extremely widespread plant of some antiquity, certainly dating back several centuries, and probably one of the oldest and most tenacious of a group of bearded iris hybrids. It is naturalized in many countries and is vegetatively very robust, so that it can persist and indeed increase without the necessity for seed production. W.R. Dykes reports that in the warm climates of the Mediterranean region it does, however, produce capsules and that the offspring vary somewhat in depth of colour. In the cooler climates of northern Europe and North America seeds are rarely produced.

The most common form of *Iris germanica* seen today is of a blue-purple colour, the standards paler than the falls. The bracts are partly green and partly papery and are often tinged with purple, quite unlike the silvery ones of *Iris pallida* for example. Linnaeus gave the name *Iris germanica* to an iris of similar appearance, but whether or not it was the same clone as our present-day plant it is impossible to say. *Iris germanica* may of course be truly native in some part of the Mediterranean, but its distribution is now so wide—almost worldwide in fact—that any speculations must be of the most tenuous.

Iris graminea Linnaeus

One of the most notable features of this fairly modest iris is the very strong fruity fragrance; this more than compensates for the small size and subdued colour of the flowers. It has been likened to the scent of fresh bananas, plums, and greengages. In fact one of its Latin names in the seventeenth century was *Iris angustifolia prunum redolens*, the plum-scented narrow-leaved iris.

Iris graminea has been known to European horticulturists for centuries since it is a widespread native of central and southern Europe and is extremely easy to

grow in almost any garden situation. The normal flowering time is May or June.

It belongs to the large group of irises named by J.G. Baker the Apogon section or beardless irises because, unlike the bearded Pogon section, these have no hairs on the falls. The only European representative of this group to possess a fruity scent, *Iris graminea* is also distinguished by having a very strongly flattened, almost winged, stem. The related and similar *Iris sintenisii* from the Balkans has a much more cylindrical stem and the violet-blue flowers are without a scent.

The Apogon section can be further subdivided into several groups, and *Iris graminea* probably belongs best with the Spuria, or Salt-Marsh Irises, although these do not have flattened stems or a fruit-like scent, and, unlike the majority of them, *Iris graminea* is not an inhabitant of open salt-marsh or sand-dune country.

Iris spuria Linnaeus subspecies *ochroleuca* (Linnaeus) Dykes figured as *Iris ochroleuca*

SALT-MARSH IRIS

If; as is the case in the recently published *Flora Europaea* (Volume 5, 1980), *Iris ochroleuca* is treated as a subspecies of the extremely widespread *Iris spuria*, then the familiar epithet can remain unchanged under the International Rules of Nomenclature. However, if the plant is regarded as a separate distinct species, an unfortunate change to Philip Miller's older name of *Iris orientalis* is required by the Rules. The change would not matter unduly were it not for the fact that there is another familiar but quite different species long known in horticulture as *Iris orientalis*.

The taxonomy of the Salt-Marsh Iris and its relatives is poorly understood and is in need of a thorough investigation. Until such time as this study can be undertaken, it seems scarcely necessary to change such a well-established name as *Iris ochroleuca*. Suffice it to say that it is a striking plant, well worth cultivating and it thrives in almost any sunny position. It is often seen growing in great quantities along the irrigation ditches and riversides in Turkish Anatolia, where the soils are usually rich in salts. However, a lack of these in garden soils does not seem to discourage its growth.

Iris ochroleuca is one of the taller members of the Spuria group and in its white and yellow coloration can be easily distinguished from the rest, which usually have either silvery lavender, violet or deep-yellow flowers.

Iris pallida Lamarck

The tall bearded irises are undoubtedly the most popular plants in the whole genus for general garden use, and the many cultivars now available far surpass the wild species in their range of flower colour and size. The origins of many of these hybrids are obscure and it is impossible even to guess at the parentage, but of one fact we can be sure: *Iris pallida* played a great part in the early development of these lovely plants.

In distinguishing between the various species in the bearded, or Pogon, group of irises, the colour and texture of the bracts which enclose the flower buds is rather important. *Iris pallida* has bracts, or spathes as they are sometimes called, which

are wholly papery and silvery white. Thus, they are quite unlike all the other species, in which the bracts are at least partly green or tinged with purple.

Iris pallida is a vigorous species with a branched stem reaching 1 to 1.5 metres tall, and with a fan of robust greyish leaves. A well-flowered clump is an impressive sight and equal in beauty to any of the garden varieties. The soft lilac-blue flowers have the additional bonus of being strongly but delicately scented.

In the time of Redouté it was assumed that *Iris pallida* came from 'the Levant', but it is now known that it occurs on the mountains along the Adriatic coast of Yugoslavia and northern Italy, where it sometimes grows in large numbers amid the limestone rocks and scrub.

Iris pseudacorus Linnaeus — YELLOW WATER FLAG

This common waterside iris is a familiar plant throughout Europe and occurs also in North Africa, Turkey, Iran and Russia, often lining the banks of streams, ditches and canals with its bright yellow flowers in summer. It occurs too in marshy places near lakes and ponds and can cover extensive areas. The name 'false acorus' refers to the similarity between its foliage and that of Sweet Flag, *Acorus calamus*.

The Yellow Flag or Yellow Iris belongs to the beardless group of *Iris*, or Apogon section as it is known, which encompasses those irises that do not have a tuft of hairs on the falls. Within the Apogon section there are some natural subdivisions which enable the many species to be grouped together. *Iris pseudacorus* is apparently most closely related to the eastern Asiatic *Iris laevigata* and *Iris kaempferi*; these are also moisture-loving plants, but are immediately separable from the species illustrated here by their non-yellow flowers. *Iris versicolor*, with its variants which are sometimes described as separate species, is the final member of this small group. A native of the eastern United States, it has bluish or purplish, strongly veined flowers and grows, too, in just the same type of habitat as *Iris pseudacorus*.

The Yellow Flag has been used as a purgative, apparently very effectively, for William Meyrick noted that it 'has been found to procure plentiful evacuation from the bowels when all other means have proved ineffectual'.

Iris pseudacorus varies a little in its coloration and some of the variants have been selected for horticultural purposes; for example, the pale yellow form without the darker blotch on the falls, which has been given the name variety *bastardii*. The amount of brown or violet veining also varies somewhat.

Iris sibirica Linnaeus — SIBERIAN IRIS

This popular garden plant is a widespread native of central and eastern Europe from France to Poland and Russia, extending southwards into the Caucasus and northeast Turkey. It usually occurs in damp grassland or in rich streamside vegetation, but in cultivation seems to be perfectly at home in almost any situation, given sufficient moisture in the growing season.

Iris sibirica belongs to a group of closely related beardless species within the genus, known collectively as the series Sibiricae. They are characterized by being

tall slender plants with hollow stems (except in *Iris clarkei*) and by having a seed capsule which is three-cornered in cross-section. The shape of the stigma, rather a useful feature in grouping the beardless iris species, is like a triangular tongue. The ten species are, apart from *Iris sibirica* which extends westwards into Europe, entirely Asiatic and mostly from China and the Himalayas.

The nearest relative to the confusedly named Siberian Iris (it does not actually occur in Siberia!) is *Iris sanguinea* (*Iris orientalis* of C.P. Thunberg), which occurs in eastern Russia, China and Japan. The main difference lies in the bracts, which subtend the flowers, those of *Iris sibirica* being brown and membranous at flowering time and those of *Iris sanguinea* being green when the flowers are fully expanded. Also, the stems are usually unbranched in *Iris sanguinea* and carry only two flowers at the apex, whereas they are normally branched in *Iris sibirica*, with three to five flowers.

In the wild the Siberian Iris is normally violet-blue with occasional albinos, and it is one of the latter forms that Redouté has illustrated as *Iris sibirica* variety *B.* As a result of much selection, the species does however vary considerably in the garden forms, in both colour and size of flower. Nearly all the forms show the beautiful netted pattern of veins on the lower part of the falls which is one of the main attractions of the species. *Iris sibirica* also crosses with other members of the group and there is a wide range of colourful hybrids now in cultivation.

Iris sambucina Linnaeus

When Linnaeus first described this bearded iris in 1759, he gave a very scanty description, quite insufficient for us to identify the plant he had in mind. However, in 1762 he expanded this considerably in the second edition of the *Species Plantarum*, and described *Iris sambucina* as having violet or bluish flowers with bluish style branches. The plant closely resembles *Iris squalens*, also illustrated by Redouté (page 185), but has very little of the dingy yellowish coloration which is such an obvious feature of *Iris squalens*.

Almost certainly *Iris sambucina* and *Iris squalens* are hybrids, both of which come from the same parent species. However, the form of *Iris variegata* involved in the production of *Iris sambucina* was one without a strong background of yellow. The Variegated Iris, figured on page 189, is an eastern European species and varies considerably in the wild, from forms with a very yellowish appearance to ones in which the ground colour is nearly white. It is believed that the other parent of *Iris sambucina* is *Iris pallida*. If this is true, it accounts for the rather bluish appearance of the flower.

W.R. Dykes, in his *Handbook of Garden Irises* (1924), offers some fairly convincing evidence concerning the parentage of both *Iris sambucina* and *Iris squalens*. He states that above Carlopago (now Carlobag) on the Adriatic coast, he has found both *Iris pallida* and *Iris variegata*, and also hybrids between the two. 'The same two species occur together near Bozen [now Bolzano] with similar hybrids, which were once known as sambucina and squalens.'

Iris planifolia (Miller) Fiori & Paoletti

figured as *Iris scorpioides*

This beautiful little winter-flowering iris has several very distinctive features which make it instantly recognizable in a large and diverse genus. The papery-coated bulb, thick fleshy roots, channelled leaves and reduced inner tepals, or standards, immediately link it with the interesting Juno group of species, which are mainly distributed in Iran, Afghanistan and central Asiatic Russia.

The only near relative to *Iris planifolia* in the Juno group is the Palestinian *Iris palaestina*, which is rather like a greenish version of it. These two species are distinctive in having pollen grains covered with minute spines, thus distinguishing them from the more easterly-occurring species which have smooth pollen. Within the Juno group these two have been placed in the aptly named Acanthospora section.

Iris planifolia is the only species of the group to occur in Europe and North Africa and is not uncommon in parts of southern Spain, Sicily and Algeria. It also occurs in Portugal, Sardinia, Crete, Libya and Tunisia, where it is on the whole less frequently seen. In the main areas of its distribution it flowers in November and December at low altitudes on rocky slopes, but it may appear as late as February in some districts.

It has a long history in cultivation and was known to Carolus Clusius in 1576 as *Iris bulbosa latifolia*, a far more useful descriptive name than *Iris planifolia*, meaning flat-leaved, which it is not! J.L.M. Poiret's name, *Iris alata*, winged iris, is equally obscure, but possibly refers to the wide wings on the outer tepals, or falls. Another synonym, *Iris scorpioides*, is as unhelpful as it is unpleasant for there is little that is obviously scorpion-like about the plant.

The flowers of *Iris planifolia* are normally of a mid-lilac-blue, but there are forms of a darker violet-blue and occasionally pure white ones. Another feature of this charming member of a superb genus is the strong perfume, an extra bonus in the depth of winter.

Iris spuria Linnaeus

Under the broad umbrella of the name *Iris spuria* comes a wide range of irises whose true status is to this day a puzzle. From Denmark and England, south to the Mediterranean and eastwards into Afghanistan and China these Salt-Marsh Irises occur, often along the edges of irrigation ditches or in grassy plains which do not dry out excessively in the summer months. In the more northerly and colder climates, *Iris spuria* is however associated with maritime dunes. There are many specific names attached to the numerous variants and it is probable that there are indeed several distinct species within the group loosely known as the Spurias. Work by Dr L.W. Lenz has shown that there are several different chromosome numbers in the group and these are associated with the geographical distribution, which also suggests that *Iris spuria* should not be treated as one widespread and variable species.

In the strict sense, *Iris spuria*, as described by Linnaeus, is the central and northern European plant depicted by Carolus Clusius as long ago as 1601 in his *Rariorum Plantarum Historia*. Linnaeus apparently believed that it was a hybrid between *Iris foetidissima* and *Iris graminea* and accordingly gave it the epithet *spuria*.

The wild *Iris spuria* of Europe is usually lilac or violet-blue with a little variation in depth of colour, the form illustrated here being one of the slightly darker ones. In Asia, however, there is much variation, from white through all shades of silvery lavender to deep violet-blue and yellow. These variations account for at least some of the different names associated with Spuria irises. The ability to vary and to hybridize has been used to advantage by plant breeders, particularly in America where a wide range of attractive cultivars now exist, ranging through many shades of blue, lilac, violet, yellow, orange, bronze and white.

Iris squalens Linnaeus

This is yet another of the tall bearded irises, the origins of which are lost in antiquity and were probably never on record anyway. Irises of this group have been cultivated for many centuries and the multitude of hybrids now in existence are derived from only a few wild species. It is unlikely that plants such as *Iris squalens* and the similar *Iris sambucina* were the result of controlled crosses between wild species; more probably they were chance hybrids which arose either in the wild or in the collections of iris enthusiasts.

Both of the plants mentioned above were described by Linnaeus in 1759, but they were probably known in gardens well before this. The description given by Linnaeus was at first very vague but he later amplified it, so we can be quite sure that the plant illustrated here by Redouté is in fact *Iris squalens*.

Although we can only make well-informed guesses as to the parentage of plants such as this, it seems very likely that W.R. Dykes is correct in his supposition that *Iris squalens* was derived from *Iris pallida* and *Iris variegata*, which are illustrated on pages 179 and 189. The veining on the falls is very reminiscent of the latter and the dingy nature of the yellowish standards could well be caused by the merging of the pale lavender-blue of *Iris pallida* with the yellow of *Iris variegata*. *Iris squalens* does not in fact show any characteristics which detract from this suggested parentage.

Iris susiana Linnaeus, figured as *Iris suziana*

MOURNING IRIS

This extraordinarily coloured iris belongs to the group of species known as the Oncocyclus section, which is characterized by having rhizomes, solitary flowers with a beard on the outer three segments, or falls, and seeds which have a fleshy white attachment known as an aril. All the species constituting this rather exotic-looking group are distributed in the Near East, from central Turkey and the Caucasus, southwards to Israel and eastwards to northeast Iran. The species that

occur in the more southerly regions, that is those from Syria, Lebanon and Israel, are on the whole more robust and larger-flowered plants than their more northerly relatives.

With its huge speckled and veined flowers and wide leaves, *Iris susiana*, or the Mourning Iris as it has become known, undoubtedly belongs to the southern group. Exactly where this plant originated is not known, however, for it reached Europe in 1573 by way of Istanbul (then Constantinople), having been sent from there by Busbecq. Nothing similar exists in Turkey today and it can safely be assumed that it originally came from farther south and was probably cultivated by the very garden-conscious Ottoman Turks of that period. To this day the name for iris in Turkey is 'süsen'.

The most likely explanation of the origin of *Iris susiana* is that it is a selection of one of the several very variable wild species such as *Iris sofarana* or *Iris basaltica*, which occur in Syria and Lebanon. Like most other members of the Oncocyclus section, *Iris susiana* needs the protection of a frame to survive and flower in northern gardens, but it is a very successful and vigorous plant in countries with warm dry summers.

The sectional name Oncocyclus (from Greek *onkos*, mass, swelling tumour, *kuklos*, circle) refers to the aril on the seeds.

Iris variegata Linnaeus — VARIEGATED IRIS

This rather striking bearded iris has a long history in cultivation for it was known to Matthias de Lobel and Carolus Clusius in the sixteenth century. It has undoubtedly given rise to some of the exotic-looking tall bearded garden irises that we know today and was probably one of the parents of *Iris sambucina* (page 175) and *Iris squalens* (page 185).

Variegated Iris is native in eastern Europe and it varies considerably over its wide area of distribution. The plant illustrated here, with a yellow ground colour and purplish veining, is just one of the forms which occur and it is possible to find even more strikingly coloured ones, in which the veins run completely together on the blade of the falls into a rich reddish-purple stain. Other, rather more rare, forms have a whitish background to the veining and a Yugoslavian collection of such a plant was at one time separated as a distinct species, *Iris reginae*. However, there seems little justification for giving these different colour forms separate specific names, important as they are from a gardener's point of view.

Within the bearded group of irises, *Iris variegata* is distinct and easily recognized. Apart from its flower colour it is the only species in which the stem is rather short, usually about 30 to 45 centimetres, but at the same time branched. The leaves are strongly ribbed and green rather than the greyish colour of many bearded iris leaves.

Iris versicolor Linnaeus

This very widespread North American iris was so named because of the mixture of colours in the individual flowers, although it is also apt on account of the very

variable overall flower colour that exists over its vast natural territory. *Iris versicolor* inhabits streamsides and swampy places from eastern Canada southwards to Texas, and over this huge area the blade of the falls can be blue, purple, reddish or dull slate coloured. A really good reddish-purple form, variety *kermesina* is often cultivated.

Like *Iris pseudacorus*, the common Yellow Flag Iris of European watersides, this American species is an ideal plant for cultivating on the margins of ornamental streams or ponds. Indeed, it is so easy to grow that in a few countries it has actually left the confines of the garden and become naturalized. Although it is undoubtedly at its best near water, it can also be grown as a herbaceous border plant, given plenty of humus in the soil. In the plant described as *Iris virginica*, or *Iris versicolor* variety *virginica*, the principal colour is blue-purple rather than the claret or reddish colour of the more commonly encountered form, but the various forms are all equally ornamental. Typically, the species is about 60 centimetres or more high when in flower, but dwarf forms with blue flowers are known.

The rhizomes and roots of *Iris versicolor* have been used for medicinal purposes in the past, an extract from them having been found beneficial in the treatment of diseases of the liver and in dropsy.

Iris latifolia (Miller) Voss

figured as *Iris xyphioides* — ENGLISH IRIS

The English Iris belongs to the relatively small group of bulbous irises known as the Xiphium section; these are confined to the western Mediterranean region and are predominantly Spanish and Portuguese. Most of the seven species occur in hot sunny places or at least in habitats that dry out in the summer months. *Iris latifolia*, on the other hand, is a plant of damp grassy places in northern Spain and the Pyrenees and is consequently more tolerant to cultivation in the gardens of northern Europe.

It has been cultivated for several centuries and there are now many attractive garden selections in shades of blue, violet or purple; albino forms are also popular. Unlike its near relative *Iris xiphium*, the Spanish Iris, it never produces the yellow forms which are so frequently seen in that species. There is a marked difference in flower shape between the two and although the names are similar there can be no mistaking the large-flowered English Iris. The lower part, or haft, of the three outer petals, or falls, is widened so that it is wing-like, whereas in *Iris xiphium* the margins of the haft are more or less parallel and not enlarged. Moreover, the leaves of *Iris latifolia* do not appear until the spring, whereas in the Spanish Iris they are already well developed by the winter. The tube of the flower in both of these species is only 6 millimetres long or less, which distinguishes it from all the other species in the Xiphium section.

The English Iris owes its name to the fact that Carolus Clusius, in the late sixteenth century, was sent some bulbs which were being cultivated near Bristol. This was an important trading centre for Spanish goods and no doubt the bulbs originated from the Pyrenees but the name English Iris has been attached to *Iris latifolia* from that day to this.

SPECIES OVER THE YEARS

Bruce Richardson

When I was a boy my mother had iris - blue, white and yellow. No names, although some friends, with even less knowledge than us, called them flags. I was better acquainted with the word specie than species. I did get the job of digging them and dividing the clumps for resetting, so learned something about growing them. Years later my wife and I still had the same assortment, as we struggled to make flower beds from areas accustomed to growing burdocks six feet high. Alberta had spotted some modern TBs along the highway a few miles from here and eventually brought home three clumps at the - to me - extravagant price of 50¢ each. (This was the late 40s!) When they bloomed the next spring we were nooked for life, and in a very few years the 60 varieties we had acquired overflowed to fields never intended for flowers. Of course I tried hybridizing - who didn't!, but soon found out it was a time consuming affair and we didn't seem to be able to cull and discard very many seedlings. We both always said maybe they will look better next year. Incidently, we still have some median seedlings from seed sent to us in early median robins. At the time we were so green we didn't realize how good they were; actually they were ahead of anything on the market at the time.

Along the way I acquired some of the species and was intrigued with the differences and variation to be found in them. The SPRING GARDEN of the Royal Botanical Gardens (named because it largely consisted of spring flowering plants and not for a water source) came into being about this time and we became close to its founder (by iris donations) W.J. Moffat, a retired high school teacher in Hamilton. We learned about the AIS and the CIS from him, and saw the best iris of the time in his "100" bed. Soon we were in contact with Wm. Miles and Cousins, two of the best hybridizers in Canada. Their stories and history of hybridizing the TBs persuaded me to leave it alone and in the search for an iris enterprise decided to acquire and grow as many of the iris species as possible on the theory that at least the species stayed unchanged and were not continually being "improved". Little I knew then about the variables in some species!

I still have some acquired from the BIS seed exchange, then run by Lawrence Neel, and some from the RBG who had grown them from seed obtained from other botanical gardens. The lack of trueness to type of some of these lead me to an early decision to make an effort to obtain "true" species, true to name at least from reliable sources and be wary of just any old seed. This led to the Empire State auctions of the Median Society and the acquiring of rhizomes from such knowledgeable sources as Dr. Randolph and Bee Warburton. Visits to Walter Welch and the DIS meets at his Middlebury, Ind. home resulted in many more. Many of his came from Hanselmeyer in Austria, who had collected them at the source . There were other similar ways and means over the years, with the net result that I acquired a lot of species that would not grow well here and in the process of finding out which would and would not have managed to lose well over half of the total. Some would carry on for a few years and just as you thought they were well established, weather or other problems would eliminate them. The various oncocyclus species are a good example of this, as I even had a selection collected in the wilds of Iran by a British expedition, that increased and flowered for a few years and then all wiped out in one winter. Oncos have been tried in pots, but have never done well for me, in part because of the difficulty of giving just the right amount of water and as well the old greenhouse was unsuitable as often too damp.

I have always grown some in pots, as they were known to be tender for our winters. The Californians are an example of the type I find it best to keep cool and fairly dry in a window of our garage (it doesn't freeze in there) and bring them into the greenhouse in February when the daylight hours are long enough to promote growth. The pots go into the garden soil outside for the summer, except the larger and more vigorous plants are removed from their pot and planted directly in the soil.. Repotted in the fall just before frost time and back to the garage.Not as big a job as it may sound as only about 20 pots are involved in the move, but it has to be timely. I get bloom this way but not as good as I have seen in New Zealand and California where they grow naturally outside. I have had *I. douglasiana* winter outside under heavy snow cover, but lost after a few years. I'm trying again with mulch and snow cover this winter.

When I first decided to grow species iris, it seemed logical to acquire as much information about growth requirements and their native habitats as possible. This turned out to be a most frustrating problem. Information available then to me was vague and sketchy, and often led me astray. I read all of Dykes works and his books, even copying his GENUS IRIS; a lot 'simpler' today with the available reprint. Most every iris work goes into a lot of detail about description of the plant, but says little about its growth requirements or the climatic conditions in its native country.. So you have to search out every available source to get even a fair overall picture of how you should be treating them. THE IRIS, a recent work by Brian Mathew, is better than some of the older works, but still is pretty general. If you are not a world traveller, familiar in detail with the climate in the native areas, you are pretty much on your own and must experiment, with the inevitable losses. Even if you do know the ideal conditions , providing those conditions may prove impossible, short of using a controlled growth chamber, an expensive business. Even with a greenhouse available, there are problems with light levels differing from the native area, not to mention moisture level in the air entering the greenhouse, control of heat, day and night temperature variations, the right soil conditions; not easy to provide in a pot or even on a bench.

When I first got into growing species, I had them in rows in a plot down the back lane, where pigs had been raised a few years previously. The lane had large elm trees on each side, now all dead from the Dutch elm disease, which gave partial shade for most of the morning and the brush that grew on each side of the lane gave deep snow cover over the iris. They have been in two other locations since but this first one was still the best growing site. It had a gentle slope south, while the second site, nearer our home, sloped just as much to the north. The third area is quite new and not much improved as yet from the hay field it came from, and has just enough north slope to drain well. The iris are doing better here than in the second site and I think as much as anything because they are in rows. The second site had them in clumps, about three feet apart, and I found this to be a poor way to grow them. They grew out from the centre, fine for 2-3 years and then you had a crowded and dying centre. I found some of the median types would grow all over themselves, and almost kill out from overcrowding. This must happen in the wild too and be overcome by renewing from seed. I think it is a good idea to have a few seedlings coming along for replacements, or if growing in rows,

to dig up and thin out part of the row occasionally. I grow a section 4-6' long of each species or variety, which might be 4-5 small clumps. If one or two are lost, the remainder can renew your stock. One large clump can sometimes be lost entirely (and is also harder to keep weed free.)

Following is a listing of some species that have or have not survived here over the past 25 years I have been interested in growing species. But first a few words about the climatic conditions here that they were grown under. Here in southern Ontario rainfall runs around 40-48 inches per year, with about 8-10" of this coming as snowfall, divided fairly evenly over the year; a bit more so in spring and sometimes fall, and a bit dryer in July and August, but we rarely go more than ten days without some rain. All my plots have water laid to them and I water as necessary in the dry periods. This need has been as early as June 1st and as late as the end of September. Extremes of temperature can range from -15°F to +100°F., but more often run -10-20° in winter to 70-85° in summer, but the only certain thing is that no two years will be exactly alike. Snow may come and go anytime in winter but is rarely more than a foot deep on the level at any one time, although we may get 6' or more in total. A January thaw that melts it all away happens about one year in three, usually followed closely by clear nights to zero temperatures. Last summer was hot, but no record breaker, although extremely dry accompanied by temperatures to 90°F. for a month. This winter is the reverse, with far more snow and cold in December than for years back. January with 11" of snow had about half the normal amount, with warmer than normal in the last half, with lows around 20-30°. We had as much rain as snow, but still up to a foot of hard packed snow left on the ground. The ice layer under that snow cover could cause smothering and some dead plants by spring. My soil type is a clay loam, with moderate drainage below and is not subject to drying out badly, at least for moderately deep rooted plants. Trees never suffer but shallow rooted species like *Ii pumila* and *cristata* are always affected by a dry summer.

I. albertii This iris came here from an iris auction at Ithaca in 1962. It's still here but was almost lost on two occasions. Coming from the mountains of Turkestan, it can take cold, but needs a warm dry soil and goes semi-dormant after flowering. It is a median type plant, both flower and plant size.

I. albicans This is definitely a tender type, and although it has bloomed occasionally over a period of 15 years, it was finally lost in the second site. A beautiful white flower, and well suited to the Moslem graveyards where it was first noted. If the snow cover was deep and the summer hot enough it did well enough. Not considered a true species by some as it was so widely spread , probably by Arabs, in ancient times. However, Mathews says it seems to be a 'good' species native to Saudi Arabia.

I. arenaria This small, yellowed flowered plant, grew well for a few years in a prepared sandy bed but eventually died out in the second site. The small rhizomes heave easily out of the ground due to even light frost, being shallow rooted and as well tending to grow on the surface.. They seemed to be able to take the cold but not the heaving. Any that survived the winter would come back strongly in the summer. Should be replanted every 2-3 years in enriched sandy soil.

I. bloudowii and *I. flavissima* also grew here for a few years, but like *I. arenaria* later died out. They were larger plants than the tiny *I. arenaria* but had no more hardiness.

I aphylla A species that has done well here over the 22 years I have had it, making good increase each year. I have several named clones, with perhaps the best being the clone HUNGARICA that Dr. Randolph brought from Hungary, a selection of Hanselmeyer's. The native habitat of *I. aphylla* is southern Germany, Czechoslovokia and Hungary where the climate is not too different than here which accounts for its hardiness.

I. attica Another small species that grew here for a few years and then died out in a severe winter. Didn't do well in a pot either and I figured there was too much dampness here for a plant native to sunny Greece.

I. balkana I have had two types of this species here; a tall type about 14" high in flower and a short version around 6". The tall type has persisted and done fairly well since 1962, with moderate increase. The short type never was very vigorous, making little increase and only occasionally flowering, to eventually dying out a few years ago. These are either varients of *I. reichenbachii*, or closely allied to it, a species I had for a short time, flowering only once before it was lost to winter. It was an even smaller plant than the short *I. balkana*.

I. benacensis A type of *I. aphylla* that has done well here for 21 years. Not quite as large and vigorous as the HUNGARICA strain, being a more slender plant, but makes good increase.

I. binata A natural cross of *pumila* and *aphylla* that grows well here., although I have not been successful in keeping any *pumila* alive here for more than a year or two. This would be due to our cold, wet clay, not too well drained in winter and early spring.

I. bucharica One of the strongest growing Junos that has done fairly well here since 1962. Increase is slow and it will go for many years without replanting until the clump is a foot or more in diameter. Care is needed in digging it and is best done by washing it out with a hose so as not to break the brittle roots. Since it dies down in summer it needs a dry, sunny location on a bank and should be well marked to avoid running into it with a cultivator since the bulbs are only covered with about two inches of earth.

I. bulleyana A vigorous but controversial species. Still here from BIS seed in 1961. About 3½-4' tall with small flowers, but sets seed very well. Most Siberian types do well here with the exception of the yellow flowered ones, only once bringing *I. forrestii* into bloom before it too died.

I. cavarnae Prodan A natural hybrid that grew well here but not outstanding otherwise. Discarded in the move to the third site as not being a true species. Prof. Prodan named numerous species that have turned out to be hybrids in the wild.

I. cengialtii Usually a good grower but subject to setbacks occasionally. It comes from northern Italy and is a smaller variation of *I. pallida*. Smaller in all ways, not just shorter as the stalks are slighter and the flowers smaller in proportion.

I. chamaeiris This is a mild climate species from southern France and did not survive long here. It is now known as *I. lutescens*. A form under the name *I. italica* (according to Mathew) has grown very well here since the 60s and looks like a short TB. No question of its hardiness. *I. chamaeiris* was no more than one third the size of *I. italica*.

I. chrysographes I have had several types over the years, some being very weak growers and other strains far more vigorous. some plants obtained in 1964 came from a far colder area than here(but subject as well to better snow cover) and lasted only a few years. I've always had some around and wonder, at least under the conditions here, it should be considered as a short-lived perennial much as *I. dichotoma* has turned out to be. It is a high elevation plant native to SW China.

I. cristata This is one I should be able to grow but have not been successful in keeping it alive too long. A warm, rich sandy soil seems necessary and replanting frequently to keep the rhizomes in the soil. They tend to come up and as well heave easily due to the shallow rooting system. The white form lasted longer than the blue types. Considering I obtained stock from an area colder than here, cold does not seem to be the main problem. I have only seen it doing well in sandy soil.

I. croatica I have two types; a short one of 6" flower stalks and a taller one of about 14". The short form has trouble surviving, not blooming regularly, but the tall one grows well and flowers regularly. Both have similar deep maroon coloured blooms and have been here 1962 and 1964.

I. carthaliniae Spurias in a general way have been very erratic in their growth habits here, many starting well but soon fading away. This is one that has done very well for me over the past few years in site three, and even got so dense in its nursery row I had to discard a wheelbarrow lot of the surplus seedlings. Sets seed each year without any problems. The first plants I grew about 15 years ago from seed did not do well in site two, so maybe there is some variation in hardiness.

I. daesitatensis Kew Dr. Randolph brought this one back from Kew Gardens, London. It is a strong growing TB not unlike *I. pallida*, as tall but more slender in stalk and foliage and the flower is smaller and darker.Origin is unknown and is not classed as a true species or a valid name.

I. danfordiae I've tried these bulbs several times, but they flower so early that the frost kills them back. Late February and early April, usually just before a snow storm. A bit better in pots but still short lived. Some of the problem is that when they flower the bulb will split into many very tiny bublets and these do not put on enough growth to survive the following winter. About 2-3 years of good growing conditions are required to bring them again up to flowering size.

I. brevicaulis Ontario is far to the north of the range of the Louisianas, but nevertheless, I have been successful in blooming this species in a pot. I carry it and some others of the Louisianas over the winter in our non-freezing garage, keeping them fairly dry and dormant. Start again in February in the greenhouse and try for a long growing season. Running them all the winter in the greenhouse doesn't seem to work out very well and growth has been retarded. The hot summer here last year was hard on the seedlings too, in spite of heavy watering.

I. dichotoma Not recognized now as belonging to the Genus *Iris*, but still a nice and unusual sort of plant to have around. A short-lived perennial that we have grown on and off for years. It should be allowed to set seed to renew the stock. A plant will usually last 2-4 years here, but does come easily from seed.

I. ensata Now known as *I. lactea*, this strong, hardy grower does not require dividing for many years, perhaps as much as eight, and resembles the Siberians in this respect. The heavy, dense foliage tends to hide the shorter flower stems, so the flowers are mostly unseen; until the fall when you see how much seed has been set. It pods easily every year. A widely spread species from Russia right across Asia to the Pacific coast. The result has been a proliferation of names for the same thing, such as *biglumis* and *iliensis*. The *moorcroftiana* form I have is larger, both in foliage and flower stem height, than the other forms I have obtained under various names. The flowers are also a bit larger, but the pods and seed are the same in all.

I. foetidissima I have a fustrated history going back to 1963 in trying to get this species into bloom, and succeeding only once, and then to lose it the next winter. Since it is evergreen over the winter, it may be expecting too much of it to survive our winters, but the main reason I haven't had it in bloom more regularly is that both seed and plants I have obtained have usually turned out to be *I. pseudacorus*! I obtained some true seed last winter, growing the seedlings in the greenhouse early last spring and in planted pots for the summer. Growth was the best of any species I had in that lot and now some are outside under the snow and one that was carried through the winter in the garage is in the greenhouse in early February and 6' high of lush growth looking like a lawn badly in need of cutting. It will be interesting to see how the outside pair made out in the cold (under mulch).

I. forrestii I bloomed this species only once and have tried several times to grow it & *I. wilsonii*, both yellow-flowered siberians. Most times the seed I have occasionally been able to obtain has failed to even germinate and if it does the plants are weak and easily lost. It certainly isn't hardy here outside, not surprising coming from southern China and even into northern Burma.

I. fulva Once you have seen this brick-red flower it becomes a must have. My first plant came from Texas and bloomed regularly (with the same winter treatment as *I. brevicaulis*) until it was lost in a fire in the garage. New plants from seed have bloomed in our greenhouse last winter and I am pleased to see it back again. Needs repotting about every two years.

--to be continued--

WILD IRIS AT DENVER BOTANIC GARDEN'S ROCK ALPINE GARDEN

by Panayoti Callas (continued from Spring, 1984 SIGNA)

WOODLAND GARDEN

This name is a bit of an overstatement at present. Aside from a large clump of Rocky Mountain birch (Betula fontinalis) in the middle of this garden, the woods are mostly in the future tense. One day this entire area will probably be densely shaded under the broad-leafed foliage of the spectacular evergreen Garrya flavescens, at present rampantly growing throughout the bed.

Under a grove of vine maples planted in 1982 we have concentrated a considerable planting of unusual iris species. Chief of these are thirty plants of I. munzii planted out in May of 1982. Seed was donated to us by Dodo Donny, and she may be surprised to know that the plants are already two feet tall, and have up to a dozen fans in less than a year from seed! They have also enjoyed constant irrigation through the summer (something the species is supposed to resent). This notoriously tender flower has sustained several days of very cold temperatures this winter with no sign of damage. Of course, 9 degrees F. is by no means our coldest temperature. I will be anxious to see how they emerge in the spring. The site here is obviously optimal for their growth--a deep, acid, leafy loam with an inch of that loveliest of mulches, crushed spruce cones.

On the other side of the Rocky Mountain birch there is a planting of eight I. douglasiana "Amber" from seed obtained from Jack Drake in Scotland. It is ironic that one find oneself purchasing American native plant seed from European sources. And yet, is there any American source for yellow Iris douglasiana? The plants have yet to bloom, but it looks as if they will make it through this year in good form. One plant of an especially brilliant form of I. innominata with clear brown stripes on the cadmium yellow ground is planted near the path for all to admire.

In the dappled shade of the birch we have planted the dwarf form of I. forrestii I had obtained from Alpenglow years ago. This is a relatively dwarf form hardly more than 14 inches tall which has formed a large mass of foliage with dozens of flower stalks through most of the month of June. This is ordinarily one of our hottest periods and the intensity of the June sun in Colorado is positively tropical. When forrestii is exposed to the midday sun, the flowers prove ephemeral. Here, in sticky, rich soil with abundant moisture and coolness at the height of the day, this is a superb plant with much vigor. The grapefruit yellow flowers have a tinge of green in them that annoys some people. I find that in such a cool spot, it shows up wonderfully well.

Naturally, there are two plantings of I. chrysographes nearby. The plant, coming from Jack Drake, was magnificent with its velvety, deep

purple blooms. The other accession on the opposite flank of I. forrestii was grown from seed and has yet to bloom, although the clumps are now quite large.

The only other iris on this cool bank is a disappointment. I was sent plants of I. lacustris 'Alba' last fall by a Midwestern plant lover. Knowing that he was neither rock gardener nor a member of SIGNA, I should have suspected the plants a little more, but in my fond foolishness I planted the abundant mass of stringy rhizomes all over the very choicest portion of this peat bed. This spring the bank glowed with the second mass-planting of I. cristata 'Alba' in the Rock Alpine Garden. Caveat Plantor! When, oh when, will I get the real thing now?

Two large clumps of I. foliosa and I. fulva are quickly making themselves unwelcome in this very choice area. They are simply too spready in the deep rich soil. Louisiana iris appear to be indestructible here in Colorado. These two species having come from one Rock Garden volunteer who has grown them for three decades!

In the sunnier, eastern portions of the bed there are a large number of vigorous iris growing. I. versicolor forms a large colony in one poorly drained spot where its vigorous growth is beneficial. On a steeper, better drained bank there is a large colony of I. hoogiana in the common, lavender form. What a fine plant! It has spread to cover several square yards of stiff clay. On other portions of the bed you will find several clones of van Tubergen regeliocyclus including ARTEMIS,. "Thor" and CLOTHO. Various samples of Sindt's dwarf species are also found in this part of the garden and the largest planting of I. danfordiae, planted deeply on the south side of a hot rock. It is too early to tell if they will be reliably perennial here, but I hope that there will be some microclimate within this garden where I. danfordiae will be a yearly phenomenon.

The most daring experiment on the bed may be an attempt to grow I. x Sindpers in a mass planting. I obtained sixty plump seedlings of this from an Eastern grower which I managed to push considerably over the last year. They were planted out this summer in several likely positions. The largest colony was planted among the elegant, slowly spreading mat of Thymus leucotrichus on the hot, south-facing bank of the Woodland Garden. The bulbs ripened off, and I was vaguely hoping one or two might even bloom next spring when they all surprised me by producing many strap-shaped leaves with the beginning of cold weather. I am not familiar with the behavior of other three year old seedlings of juno iris, but I find this fall activity dissettling.

LIMESTONE CLIFFS

Just opposite these promising seedlings one faces the formidable boulders that comprise the Limestone Cliffs. This area consists of deep, limey scree and many narrow fissures among the large boulders. I realized some time after the planting of the garden had begun that this area didn't have a single dwarf conifer on it. Large mats of

acantholimons, sarcopoterium, brooms and a variety of shrubby labiates prevail over the Cliffs. It is a microcosm of Mediterranean and Central Asian plants. Naturally there are many iris that thrive in this bed as well.

This is the principal concentration of juno irises in the Rock Alpine Garden. I. graeberiana is planted on several spots along the summit of the cliffs near twelve freshly planted rhizomes of I. susiana. This is isolated from other oncocycli lest it truly be virus infested. Among the various mounds and mats of this appealing area there are many interesting plants: I. tauri, I. albomarginata, I. orchioides and I. warleyensis. The albino form of I. hoogiana and I. stolonifera are also growing here at present, until they outgrow their territory at least.

Iris aucheri has thus far survived two winters on the summit of a small island bed in the middle of this area. It produces masses of lush foliage very early in the year, but the flowers are such a bright blue that it is worth trying to site properly. Unfortunately, we invariably have heavy snows right at the height of its blooming period. I have planted a number of groundcovers around the plants on this hill, hoping they will help protect the young growth. Arenaria [illegible]is and Euphorbia spinosa not only provide support but the spiniest protection imaginable. I doubt if these plants will ever be molested by any visitors.

Neighbors include Echinocereus baileyi, Aquilegia jonesii and Agave utahensis all of which thrive under the same regimen. Several large clumps of I. atropurpurea have doubled their size over the last year on the steep, limey bank facing south here. There are several vigorous clumps of I. aphylla as well.

On the flat, dry bank above the stream Pardanthopsis dichotoma appears to have made itself at home. It seems to like the heat and heavy soil, seeding widely. This is fortunate, since the plants rarely seem to last for than two or three years before blooming themselves to death. The flowers are produced through July and early August in tremendous numbers. Now the Gardens are staying open later on several nights a week, visitors can finally enjoy this flower that hitherto only opened after the gates closed at 4:45 p.m.

A narrow strip of bog borders the Limestone Cliffs along the stream that flows through the center of the garden. The only iris growing here at present is the wild form of the Japanese Iris, I. ensata var spontanea. I have been amazed at the form and vigor of this plant that has actually self sown onto the gravel paths which are crushed limestone. Quite a feat for a calciphobe! The flowers usually bloom their first summer after being planted out. The flowers are large--up to five inches across--and of a velvety, purple color. The broad falls are highlighted with a bright yellow signal that seems to glow by contrast to the bright ground color. This fine plant deserves greater attention.

NORTH LEDGE AND UPPER SEEP

We are now situated in the very heart of the Rock Alpine Garden. Around the waterfall you will find the most extensive peat bed in the garden--the North Ledge and Upper Seep areas where the thickest concentrations of unusual iris are also to be found. Directly to the west of the waterfall, on the steep east-facing peat bank I have planted almost a hundred English iris among the dwarf Rhododendron already growing here.

I. tenax forms several large clumps here, and on a steep cool bank to the north of a large boulder you will find a small colony of I. verna v. alba. Fully exposed to light, but with cool roots, moist, acid leafmold and a mulch of needles, this is an easy iris to grow here that produces a mass of bloom in the mid-spring season. No more iris are to be found until you have walked to the top of the garden again.

In the peaty soil along the stream you will see large clumps of I. setosa canadensis which blooms for so long during the spring here. This is such a vigorous, heavily blooming plant and I find it should be allowed to regenerate from self-sown seed because most plants don't seem to live for more than three or four years before they start to shrink out of sheer over-exertion. Top dressing with fertilizer had no appreciable affect on these that I can tell.

Two iris can be found on the very summit of the Upper Seep. A small plant obtained as I. innominata years ago--many, many years ago-- from Walter Marx gardens produces deep purple flowers much earlier than any other Californicae on this peaty, sunny bank. This is a very strange plant. I don't think it belongs to the Californicae at all. I wonder if Walter hadn't mixed up some exotic among his innominatas. Whatever this mystery iris is, it is one of the most dazzling of dwarf iris in the Rock Alpine Garden and has survived almost twenty years in Colorado thus far.

Eric Hilton grows a form of I. ruthenica with much shorter, broader leaves than the prevalent American clones. The flowers are almost three times as large as my other clones of ruthenica, and are produced much more conspicuously. They almost resemble I. reticulata in size and color. I don't know what the status of this plant is, but a few fans of "Dyke's form" of ruthenica brought from England in the spring of 1981 had formed nice sized tufts by 1983, each with several flowers this spring. This is an outstanding rock garden plant.

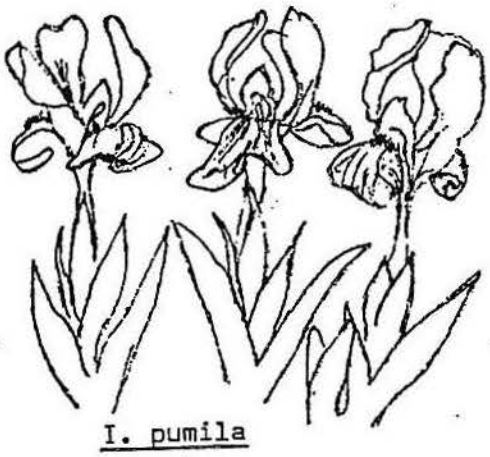
The next iris to be encountered is found on the east side of the waterfall on the North Ledge. This is I. verna in the typical, high mountain form. This is situated in a somewhat exposed position, and grows vigorously on the acid, peaty bank. However, the foliage scorches badly in the winter time and the flowers are not as large and attractive as they are on plants in more protected, cooler locations. I have planted several rhododendrons around these plants hoping they will provide some shade, since healthy clumps of I. verna should not be too hastily moved!

A few feet further east one finds two large clumps of I. decora. Four precious seedlings germinated in 1980 have dwindled to these two plants, which nevertheless seem to be very vigorous and happy. They now both have many fans, and I expect them to bloom well this coming year. This is the real thing, with the dahlia-like tubers. It is growing in deep, leafy, peaty soil with a mulch of crushed pine cones among Rhododendron "Ramapo" and Houstonia serpyllifolia. Nearby there are several other distinguished iris. I. ruthenica in its common, grassy-leaved, tiny-flowered form does well under eight foot plants of Tsuga mertensiana. They receive much sun but have a cool root run and peaty soil. I. prismatica in a relatively dwarf form (usually less than a foot high) has formed an incredibly dense colony in a short period of time. This loves sun, moisture and peaty soils. It is much later than most other dwarf iris.

Iris gracilipes can be found in the lavender type and albino along this steep, peaty slope where there is little sun even at the height of summer. They seem to have established well, and should persist in this ideal, little microclimate amoung Cassiopes, Nomocharis, Kirengeshoma, Tanakaea and Shortias. Few places better illustrate the concept of microclimate than this very spot, where so many high alpine and subalpine species demanding cool conditions are thriving opposite the hot, south-facing bank of the Moraine.

MORAINE MOUND

A few feet away from these you can find a number of lusty Agaves forming huge rosettes, many cacti and energetic clumps of I. gatesii, I. bucharica and broad sweeps of different color forms of I. chamaeiris.



I. pumila

Wild collected seed of the latter from a European botanic garden has produced blue, yellow, white and deep purple progeny. Each of these has formed large mats now and creates a real spectacle for several weeks after the pumilas are finished, through most of May and early June. Quite a number of other dwarf bearded iris species have been established along the screelike slope among tufa boulders on the west side of the Moraine Mound. I. pumila var. attica in a good yellow form has formed large tufts, and a black pumila collected in Crete by a volunteer from the garden.

More of Sindt's species and a few select hybrids are found here and there throughout the Moraine Mound where they will make wonderful pools of color in the early spring when we so desperately need it

here in Colorado! A bizarre form of I. reichenbachii has been kept with strange, crepe-like blossoms of a faint, purplish-brown color. The only other notable iris on this mound is I. tenuifolia which has grown from seed and I desperately hope does not turn into yet another form of I. lactea before it blooms.

SCREE MOUND

Next to the Moraine Mound, the similarly gravelly Scree Mound has been planted with several dwarf bearded iris. Chief among these is a glowing, deep purple form of I. reichenbachii that blooms for several weeks in the early spring. This has created such a spectacle, I decided to plant many more dwarf bearded iris throughout the garden. They are frequently smothered with our inevitable late spring snows but usually emerge only a little bedraggled for a few days.

LOWER MEADOW

Not all the Rock Alpine Garden consists of rocks. The central portions of the garden are actually flat where the rich, loamy meadow has been planted with numerous alpines that enjoy root competition and more fertile soils. A wide variety of iris border a dry stream bed which bisects the area and serves also as a path.

Large clumps of a typical wild form of I. sibirica originally collected as seed near Bruno in Czechoslovakia are the first iris encountered along this path. They have hundreds of crisply cut flowers with bright blue and white banding. We cut the flowerstalks before they set seed, for every seed seems to germinate and produce a flowering plant within two years. On a small bank nearby large mats of I. x barthii--a fine, yellow flowered dwarf bearded iris--forms a dramatic picture earlier in the spring.

Further up the stream bed there are several large colonies of I. missouriensis the native Rocky Mountain iris. We have three clones of this, a pure albino, a pale silver form and a deep blue purple collected by Allen R. Taylor near Boulder. Opposite our native iris there are several large clumps of I. lactea in its most attractive, bicolor form with white falls and lavender standards. This has a strong scent that reminds one of cigarette lighter fluid, something all visitors marvel at.

Clumps of I. spuria sogdiana and I. spuria musulmanica occur on opposite sides of the stream bank further up. These central Asian iris are quite attractive in bloom here, although neither is regarded as particularly gardenworthy. Perhaps our hot summers make them flower more magnificently. A large clump of I. "aurea" which is probably in fact a form of I. imbricata produces huge leaves and large panicles of bearded flowers over a long period in the spring. This is a distinctive and showy plant for a large rock garden.

I. histrioides has been naturalized elsewhere on this meadow. The only other iris growing on the Lower Meadow is I. flavissima (now I. humilis, ed.) which is very happy growing on a steep, south-facing bank of gravelly soil. It seems to enjoy the encroaching company of Thymus herba-barona and Juniperus horizontalis 'Twin Buttes' which must simulate its native heaths. This iris produced a constant procession of blossoms for over three weeks this spring, with up to thirty flowers open at one time. Surely this must be one of the gems of the iris world, perfect for the most fastidious of rock gardens.

CONCLUSION

As I review this lengthy compendium I note that quite a few species have slipped through my net. Other iris are too new, or dubiously named, to mention. Well over a hundred species are established thus far, and I am anxious to expand the collection in several directions. We would like to have representatives of all the principal sections and series in the genus. Some, like the pseudoregelias have thus far eluded us altogether. I am especially anxious to have good collections of smaller, rock garden sorts, many of which are simply not in cultivation yet. As I. rossii, I. chinensis, I. tigridia, I. potaninii and others come into cultivation, I hope that we will be able to obtain starts, since I believe that this region is proving an ideal area for the cultivation of many plants--notably those from central Asia and other continental climates.

Because of the tremendous diversity of soils, water regimens and aspects (the three components of microclimate), the Rock Alpine Garden has proven to be a sort of microclimatic laboratory. Whenever we are faced with a new, unfamiliar species, we try to test to see where it grows best, and then concentrate the seedlings in that spot. The fact that such notably temperamental mountain plants as I. decora, I. verna and the cool-loving I. gracilipes can be successfully grown in the same garden as a broad spectrum of oncocylus and juno iris certainly speaks for the potential significance of this collection as a repository of difficult species.

The other focus of this garden in the next few years will be to obtain as many central Asian iris as we can--especially aril and juno iris. These have responded so well to conditions here, and are such fine ornamentals, I feel that it is incumbent upon us here to do more testing of these flamboyant plants.

We will continue to have a sampling of a few Sibiricae, more dwarf spuries and a few laevigatae; the larger groups of iris are well represented elsewhere in the country and at Denver Botanic Gardens as well. This is a garden for the waifs, the little people of the iris world. I do not want to see it overwhelmed with too many cultivars of dwarf bearded iris (although several dozen are already cheerfully in place) or other more common plants. I will do all I can to see it dominated by Californicae, I. humilis and bulbous iris generally. I

imagine that, in its broad outlines, the garden will be approaching maturation in time for the Second Interim International Rock Plant Conference to be held the last week of June in 1986. At this time, I am certain that it will contain the most complete and accurately labelled collection of species iris in the world. Clarence Elliott, forgive me!

IRIS LATIFOLIA (=XIPHIOIDES) "MRS SITES"

Roy Davidson

So-called English Irises are found in the wild only in the alpine passes and cirques of the Pyrenees of northern Spain and southern France. Alpinists have had particularly vivid recollections of this iris in the scenic vicinity of Gavarnie--"clearings splendid with iris"--"thousands of violet-blue iris with Astrantia, musk-mallow, St. Bernard lilies, Hypericums and Eryngium bourgati" give us clear ideas of their splendor.

Coming from such places where the ground is cool and moist from melt, this bulb-bearing plant does not need drying off, baking or the alternate expedient of summer lifting so that is is ideal to combine with border perennials. At one time, not so very long ago, there were many named forms available from the lovely "Mont Blanc" through pastels in lilac, azure and lavender to both red and blue-purple to deep violet. While large numbers of bulbs were produced in Europe, there was also an extensive crop grown annually here in the Pacific Northwest where flowers were marketed to the florist trade, since when cut in bud they could be held in ice-storage for some weeks, thus extending the retail season.

Many of these forms were planted in my mother's garden in the arid interior of the state, but after a year or so they began to "disintegrate;" flowers were blotched and without much substance from virus and plants so weakened shortly disappeared.

But a neighbor lady, Mrs. Sites, had lovely rich violet-velvet flowers on her plants year in and year out. She gave us a start and seed from them has been contributed in past seasons to the Seed Exchange. One summer I lifted the bulbs to divide and reset them and mice got them in storage. This past season a few tiny bulbs that had evaded being dug had grown to flowering size but in the wet season no seed was set.

Now that I have retrieved the promise at least of continuing this apparently virus-free strain, I propose naming it for the neighbor, Mrs. Sites. Her garden has long ago gone, as has my mother's, but the iris has proven sturdy here in the humidity of the pacific slope. Perhaps it will lead to a renewed popularity of a fine beauty.

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Any comments and/or complaints regarding whether or not so much space should be used for a membership list should be directed to the Editor, Joan Cooper, 212 W. County Road C, Roseville, MN 55113.

Any additions and/or corrections should be sent to Florence Stout, Secretary, 150 N. Main St., Lombard, IL 60148.

VISITING DAY 1984

Roy Davidson

It was nice having so many of you come to see the irises during the Northwest AIS meeting. I only regret not having had the time for a really good visit with each and every one of you. It is now the first of August, hot and dry, dificult to remember the frustrations of 18 wet months in view of garden aspirations. Not only had it been impossible to weed properly, and thereby to turn humus into the top soil, root growth on many irises, including guests, was not what it might have been; some few guests, however, had flowered at least to hint their promise but not many blossoms were evident on visiting day to my regret.

Guest irises received here were established first in gallon pots of a soil mix high in humus content, and when well rooted, set into place in the garden. This proved to be expedient as the beds at the time were still not raised to the planting berms they were to become, in order to get the plants well above the winter water table. Although this entailed weeks of hand labor--digging, wheeling and mixing--it did result in supersoil. All should have been ideal, and would have been I'm sure, except it was the wettest year of all time! Plant growth was spindly-weak this spring on most all irises, but with warmer weather since mid June (in fact, visiting day was one of the only sunny ones to that time) plants are looking much better. I held off feeding in such new rich soil, and am glad I had the foresight, though immediately after flower, most all the irises looked "poorly" and I considered it. Naturally enough this fine new soil has produced superb weeds this warmer summer, and they make super-compost--but of course, more weeks of hand labor as well

The slope planting of Cal-Sibes and other wide-cross hybrids was of special interest to me and thanks to the generosity of Lorena and Jean, there is now a much up-dated collection thereon, each in a "hill" of compost on this natural moraine of Puget Trench Glacier (now gone for about 13,000 years). This area is never muddy even when rain is pouring down. Three Cal-Sibes from Pat Farmer were new there, two of them outstanding. The first is a sib to CARRIE DAWN carrying the vein pattern of VALLEY BANNER as does that, this one a nice azure blue; quality of plant, stalk and flower are not to be faulted. The other two are sibs from another SIGNA seedlot (RIPPLE ROCK X unknown 40). Of these one is such a color departure that I have no clear recollection of the other except it was "dark". Its bright sister, however is almost carrot-orange with a fuschia influence in the standards--completely innovative. (Dark sister seems to be filling three pods with seeds!)

Out of pure stubbornness apparently (though undoubtedly cool weather should be blamed) none of the new pseudacorus flowered for their debut. BROWN BEE was a knockout two weeks later, but Ben Hager's new children from HOLDEN CLOUGH may have it backed off. The mahogany stalk and leaf base of POLISHED MAHOGANY didn't develop as it should have, as neither did the similar, though violet-toned pigment of GERALD DARBY! Here I'm sure lack of sun and/or warmth is at fault. The tetraploid pseudacorus from Germany didn't impress anybody on V-day but both of them did make the scene. The white one from Japan is gaining in vigor, had two stalks.

In the setosa category "alba" from Japan (1969) is always early and was too far gone to garner much admiration; in bud this is faintly blue. A similar one, sent by Mr. Horinaka as "pink" is pink in bud, otherwise similar, not quite so early. "Kirigamini" (which to botanists has been designated variety hondoensis) is a lovely deep violet-blue, white-blazed and "pointy" to suggest that--along with its triploid sterile makeup--it is a clone of hybrid nature with laevigata. One of the standouts in the whole planting was the other triploid, setosa nasuensis, the Emperor's iris. First flowers were open for V-day but it is a very quiet sort and caused no stir, yet the three year clump held forth for a full month, giving three dozen 42-inch stalks with about eight flowers each. This is the one that has found favor with "Melroses" and it is, in effect, a glorified setosa of broad (actually round) falls, small standards, very graceful carriage, though certainly sturdy at the same time. These Japanese plants stay with me whereas the Alaskan and Laurentian forms of setosa have not done so.

There were about a dozen "versicolors" sent for evaluation; not all of them established and few of them had flowers for the big event, whereas the old clumps on the banks of the North Pond were gorgeous pools of color. Not all these new ones are "authenticated" members of that species and some sort of system must be worked out for separating them--or else (horticulturally speaking) we go back to lumping all the "great blue flags" together, whether they ought to be "versis" or "vigins" or shrevei (or what Anderson called iris X robusta). It is here, I believe, that we should be seeking best new garden material for vigor, floriferousness, color, etc. Judging from just token flowering (for the most part), there seems to be promise of quality plus individuality in some sent here. Grady Kennedy's MOUNTAIN BROOK is certainly vigorous and the flower very passable though not sensational. One that Mary Duvall collected in Meeker County, Minnesota, is a pleasant lavender-gray color with lots of yellow on the midsection. MINT FRESH which Bee Warburton selected among garden seedlings is colored in an "overlay" of close veins on creamy ground so that the cerise-red gives a pleasant pink garden effect. The Sindt pink now registered as VERNAL gives a softer pink impression, so far looking like a grown-up "Rosea". There was good flower on well-filled stalks of the several Joan Cooper left with me three years ago, more or less similar, good selections. I am confident there are other equally nice individuals amongst those not here mentioned and another year's growth should prove them, but GERALD DARBY leads the pack, a superb garden plant.

In the siberians I was impressed with the intensity of JAYBIRD--a blueness not hinting at purple. BUTTER AND SUGAR is proving itself in every way though it was all but gone on the big day. Currier (McEwen) remarked that at home it is not among the very early ones. His HAPPY EVENT was making a good show among those in the white rondelay garden Nothing there, however, can hold a candle to ANNIVERSARY--certainly proving a worthy Dykes winner.. Both ROANOK'S CHOICE and PINK HAZE are getting praise as clumps of pretty pastel "pink." The former, to my eyes is pure lilac while the latter looks far "pinker" due to the cinnamon or chestnut pencilings on the haft, a very nice warm effect.

Of Ackerman's Japanese guests, DUSK flowered in late June, a "red" vein-pattern all over three round falls, not large nor fancy, just nice: good form and balance with a 26-inch stalk of three flowers, each lasting five days to give about two weeks blossom.

EDITOR'S COMMENTS

Another issue is almost complete, rather late I am afraid, but probably that is the way it will be in the Fall as long as I am your editor. My Fall shipping season seems to get longer and longer, and SIGNA, of necessity, must wait until it's done.

I had considered leaving this column/letter out of this issue, but we do need to ask some questions, pass on some information, ask for some advice, etc. We really need to hear more from all of you--about what you want to see in these pages, what you think is worthwhile, what you could do without. That's not to say we will take everyone's advice--we need some consensus I'd think... and we can't get that without hearing from a lot of you.

We've had no QUESTIONS & ANSWERS or WANTED responses. Does that mean you all know the answers? And you all know where to get the species you want? That is certainly wonderful! Now we hope you are going to share some of your knowledge and your plants with those of us who are needing help. Can someone write an article on growing (and purchasing) I. ruthenica--or I. songarica--or I. lacustris alba, for instance? We think that SIGNA should be a vehicle for exchange of information. We certainly have no complaints about the ammount of material that has been available to us. We just think more people have something to share and that we should be hearing from them, too. Each of you has something unique to contribute--it needn't be long, just original. People (mostly customers) ask me how to grow I. aphylla in Louisiana or I. tectorum in the desert. I can't guess how either could be done. But I have told you how to grow NADA in Minnesota. Some things are not possible, but we species buffs are the kind who try to fool Mother Nature. let's hear about it.

You will note that we have a new slide chairman in Colin Rigby (address inside front cover). He has asked that we publish an appeal for more good slides of species iris. If you have slides you are proud of, we hope you will have copies made (SIGNA will reimburse you if you like). It is no longer necessary to take two--copies of slides are now of excellent quality. We will ask Colin to send out some signals for the spring issue regarding where is the greatest need, but we know from experience that there is a shortage of slides of bulbous and bearded species. So start early to enrich your own and SIGNA's collections with those very early ones.

Best wishes for Happy Holidays to all of you, and may Spring be greeting you before you know it!

Joan Cooper, Editor.