

SIGNA



THE SPECIES IRIS STUDY GROUP
OF THE AMERICAN IRIS SOCIETY

THE SPECIES IRIS GROUP OF NORTH AMERICA

October, 1980 - No. 25

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CHAIRMAN'S MESSAGE

Jean Witt

We've had some changes in operation since the last issue of SIGNA appeared, and others in the offing. In view of our continued growth, your Executive council felt it advisable to divide our Secretary-Treasurer's office in two. This has now been accomplished. Grace Carter will continue as Secretary, and we welcome Francesca Thoolen as Treasurer. Most of our AIS members are taking advantage of the convenience of paying their dues through the AIS. Our non-AIS members will receive renewal notices from Grace and should remit their dues to her.

As reported by Grace on page # of this issue, the SIGNA members at our Sectional Meeting at Tulsa during the AIS Convention, voted yes to the proposal that we shift from appointive officers to elective officers, in line with other AIS Sections. accordingly, your current officers for the next several months will be working out the ways and means of making this important shift.

As for our projects, Dot Hujak, our slide chairman, reports a number of interesting donations to our slide collections over the summer. Our thanks to these people, and we hope all of our photographers will continue to remember us. Members, if your local iris club has never had a program on species--here's your chance to help spread the word!

The revision of the AIS Judges' Handbook is going forward. So again, I'm asking for input from our membership, particularly those who are judges--please write me about species judging problems that you have encountered at your shows. Our thanks to those who have already written, but we still need to hear from some more of you around the country.

1980 has been a rough year for rampages of nature. When Mt. St. Helens erupted on May 18th and spewed ashes for hundred of miles down wind, we thought that was the ultimate in natural disasters; but since then the drought and the hurricane have damaged far larger areas of North America. How have your irises fared? What happens to species irises subjected to ash fall, extended heat and drought, or wild torrential rains and wind? Take a few minutes and send our Editor a report!

I can tell you a little bit about irises and ash. The area where our daughter was living, near Pullman, in southeastern Washington's wheat country, some 380 miles from the source, received about 1/2 inch of ash. She reported that all the wildflowers, including *Iris missouriensis*, which were at the height of their bloom, just sort of stopped blooming. By the time we visited her three weeks later, and after they had had some rain, the flowers had come back. One Wenatchee iris grower is said to have remarked that the morning after the ashfall, the flowers in his fields of TB irises were all of a single colour: gray! But they too came back.

On the topic of future development; your executive board is interested in ideas and suggestions for future projects--should we be planning for a species booklet, similar to the Siberian Booklet now in progress?

Fall is coming on rapidly, but *Iris lacustris* has been putting out a succession of blooms--will this be its normal procedure? If so, it will be the first successful reblooming iris I've ever grown!

Finally, a note of interest on the international scene: two horticultural friends of ours from the Seattle area are joining a seed and plant collecting expedition to southwestern China in October, and they have promised to keep an eye

out for irises. This is the area visited by the famous plant collectors of the past, and it still harbors a number of iris species not in cultivation, to say nothing of other floral treasures. So keep your fingers crossed!

SPECIES IRIS GROUP OF NORTH AMERICA

ANNUAL MEETING

The 1980 Annual Meeting of the Species Iris Group of North America was held at 5 p.m. on April 30th at the Camelot Inn during the AIS Convention in Tulsa, Oklahoma.

Joan Cooper, who directs the robin program for Evansias, Species and Natives, called the meeting to order. Joan introduced Mary Duvall who spoke about the Seed Exchange. The seed exchange is a very successful part of the work of our group. She reported that the collected species seed goes very fast when the orders start coming in.

At the request of Jean Witt, Chairman of SIGNA, Grace Carter asked those present to make suggestions regarding the election of Officers. Since the process of using a nominating committee works well for many of the other groups in the AIS, it was recommended for SIGNA. It was also suggested that a three year term of office is the optimum.

Dot Hujsak, Chairman of the Slide Committee, requested members to take slides of species this year and send her a copy.

Dr. Nearpass thanked the Society and Jean Witt for sending the set of slides to the AIS. They now have two sets of species slides in their collection.

At the conclusion of the short business meeting, Joan Cooper presented the program. She passed out copies of a chart that showed the genus iris with the sections, sub-sections and species listed. A very thorough and valuable piece of information. Joan then showed slides for the remainder of the meeting time. These were of the beardless species.

PUBLICATIONS AVAILABLE

SIGNA	Issues 1 to 24	\$1.50 each
THE SPECIES IRIS STUDY MANUAL		\$5.00 for the complete set
A GUIDE TO THE PACIFIC COAST IRISES		\$1.50 (only two copies left)
ALPHABETICAL TABLE & SPECIES GUIDE		\$1.50

Send requests for any of the above to:

Maryann M Anning, La Cresta Gardens
12864 Viscaino Road, Los Altos Hills,
California 94022, U.S.A.

British Iris Society publications

Literature Secretary
N. Watkins
31 Larkfield Road, Farnham, Surrey
GU9 7DB, ENGLAND.

ABOUT YOUR MEMBERSHIP DUES

Since SIGNA became a section of the AIS, the AIS has undertaken the collection of our dues. This very valuable service has given us a few snags, but things are shaking down quite well. For instance, those members whose AIS and SIGNA dues fell due at the same time, could just renew their SIGNA dues and their AIS dues with one cheque. But for those whose dues do not come up for renewal at the same time, we have been trying to get them coordinated.

SIGNA sends out dues reminders to all associate members, but for the members who also belong to the AIS the policy has been to wait a couple of months for all the AIS members who included their SIGNA dues in their payment. The renewals do not come through all together, so it takes several weeks. Then we try to remind those members who have not paid through AIS that their dues are due. Many members pay annually or triennially but differently for the different sections, and some of them have different expiration dates (Dec. 31 or June 30).

Our tardiness is calculated. We try to make sure you have not already renewed through the AIS

We hope that we will soon have all these due dates falling on the same day. If you prefer to pay SIGNA directly, the AIS notice will serve as a reminder, since we no longer put the expiration date on the address labels for SIGNA, nor send out notices to all members who also belong to the AIS.

LORENZO PAOLUCI

It is always distressing to have to report the passing of one of our esteemed members, and in particular one such as Lorenzo who was taken in the prime of life. due to a sailboat accident in Long Island Sound, last June.

I had had some correspondance with him over the last two years, and was most enthused to find his interest in species so high. He had connections in India and even Thailand with local collectors of iris species and had imported numerous ones of great rarity through them. Some too tender to live here, of course, but I had looked forward to seeing him increase those he had saved and becoming a rich source of species for the many who want them but are unable to locate sources.

I had sent him a couple of thousand *regelocyclus* rhizomes a year ago and at least he had the pleasure of seeing these bloom. I never met him (like so many others I count my friends) but his letters were so enthusiast when writing about species iris, it just doesn't seem right we should lose such a friend before he had a chance to fulfil his destiny.

Symphathy is extended to his parents, who live in Peckvill, Penn., for the loss of their son, which has shocked them deeply. The sea is unforgiving and I understand this was Lorenzo's first time out with his sailboat and there was no second chance.

Since Lorenzo's iris nursery was located far from his parent's home, I am very much afraid this will mean the end of the nursery as well as Lorenzo. Many thanks to Captain Herbert Fox Rommel who sent me the information.

Bruce Richardson.

FINANCIAL STATEMENT

For the period 12/31/78 - 6/30/80

Cash in Bank, 12/31/78

In checking account \$2953.37

In saving account .00

\$ 2953.37

Receipts, 1/1/79 - 6/30/80 2181.41

Disbursements, 1/1/79 - 6/30/80 -1304.47

3830.31

Cash in Bank, 6/30/80

In checking account 830.31

In saving account 3000.00

3830.31

RECEIPTS

Memberships 1045.22

Seed Exchange, 1979 400.00

Seed Exchange, 1980 400.00

Sale of publications 241.19

Gift - Iris Society of Minnesota 95.00

2181.41

DISBURSEMENTS

SIGNA#22 300.00

SIGNA#23 400.00

SIGNA#24 400.00

Postage and supplies 100.00

Postage and slides 68.82

Miscellaneous expense 35.65

1304.47

Prepared by Grace Carter, Secretary-Treasurer (Past Treasurer).

Reviewed by Francesa Thoolen, Treasurer (Current)

NOTES BY EDITOR:

Since this statement is for 1½ years, rather than the customary one year, parts of it actually cover a two year period and others the 1½ year time period. The Seed Exchange covers two years and is an even amount as some funds are held back each year as working capital for the Director. Similarly the costs of printing the three issues of SIGNA over 1½ years are not the exact amounts stated, but are the funds remitted to the editor for its publication and a working fund account is maintained to take care of varying costs of each issue. Thus the total funds of the Society are slightly higher than stated here, but the amounts are not significant.

Your Executive has a further quarterly statement at hand for the next three months showing a transfer of \$3000.00 to the savings account to gain a higher interest rate (\$45.94 for the period) and a drop of some \$329.00 in total assets, which is offset by Postage and Supplies unused and also \$400.00 transferred to the production of SIGNA 25 - which you are just now receiving.

B.R.

EDITOR: During the year 1979 a SPECIES IRIS SECTION of the NEW ZEALAND IRIS SOCIETY was formed and as of last June, 1980 has published two newsletters. The Group is to be complimented on both the quality and quantity of the material in these beginning issues and have set themselves a high standard to live up to. The first issue was largely devoted to Spuria species and the second various species. I take great pleasure in reproducing an article from each issue below as examples of what you can expect from this Group.

SPURIA SPECIES I HAVE GROWN

Revie Harvey

Ten years ago when I first became aware of the attractions of species irises as garden subjects, the long list of Spurias was bewildering when surveyed in textbook form - and now after experimenting with seed-pool subjects that have come my way, there are still quite a number of Spurias that remain unknown quantities.

The natural habitat of Spurias spreads out in a wide swath from the shores of the Mediterranean across Europe and much of Asia, where they tend to be found in concentrated colony groups in moist, swampy ground conditions.

The rhizome root stalks have a creeping habit, and are more fibrous than fleshy in formation. Out of the ground they dry rapidly, and do not transport well from distant locations. After division a period of up to two years is often necessary for settling down, but once established, plants can be left undisturbed for many years. For border plantings the taller forms are very worthwhile subjects, with handsome swordlike foliage, a succession of bloom during early summer, and with autumn the beauty of interesting seed pods.

Their requirements are full sunshine and ample drainage, but with moisture in the root-run during the growing period of early spring and early summer. After flowering however, they will withstand drought conditions more readily than many other border plants. They respond well to dressings of rich compost and/or well rotted farmyard manure. The taller forms will also benefit from annual applications of fertilizer such as we use for the bearded irises. The shorter growing Spuria types I have found grow satisfactorily in partial shade in humusy soil and do not require organic dressings.

Raising Spurias species from seed requires a little study of their natural origins and a little patience. Unless the seed is freshly gathered, germination can be a little slow and erratic. Here in the Southern Hemisphere, where we depend on the Seed-pool, sources for the more unusual forms are not very readily obtainable, but quite a selection can be accumulated in the space of five years or so - sufficient for the average garden of the iris fancier, but alas, it is the elusive rarities most of us long to acquire and nurture.

IRIS ochroleuca is, I suppose, the best known of the tall Species. Originating in Greece, Lebanon, Iran and Turkey, the stems will reach up to six feet in favourable conditions. In Hawkes Bay and Gisborne localities naturalized colonies are common along creek banks, and on the sites of abandoned farm gardens. A substantial clump in our garden was the best which I had selected after flowering several plants raised from B.I.S. seed-pool. Substance is excellent and the good bloom form is worthy of the traditional translation of the word 'ochroleuca'. Naturalised clumps growing as garden escapes occasionally display inbreeding defects such as twisted or tucked under falls, or smudged definition of the clarity of the

white and gold. Usually the first *Spuria* to bloom, a good form of *ochroleuca* is a worthwhile garden subject.

IRIS aurea (syn. *crocea*) is a native of Kashmir, and there are no records of it occurring elsewhere in the wild. Not quite as tall as *ochroleuca*, but similar in foliage and equally robust when established. Flowering normally a little later, the succession of yellow blooms continues until late November. A spread of it long established along the bank of Karamu Stream where it crosses Highway II between Hastings and Napier is a worthwhile spectacle, and from observation, individual plants forming the colony are worthy of a place in any *Iris* collection.

IRIS monnieri whether a true species or a natural hybrid, remains an enigma - since no wild habitat has been located. The record stands, that it was first noted in the garden of M. Lemonnier at Versailles towards the end of the last century. A famous flower painter used it as the subject of one of his masterpieces, thus preserving it for posterity. About three feet in height, with primrose-yellow standards and slightly deeper toned falls, this species is a classic shape. *Monnieri* was one species left behind in our Gisborne farm garden and unfortunately I have not been able to obtain any seed in the interim.

IRIS maritima Dykes records widespread colonies of this lovely *Spuria* in Southern France and Spain, always in the vicinity of water or swampy meadows. We first became aware of this periwinkle-blue *Iris* when a Gisborne Group member discovered a few straggling rhizomes flowering under spreading trees in an old garden at Patutahi. The finer-formed rhizomes grew well in more favourable conditions and soon produced the neat blue flowers in the typical *spuria* formation of lateral buds hugging the stem. Foliage is neat and straight - slightly glaucous, and tidy in growth. In Hawkes Bay, travelling on Highway II near Te Hauke a lovely colony can be seen in full bloom in November. On an easterly hillside competing with blackberry, this site becomes parched and dusty in late summer, but with the passing of winter the green spears rear above thorn vines, and by October-November the blue flowers are noted by the madding throng on wheels.

IRIS kerneriana. This intermediate *Spuria* from Asia Minor and Central Turkey, reaches about 18 inches in height. The dull green foliage is stiff with a spiral twist towards the tips. This is a unique characteristic which sets *kerneriana* apart from other *Spurias*. The attractive blooms are in deep cream and primrose tonings - neat and narrow hatted, with a rich allover sheen. It appears to revel in a warm or sheltered site, well drained and in full sun. My seedlings from B.I.S. seed-pool are slowly growing to clumps, but it will be some time before we can hope to achieve anything like the triumph we envied in Alison Barron's Timaru garden during the '76 Convention.

IRIS halophila as the name suggests, this interesting plant form grows prolifically in salt marshes along the coast-lines of Central Asia between Persia, Turkestan, and north-west India. Recent *Spuria* Newsletter exchanges also record extensive spreads in the Caucasus, where it is the subject of some of Dr. Rodionenko's botanical studies. It is rather surprising that this species is not more widely known, since Dykes claims it to be an extremely vigorous grower in almost any soil conditions, and states that self-set seedlings were a nuisance in the trial garden where his observations were based. Bloom colours seem to range from white or cream, pale blue, lavender-blue and white flushed with gold. Texture is smooth and the substance heavy in the blooms which have a rare and interesting outline. The extremely narrow segments are elongated in proportion to the small square-bladed falls.

I seem to have lost a lovely primrose flushed form, and am encouraging the latest seedling batch to grow up to the flower colour the packet labels promise - pristine white, blues, and maybe a scented variety.

IRIS graminea. This well-loved iris form has been in gardens and botanical collections since the 18th century. Origins extend from Spain, Algeria, to Persia, and no doubt it was a favourite traded or bartered along the routes of the camel-trains. In contrast to the larger *Spurias*, the roots are fine fibrous tufts, but have the same growing points as the taller forms. Foliage is a lush bright green and makes rapid growth when it appears in spring, tending to hide the quaint blooms, in shades of lilac and plum-purple with white veinings. The elusive scent of ripe greengages is an added attraction and *graminea* is perhaps the best known of the smaller garden species. Seed capsules are neatly rounded, pointed at the tips, and bear the raised ridge bordering the triple zonal sections, as do all *Spuria* forms. Once established in humus soil, *graminea* forms healthy clumps, and is tolerant of partial shade.

IRIS sintenisii with distribution over a wide area, from Southern Italy, the Balkans, Greece, Syria and Turkey, suggests a long time favourite. Flowers in size, shape and colour resemble *graminea*, but lack scent. Foliage differs, - rounded, almost rush-like and glaucous, and grows in tufted formations at times having an untidy appearance as past growth is superceded by spring shoots. In our garden this comes into bloom late in November and continues for quite a period, when all other *Spuria* species have become memories.

WITHER THE JUNOS

Frances Love

Let me add some remarks to the good article in the June. M.Z.I.S. Bulletin. I will start at the obvious place - with seeds. These are available from time to time in our N.Z.I.S. seed pool, almost always in the B.I.S. seed list and regularly in the Alpine Garden Society's seed list.

Any good seed mix will serve but I have found that a good orchid potting mixture is ideal. When I first started I made many mistakes. The seed germinates fairly readily but needs some understanding from that point on. I tried pricking out as I do with other plants, but that was fatal, even when I left it until the bulb should have formed, as I would with other bulbous plants. The secret is to use as big a pot as possible so that the little plants can be left at least two years without being disturbed - in fact if they can be left undisturbed for three years so much the better. After this time great care must be taken when taking them out of the pots, as they should have made plenty of root growth which will probably be well tangled by this time. If possible, turn out the pot's contents in one piece, which you can place in a bucket of water to soften away any earth, so that you are able to very gently disentangle the roots. They are then stored in sand until time to plant in the garden. I would suggest March. They should bloom in four years from when the seed was planted.

In my dry climate they get a through summer baking so that usually I do not lift established plants each year, but I did lose some to excessive wet when we had an exceptionally rainy summer. I did not realize until later that they would have been better dug, and stored in sand.

They like copious amounts of lime and do appreciate some balanced fertilizer. If one of the long store roots is broken off, it will form a new plant, but will take about four years to reach flowering stage again. These storage roots are the vital part in keeping your plant growing, so take great care of them. As for Junos not being available through commerce, it is for the same reason that so many things are overlooked by nurserymen - economics! After four years of loving care, they sell for what? - \$1.50.

Iris Juno Bucharica



Iris Juno Alata



CRITICAL NOTES ON IRIS ENSATA THUNB.*

P. P. Poljakov

Iris ensata Thunb. was described by Thunberg from eastern China. The short diagnosis published in Acta Soc. Linn. 2: 328(1794) reads: "imberbis, foliis linearibus, scapo sub. floro tereti, germinibus hexagonis".

Examination of the herbarium collections of the V. L. Komarov Botanical Institute of the Academy of Sciences of the USSR made it possible to complete this description as follows:

Perennial. Rhizome 6-10 mm thick with brownish remains of leaves at the apex. Radical leaves 4-5 mm wide, 30-50 cm long, narrowing at the apex into a slightly reflexed point. Stem 15-20 cm high, with 1-2 pairs of involucre leaves, membranous at the margin, acuminate. Flowers usually single, opening at the apex of the stem. Outer perianth segments oblanceolate, inner perianth segments shorter and narrower; tube 5-7 mm long. Capsule 5-6 cm long, with a 5-7 mm beak. Seeds elongated-spherical, flattened on two sides.

Specimens examined: Kheben Province, neighborhood of Peiking, S. I. Bazilewski; Pokhua-Zen mountains, Putiata, Korea, 1886, Kalinovskij; northern Korea, Kengong Province, 26 May 1897, L. B. Komarova; Ljaodun Peninsula, Port Arthur, 7 July 1902, D. I. Litvinov; Manchuria, Kvantung district, environs of the town of Dolnij, 1903, Y. Vasiljev; Manchuria, near Ashihke Station, 14 June 1903, P. K. Koprnowicz.

In southeastern Kazakstan (district of Alma-Ata) and also in western China (Sin-Tsiang), on salty meadows in the river Ali valley is found a form of the iris which, although identified with I. ensata Thunb. in Flora USSR IV: 518, can be, nevertheless, separated into a distinct species on the basis of a number of characters.

Iris iliensis P. P. Poljakov, sp. nov. - I. ensata auct. pro parte. Rhizoma crassum, ad 10 mm usque in diametro, radice fibrosa. Scapus 30-40 cm altus, folia radicalia anguste linearia, 4-6 mm lata, 40-55 cm longa, basi vaginis coriaceis, emarcidis, fibrosis vestita. Capus 2-ramosus, 5-florus. Bractee lanceolatae acuminatae virides, margine albo membranaceae. Perigonii limbus brevissimus tubo suo multo brevior, lobi exteriores reflexi, pallide-cyanei nervis lilacinis, oblongi, basi attenuati, apice rotundati; lobi interiores exterioribus subbreviores. Stylorum lobi lilacini, stigmata lobiformia triangularia. Capsula 4-5 cm longa, 8-10 mm lata, rostrata, rostro ad 5 mm usque longo. Semina atrobrunea, subglobosa, subcompressa in rostellum breve attenuata.

TYPUS: Kasachstania austro-occidentalis, in pratis ad fl. Ili. In Herb. Inst. Bot. Acad. Sci. USSR (Leningrad) conservatur; co-typus in Herb. Inst. Bot. Acad. Sci. Kas. RSS (Alma-Ata).

* Originally published (in Russian) in: Botanical Materials (Leningrad) 12: 88, 1950. Translation by M. Rogoyski, Esq., Croydon, England.

Differt ab Iride ensata Thunb. seminibus subglobosis.

Perennial. Rhizome up to 10 mm thick, beset with cord-like fibers. Radical leaves, clothed at the base with rigid fibrous remains of the leaf sheaths, 4-6 mm wide, 40-50 cm long, linear, straight, long-acuminate. Stem 30-40 cm high. Flowers large, 2-5 in number. Involucral leaves green, white-membranous at the margin, lanceolate, long-acuminate. Perianth tube many times shorter than the limb. Outer perianth segments reflexed, pale-blue with violet veining, oblong, gradually narrowed toward the claw, obtuse at the tip. Inner perianth segments slightly shorter and narrower than the outer. Styles lilac, stigma in the form of small triangular lobes. Capsule 4-5 cm long with a beak up to 5 mm long. Seeds dark brownish, nearly spherical, slightly compressed from the sides and elongated into a short beak.

On salty meadows and depressions near the sands of the valley of the river Ili.

I. iliensis P. Pol. and I. ensata Thunb. represent apparently two forms replacing geographically each other and belonging, according to the morphology of the seeds, to the same series of species (Globosa). It is worth noting that, for the systematics of the genus Iris, the morphological structure of the seed can have apparently an important diagnostical significance.

Accordingly, an examination of the group of species classified by B. A. Fedtchenko in the Flora of the USSR as synonyms of I. ensata Thunb. makes it possible to restore the specific status of some of them. Some of these include, for instance, the following:

Iris pallasii Fisch. (in: Trev. Ind. Sem. Horti Vratisl., 1821)

Perennial. Rhizome rather thick, bearing a compact tuft of brownish remains of the leaf sheaths. Radical leaves 4-6 mm wide, narrowing toward the apex and ending in a slightly reflexed sharp point. Stalk 8-15 cm high. Flowers apical, 1-4, involucral leaves long-acuminate, perianth segments oblong-lanceolate, 4-5 cm long, 6 mm wide, narrowed toward the claw, inner perianth segments narrower and shorter. Tube short, ca. 1 cm. Capsule 5.5 cm long (beak 7-8 mm long). Seeds 6-7 mm long, shiny, light-brownish, irregularly rhomboid in shape with rather clear edges, elongated at one end into a small beak.

Specimens examined: Mongolian Altai, shores of the river Kobdo, 4 April 1899, Ladygin; northern Mongolia, Korghiz-nor, 1879, Potanin; Desert Shagrin-Gobi, near Golikhe, salty marsh, 5 September 1930, L. G. Pbedimova; south-eastern Altai, Chujsk steppe, 30 July 1898, Clements; northwestern Mongolia, river Khapu, stony valley, affluent of river Boku-morina, 5 July 1909, V. V. Shaposhnikov.

The above species differs from I. ensata Thunb. by its shortened flower-stalks and, in particular, by its characteristically shiny irregularly rhomboidal seeds, while I. ensata has elongated-spherical seeds.

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Therefore, in view of the structure of the seed, I. pallasii Fisch. should be considered as a species belonging to the second series, provisionally named by us Rhomboidea.

No less easily distinguishable and unconvincingly identified with I. ensata Thunb. in Flora of the USSR is the iris species, I. biglumis Vahl, described prior.

The following diagnosis of this species clearly shows that it is distinct from I. ensata Thunb.:

Iris biglumis Vahl (in Enumer. Plant. II: 140, 1806; Ledeb., Fl. Ross. IV: 95, 1852).

Perennial. Rhizome rather thick, short, beset with cord-like fibers. Leaves radical, 4 mm wide, 25-30 cm long, flat, slightly curving, gradually narrowing, at the base clothed with fibrous remains of the leaf-sheaths. Stem usually 3-12 cm, bearing at the apex single flowers or in twos; at the base the flowers have two short involucral leaves. Perianth tube very short, many times shorter than the limb; outer perianth segments violet-blue or whitish with numerous veins, widely oblongate, ca. 5 cm long, 1.5 cm wide, obtuse or rounded at the top. Inner perianth segments shorter, lanceolate; styles lilac, style lobes long-ovate, stigmas in the form of small triangular lobes. Capsule elongate, 3.3-4 cm long, with a 3-4 mm beak. Seeds somewhat irregular semi-spherical, flatly compressed on two sides, brownish.

Iris biglumis Vahl clearly differs from I. ensata Thunb. by strongly shortened stalks and especially by the somewhat irregular semi-spherical shape of the seeds, flatly compressed on two sides.

The structure of the seeds proves with sufficient evidence the absence of a close relationship of the re-established species with I. ensata Thunb.

As a matter of fact, the two species should be included in two different series.

No less characteristic for I. biglumis Vahl is its geographical range, including the steppe regions of eastern Siberia, near Trans-Baikalia and northern Mongolia. In other words, the species in question shows sufficiently clearly its geographical isolation from I. ensata Thunb.

Editor's Note: It is believed that this paper has not been published previously in English translation. Readers should be aware that Poljakov's views were rather severely criticized by V. I. Grubov in a paper appearing two decades later (cf. SIGNA 21, pp. 639-645, 1978). Further, Dr. Rodionenko has expressed the opinion that I. iliensis Pol. may be related to I. tenuifolia Pallas, which latter species is essentially unknown in cultivation in North America. Clearly, further evidence is desirable before ultimate disposition of the taxa ascribed to the series Ensatae can be made with confidence. (HNM 10/80).

FORGOTTEN SPECIES OF I. I. GEORGI OF THE BAIKAL FLORA:
IRIS HUMILIS GEORGI*

E. G. Bobrov

This species was formally described and published by I. I. Georgi in 1775 from plants studied by him in 1772 in the region of Irkutsk. He, at the same time, referred to as synonyms Messerschmidt's plants described by Amman, found in the environs of Ulan-Ude. The same plant was described in 1776, i.e., one year later, by Pallas under the name Iris flavissima, and it is under this name, usually attributed to Jacquin (1790) that it was known for nearly a century and a half to authors of Siberian floras.

We can see, however, that the name proposed by Georgi has priority, and that therefore it is this name which has to be preferred for naming this yellow-flowered iris from southern Siberia.

Iris humilis Georgi, Bemerk. einer Reise in Russischen Reiche im Jahre 1772, I: 196 (1775). - (Iris humilis angustifolia lutea ... Amman, Stirp. rar. 101 (1739), in textu post No. 133). - I. flavissima Pallas, Reise, III: 714 (1776), excl. syn. Gmel.; Jacq., Collect. IV: 98 (1790); Willd., Sp. pl. I: 226 (1797); Georgi, Beschr. Russ. R. II, 4: 672 (1800); Roem. et Schult., Syst. Veg. I: 464 (1817); Ledeb., Fl. Ross. IV: 102 (1853); Turcz., Fl. cauc.-dahur. II: 197 (1854); Kryl., Fl. Zap. Sib. III: 669 (1929), excl. syn.; Fedt. in Fl. USSR IV: 515 (1935), excl. syn.; Popov., Fl. Sr. Sib. I: 206 (1957), excl. syn. et annot. - I. flavissima transuralensis Ugr. in Biehefte z. Fedde Repert. XIV: 14, 16 (1922). - I. dahurica Herbert ex Klatt in Bot. Zeit., No. 28, C, (1872), nomen.

The species, I. humilis Georgi, was described, as mentioned, from the southern Baikal region. The plants from the region of Irkutsk, "from Angara to Olkhon", should be considered to be the type material, but they have not survived. Messerschmidt's plants, quoted in the description, were found, according to Amman, in the region of the town of Udinsk (now Ulan-Ude).

The iris under description is distributed in steppe-type plains, in steppe-like meadows, on valley-sands, rarely on solonetz soils and gravelly denundations in the steppe- and forest-and-steppe zones, from the Tchelabinsk Transuralia, through the steppes of northern Kazakhstan and western Siberia up to Baeguzinsk and Nertchinsk on Transbaikalia, as well as in the nearby regions of Mongolia. This species replaces, in Siberia, I. pumila from southern Russia and the western I. arenaria Waldst. & Kit., the eastern races of which have been mentioned as I. pineticola Klovov.

In the mountains of southern Siberia, eastern Kazakhstan and in Mongolia I. humilis Georgi is represented by distinct races - I. potaninii Maximowicz and I. bloudowii Ledebour. The yellow-flowered iris from the Primorski Region given these names, represents, apparently, a distinct race.

* Originally published (in Russian) in: Botanical Materials (Leningrad) 20:7 (1960). Translation by M. Rogoyski, Esq., Croydon, England.

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The restitution of the priority name, I. humilis Georgi (1775), makes necessary the change of the name of I. humilis M. Bieberstein (1808), described by Bieberstein from the Caucasus, as the latter has to be considered a later homonym. It would be most appropriate to name this Caucasian species after Marschall von Bieberstein who discovered and described it.

Iris marschalliana Bobrov, nom. nov. - I. humilis M. Bieb., Fl. Taur.-cauc. I: 33 (1808), non Georgi, 1775. Cent. pl. rar. ross. I (1810), tab. 31, tantum pl. cauc.; Ej. Fl. taur.-cauc. III: 45 (1819), pl. cauc.; Roem. et Schult., Syst. Veg. I: 476 (1817); Ledeb., Fl. Ross. IV: 95 (1853), tantum pl. cauc.; Boiss., Fl. Or. V: 125 (1881); Grossh., Fl. Cauc. I) 251 (1928), ed. 2, II: 212 (1940); Fedtsch. in Fl. USSR, IV: 529 (1935), tantum pl. cauc.; Neubeckia humilis (M. Bieb.) Alefeld, Bot. Zeit. 1863: 297; Ioniris humilis (M. Bieb.) Klatt, Bot. Zeit. 1872: 502.

The type of Iris marschalliana Bobrov (I. humilis M. Bieb., non Georgi), from the environs of Kislovodsk, is preserved in the Herbarium of the Botanical Institute of the Academy of Sciences of the USSR (Leningrad).

This species - a plant from steppes and mountains, endemic in the cis-Caucasus, is widely distributed in its central part.

Editor's Note: This is believed to be the first appearance of this paper in English translation. Readers should compare Bobrov's treatment of I. humilis Georgi with that accorded this species by Dr. John J. Taylor in SIGNA 21: 577-584 (1978). It now appears that I. humilis M. Bieberstein (1808) should be known as I. pontica Zapalowicz (1906), Bobrov's I. marschalliana being a later homonym. (HNM 10/80).

MORE PODS

G.M. Watson

I. spuria

The chief characteristics of this series of *I. spuriae* are the two ridges which run down each angle of the ovary and the way the branches hug the main stem -- so flowers and pods are lightly bunched one above the other.

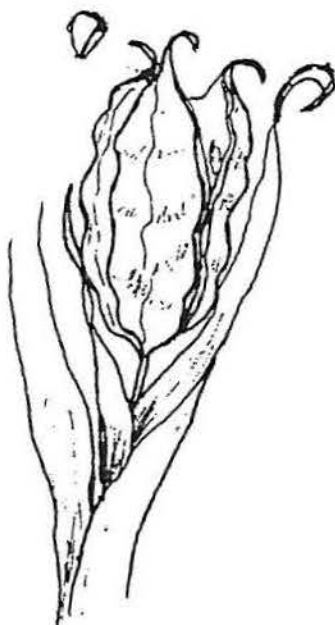
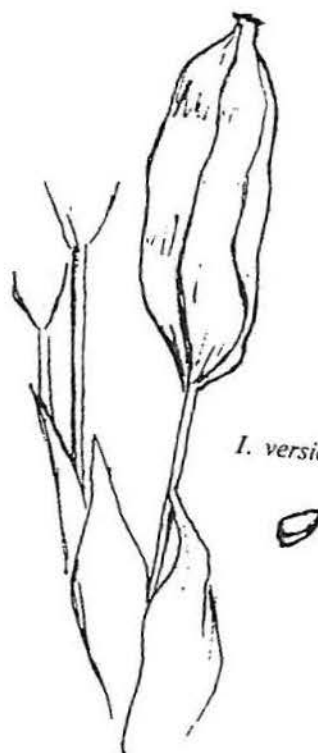
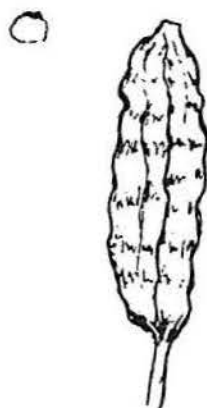
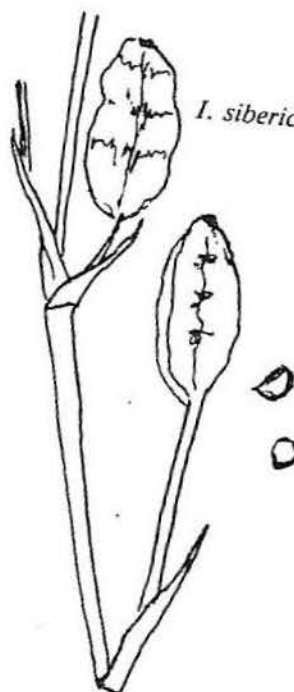
The capsule is oblong with a distinct hooked beak with the double ridge at each angle. 1-2 inches long.

Seed

Brown, smooth, almost square, enveloped in typical *spuria* loose papery covering.

I. tectorum (*Evansia*)

Capsule, is approximately 1½ inches long, oblong, rounded with six ribs of this tough texture, when pod is dry. This has a coarsely veined surface. Blue form has sometimes a branch.

I. spuria*I. tectorum**I. versicolor**I. pumila**I. ensata**I. siberica*

Seeds are numerous, rounded or nearly so, perhaps sometimes cone shaped, dark blackbrown with a small bud distinct aril. This aril is present in most *Evansias*.

I. pumila

A miniature dwarf bearded.

Capsule, triangular - pointed about $1\frac{1}{2}$ inches long; stemless or nearly so opening below the apex to which the remains of the flower adhered. The pumila pod rests on the soil. Seed, small, rounded, wrinkled, light brown, without any strophile.

I. versicolor

An American form of *Laevigatae*. Capsule is oblong, triangular, $1\frac{1}{2}$ to 2 inches long on a branched stem - the side stems rise as high as the terminal head of 2 or 3 flowers.

Seeds are smooth, flattened - light brown very similar to that of *I. pseudacorus* and are also buoyant in water.

I. ensata

Capsule is 2-3 inches long, narrow and oblong with six ribs at equal intervals and a short sharp beak.

Seeds are dark brown - smooth skinned almost globular - fairly small. The flowers are usually concealed by the leaves.

I. siberica

Caps Capsules are oblong, barely twice as long as they are broad - triangular with bulging sides - no beak at apex. The terminal head will often have from 3-5 flowers plus a short branch below.

Seeds are thin, flat and D-shaped, or rounded but compressed to allow capsule to carry many seeds.

ED: Reprinted from *Bulletin No. 90, March 1980, of the NEW ZEALAND IRIS SOCIETY.*

SMALLER *I. pseudacorus*

Editor Robert Sturtevant wrote in the A.I.S. Bulletin No. 11 (1924) that B.Y. Morrison had "brought from Japan small yellow and ivory irises he had found growing in pots in a tiny nursery in an unimportant village on the west coast, their size deceiving him into the hope he might have chanced onto something new or unfamiliar, but that, planted at home (Washington, D.C.) where neither soil nor moisture were limited, they grew up to be only good forms of *I. pseudacorus*." F.F. Williams of Patton, California, selected and introduced a dwarf one as noted in Bulletin 103, p. 39. I myself am now watching another small one from a watered garden in Boulder, Colorado, having been similarly disenchanted on prior occasions by short plants brought in from escaped colonies, first on the Little Spokane River and later from Kittitas Valley, both in Washington State.

There is nothing the matter with 3 or 4 foot (or even 5 or 6 foot) clumps of this very good plant, but there are also places where one a foot or fifteen inches would be useful, and this Boulder plant may be the one to fill the bill. I am wondering if by some chance it may not be Williams' plant as reported by Mrs. Lothrop, small but still unmistakably *I. pseudacorus*.

Roy Davidson.

THE INSECT VISITORS OF IRIS VERSICOLOR

John H. Lovell

Larger Blue Flag (*Iris versicolor* L.). There is no blue-coloured flower so abundant or conspicuous in the marshy meadows of New England in June as *Iris versicolor*. The perianth consists of six violet-blue segments in two series, united below into a tube which is adnate with the three-celled ovary. The three inner segments, or petals, are erect, narrow and spatulate; the three outer are much larger, reflexed, dilated at the end and prolonged into a narrow claw. At the base of the outer segments, or sepals, are the nectar-tubes, containing an abundant store of nectar, which may be four or five millimeters in depth. The limb is violet-blue, the claw yellow above and greenish on the under side, and both limb and claw are marked with dark purple veins which serve as honey-guides.

The three arched petaloid styles stand opposite the sepals protecting the honey and anthers and determining the path of the insect visitor and the manner of fertilization. Teratological instances of petalody of the style are occasionally observed, but as a normal condition it occurs in comparatively few genera. Near the apex of the style is the white scale-like stigma. When the flower expands this is pressed upwards against the style, but in the course of twenty-four hours it is reflexed, projecting outwards like a shelf, and finally is recoiled. This was the case with flowers brought to my room for examination and with buds permitted to expand in water. The anthers dehisce as soon as the flower opens or shortly after. The length of the stamen varies in relation to the stigma. Ordinarily the anther is so far distant that self-fertilization is impossible, but occasionally it extends as far as the stigma and may even surpass it. Self-fertilization is then possible. In one specimen the stigmatic surface was coiled backward so far that it rested directly against the under side of the anther. The stigma was in a receptive condition, but the pollen had been entirely removed from the anther-cells.

The possibility of self-fertilization in the genus *Iris* does not seem to have been observed before, as, according to Muller, *I. pseudacorus* L., is never self-fertilized. The modification described is interesting since it shows that in the absence of insects a race of self-fertilizing plants might arise. Such an instance of reversion is believed to have occurred in *Ophrys apifera*, the bee orchis. The pink colour and adaptations of the lip and pollinia indicate that the flowers were formerly entomophilous, but though Darwin watched the plants long and often he never saw them visited by any insect. "Judging, therefore, from the structure of the flower of *O. apifera* it seems almost certain that at some former period they were adapted to cross-fertilization, but failing to produce sufficiency of seed they became slightly modified so as to fertilize themselves." We have thus, he adds, in the same flower elaborate contrivances for directly opposite objects. It is probable that variations occur in many flowers commonly regarded as dependent upon the agency of insects whereby they are occasionally rendered self-fertile. Henslow expresses the opinion that certain plants deprived of their particular visitors by transportation to foreign countries may regain, or at least acquire, the power of self-fertilization.

Of *hymenoptera* the honey bee is a very frequent visitor. After resting upon the broad landing-place afforded by the sepal it enters the narrow passage beneath the style and creeps downward to the nectar, rubbing its back first against the stigma, if reflexed, and then against the oblong anther which dehisces extrorsely. In many flowers the styles and sepals stand so firmly and closely together that it is impossible for the honey bee to obtain the honey except in the legitimate way. In other flowers they stand so far apart that this bee easily climbs in and out

sideways, obtaining the nectar without rendering any service in return. I have often seen it vainly endeavoring to enter flowers of the first form in this manner, and only relinquishing the attempt after repeated trials. The blossoms of *Iris* appear well adapted to bumble bees, but I have taken only a single specimen, and my experience is similar to that of other observers. *Halictus similis* is a frequent visitor, and I have seen two at work on the same anther. When the anthers are immature the insects employ the mandibles to break them open.

In New Hampshire C.M. Weed states that this species of *Iris* is often sought by a syrphid fly, but in this locality diptera rarely enter the flowers and I have collected only the syrphid fly, *Helophilus conostomus*. In my room I have noticed the common house-fly probing between the style and perianth for honey.

Butterflies evidently, from their structure, can not visit the flowers legitimately, but they often steal the honey, thrusting the proboscis in sideways. A species of *Pamphila* sucks the honey standing on the ovary, while the larger banded red butterfly, *Limenitis disippus*, flits from flower to flower, but rests upon the upper side. I also observed an *hymenopter*, which escaped capture, examining the center of two flowers apparently searching for nectar.

While beetles are attracted to the flowers they do not act as agents for transporting the pollen. I have several times taken the rather peculiarly shaped black beetle, *Monocylus vulpeculus*, which I have never met with on any other flower. In one instance one of these beetles had been caught and killed by a brown spider. *Donacia rufa* was taken on the sepal. While hastening homeward to avoid a rapidly approaching thunder-shower I noticed that the handsome beetle, *Leptura chrysocoma*, had sought shelter in the center of the flower. At such times insects are unusually sluggish.

A white spider, a species of *Mismenta*, sometimes takes its stand on one of the petaloid styles. When the seed-vessels of a buttercup were held before it, immediately it advanced to the tip of the style with the head and front pair of legs extended to grasp its supposed prey.

The insects found upon the flowers may be separated into four classes: those which prey upon the guests, insects attracted by the colour, but finding neither pollen or honey, butterflies sucking but not acting as fertilizers, and finally the true visitors effecting fertilization. With the close of the period of inflorescence the petals wilt and hang downwards. The sepals, however, roll inwards, wrapping themselves about the stigma and continuing to coil up, carrying the styles with them, until the ovary is reached. If by any chance the style is not caught by the sepal, which is rarely the case, it does not of itself coil inwards.

Visitors - *Hymenoptera* - (a) *Apidae* (1) *Apis mellifica* L., common, sucking; (2) *Bombus consimilis* Cr., rare; (b) *Andrenidae*: (3) *Andrena claytoniae* Rob., sucking and collecting pollen; (4) *Halictus similis* Sm., very common, c.p.; (5) *Halictus palustris* Rob., common, c.p.

Diptera - *Syrphidae*: (6) *Helophilus conostomus* Will., rare.

Lepidoptera - *Rhopalocera*: (7) *Limenitis disippus* Godt., (8) *Pamphila* sp.: both sucking, but of no service in fertilization.

Colcoptera - (a) *Lampyridae*: (9) *Lucidota atra* Fab., (b) *Cerambycidae*: (10) *Leptura chrysocoma* Kirby; (c) *Chrysomelidae*: (11) *Donacia rufa* Say; (d) *Curculionidae*: (12) *Monocylus vulpeculus* Fab, collected upon the flowers, but neither sucking nor feeding on pollen, and of no aid in pollination. June 24th, July 5th. Waldoboro, Maine.

Pontederia cordata L., In the August Bulletin, 1989, eleven visitors are enumerated. A clear-winged moth, *Hemaris thysbe*, has also been observed poising before the flowers and sucking the nectar. The blue spikes were examined July 20th, and during the calm preceding a thunder-storm, and on nearly every one, two or three specimens of *Halictus crassicornis* were found resting transversely on the perianth. So inactive were these bees that no net was required and they were shaken directly into the cyanide jar. Some fifty were taken, and an indefinite number might have been easily collected. They had evidently sought refuge here against the on coming storm.

ED: We are indebted to Prof. Homer Metcalf for the copy of this article. It is the oldest of its type that we have as yet reprinted and the information should be still valid today. It was from the ASA BULLETIN 7: 47-50, 1899.

LETTERS

ED: More than the usual number of letters have come to hand for this issue and at least two can more properly be called articles. The GERMINATION ISSUE No. 24 seemed to have stirred up a bit of letter writing with, as expected, some further ideas and comments. The following letter from Elaine Hulbert is very long, but when I looked to excerpt it there seemed little that was not of wide interest and I hope you enjoy it as much as I did reading it. It just shows what can be done when you sit down to write and let yourself go. I'll bet there are very many of our members with experiences similar to Elaine's. Won't you share them with all of us?

Elaine P. Hulbert, 59 Dandy Drive, Cos Cob, Conn. 06807.

The Japanese irises are forming pods now, July 25th, and the last stalk of *I. brevicaulis* is in bloom, meaning that this is the end for me of gardening with iris species in Connecticut. This year I missed a good part of the season, since I did not return from supervising the building of our new place in Virginia until May 19th.

During my fifteen years here I have cut back on attempts with bearded species and hybrids. I don't ever want to be without ZUA, and my admiration for *I. stolonifera* and its hybrids is still as great as ever, but in Connecticut I have become wrapped up in the culture of beardless irises.

Every Juno iris I have tried has given me at least a year or two or three of good bloom, but sooner or later they all get fatally frozen back--except for *I. bucharica* and its variant *orchiioides*. These survive and multiply so well without lifting that I had a lot to give away when I dug them in June to pack them for moving.

PALTEC was still blooming May 19th, along with three clones of blue *I. tectorum*, many *alba* seedlings, and the latest of the *cristatas*, the type. (*I. gracilipes* has all gone to Virginia, lock, stock and barrel). But the big surprise was *I. japonica*: five bloomstalks with buds still to open on two (peak must have been May 12th.) As far as I know *I. japonica* has never flowered in the open in the Northeast; I would be most interested to hear of any other bloom in the region. The mild winter past is doubtless the reason--in fact, the foliage was near perfect through May, June and July, and this is most unusual. My plantings--they come from two sources but are almost certainly the same clone--have been coddled to the extent that they are allowed to claim all the space they want in the most sheltered spot I have, in a good

deal of sun, where small rocks are placed on top of rich black soil and it is never dry. Flowers in both plantings were identical. (One is supposed to be Ledger's, but as I said, I have no doubt the other is the same). I brushed some *I. tectorum* and some *cristata* pollen on the last few flowers and got a little pod, which fell off after about ten days. I was lucky enough to find it, and a couple of weeks later opened it. Four seeds had indeed begun to develop; they had made golden discs, pinched like fortune-cookies.

Having this last stroke of luck with an *Evansia* pleased me enormously. Just because, I suppose, they present so many problems and mysteries, I take more interest in them than any other group. Two years ago I had left my very vigorous seedlings of *I. tectorum* TAIWAN 76S212 out over winter, HEAVILY mulched, and found bare earth in the spring. (But others germinated in the old seedbed, and these I still have, wintered indoors). Worst of all I lost all the *I. rossii* seeds from the Seed Exchange in an absurd accident. I had soaked the seeds indoors for some weeks last spring and when they began to look soft planted them in a shaded seedbed similar to the *I. japonica* bed with other *Evansia* seeds, and they came up about July 1st, the same time as other tender *Evansias* with me. Four of them grew fast--much taller and narrower in leaf than any other crested species I have seen, but disappeared irrevocably down a hole a chipmunk tunneled under the bed. Now, I had seen the cats watching the bed and knew they were waiting for a mole or chipmunk, but I was so unwilling to transplant any of the young seedlings and so confident the cats could handle it that I didn't check up very often, and all the *I. rossii* was lost, nothing else. The other nooks among the same rocks held 76S212 and 77S203, some *wattii* x *confusa* and *confusa* x *wattii*, not from the Seed Exchange. I find that all four of these seedlots germinated best in mid-summer, with each lot of the same parentage germinating almost simultaneously and all within a few days of July 1st this year and last.

Hardy *Evansias* are standbys for me. *I. tenuis* I lost in two attempts to transplant to Virginia, and I have no intention of trying to carry *I. verna* back to its native state, but all the others are established there. The question whether *I. cristata* and *I. verna* will do better on limestone than they do here on granite is still open. *I. cristata* certainly does very well on granite among acid-loving plants, if it has access to loam. In an aboretum a few hundred yards from here it is naturalized on granite scree, though it is dwarfed and shyflowering. *I. tectorum* (and PALTEC too) unlike *I. cristata* can develop soft rot and harbor borers, but its aggressive reach for new soil gets it out of trouble. *I. milesii* looks especially good this year, and I had high hopes of bloom, after *I. japonica* bloomed; and I think it would have if it had not had a very bad time last summer in an uncongenial spot. Its neighbor *I. lacustris*, in fact died out last summer, and I blame myself for not leaving them both in a bed of standard dwarf bearded without irrigation and with too much competition.

I missed the first few days of bloom on the PCN's, but bloom after May 19th was neither plentiful nor notable. A poor seed set too. A few I considered choice were moved to Virginia last fall with good success--but I have no idea how they look now.

Everything I read about the PCN's from the East and the Continental U.S., confirms my feeling that winter cold is not bad for the PCN's. (I reserve an opinion on *I. munzii*, having tried it only once). The big losses come at the start of the growing season and must be due to disease, bacterial rot, fungus or something. Evidently West Coast growers can't help us with this, since their experience just doesn't encompass it - lucky guys! This mild winter, for example, was of no benefit. I do believe that one model year with a normal winter, followed by a gradually warming spring with no late freezes or early hot spells would make a world of difference to the PCN's. Whatever this spring meant to *I. japonica*, I suspect the prolonged chilly

spell in April was what caused rot in the PCN's. If I had it to do over again the best I can think of now is: deeply dug beds with plenty of grit and loose loam, some insulation in the form of rocks and larger plants, and transplanting only when the roots are in active growth, with careful attention to getting some long roots out along with the new white root-buds. I am of two minds about mulch. If the PCN's can be discouraged from making early growth it ought to help them weather the spring temperature swings--and I have noticed they do take a long time to get started most years, even though the weather seems to be bringing the dwarf bearded along fast.

My small project of raising a Connecticut adapted strain of PCN's is at an end, so I'll summarize it now. Before joining SIGNA, knowing only what I had learned from Molly Price's IRIS BOOK, I got a few unnamed plants from Oregon, and found a certain ruffled white *I. innominata* type did well for several years. I planted seed I believed to be self-set, and the seedlings appeared to be equally vigorous though not equally beautiful (all were off-white and laggier). I crossed the two most forward of these, and by the third generation had a pretty ugly race of PCN's, quite uniform in their habits and strong-growing. It was time to select for beauty, but there just wasn't any! I would have back-crossed, but the ancestral plant had died. All in all, not a very successful project.

By this time I had Seed Exchange seedlings, and I tried a different plan on these: I would only use volunteer seedlings from bee pods, and then their volunteers. Let them select themselves for fertility, germination and hardiness, and I would choose the prettiest. The seedlings were found under two clumps of ? *x innominata* JILL 72K161, a golden yellow and a golden orange. The children grew up to resemble their known parents pretty closely in habit and flower form, but had a wider range of colour. As for vigor, a number died after being removed to a back bed under forest trees, where there would, I hoped, be room for future generations. I don't remember that '77 or '78 produced anything notable to look at, but in the third generation blooming in '79 there were two gems: a miniature variegata with the gold signals on red falls matching golden standards and the best grassy foliage yet. A larger plant produced the reddest red self I ever expect to see in a PCN, not compact enough in flower but with sufficient width and substance to really project the colour. These had one and two pods, but I never got the seeds, because the trees in the woodlot had never been sprayed against Gypsy Moth, and the larvae falling like rain on the flower beds nibbled the pods repeatedly and exposed them to rot. Gypsy Moth caterpillars do not really like any part of an iris, but it is their way to ingest a good sample of flower, leaf or pod before dropping off in search of something better. I potted the two plants in June and moved them in September to Virginia where the big red was doing well this spring, but the red and gold had died. There are no second chances in the bed of volunteers, either--very few plants survived a second spring of gypsy moth nibbling, and none bloomed.

Some seedlots that did bloom in June for the first time (under sprayed trees) were: 75K047 (yellow hybrids). Two clumps, one off-white and one rusty-pink and white has small but very compact and well-shaped flowers on long stems, no branching, dense, hard, narrow foliage; 76K041 has wider, longer, darker green leaves, and the only blooms were pale spindly violet; 76K050 I permitted to lose a territorial battle with *Iris japonica*, but one I saved gave me seed too. *Douglasiana* OPHIR 76K060 showed good branching on four clumps but undistinguished flowers in cream, pale yellow and pale violet. A few other '75 and '76 lots bloomed this year but no '77s. The '78 seeds are planted in Virginia and only a few were up when I left. The '79s I am reserving till this fall.

Nobody looking at my PCN's even at peak can get up much enthusiasm for them; they all too obviously do not thrive. Still, they do as well as say my West Coast

~~Trilliums~~ and Erythroniums. So I don't know why anyone who is willing to take pains over these delicate wildflowers should not be equally rewarded for equal pains over PCN's

I gave up trying to raise *I. missouriensis* to maturity. I dare say it can't stand the summerlong humidity (although I don't perceive any dislike of summer humidity in the PCN's or *I. biglumis*). A clump labeled 72P144 *I. longipetala* that has been a stalwart for years in fairly damp shade I have finally identified as *I. biglumis*, and probably the mix-up was mine. It has unusually good summer foliage, dusty looking but crisply upright with the attractive slow spiral to the leaves. A clump of 72R033 MOORCROFTI in full sun is likewise a stalwart--I doubt whether I could eradicate--but it has never, never bloomed. Some others, 74R219 and 74R223, are also good growers and shy bloomers, but none as stubborn as MOORCROFTI.

Next to the Evansias the Seed Exchange seedlings from PCN-SIB, crosses have interested me the most. Last fall I moved all I could find to Virginia except for four that I felt sure would bloom this spring. Later the Virginia bed of these seedlings and other Siberians was removed by a bulldozer seeking to widen the pasture gate. A heroic contractor who knew I had planted choice things there rushed to disinter the plants and their name stakes. He had to dig a new bed and put everything back by guess, so although most of the plants are saved I will never know what to call them. The four here had become three by this spring, and one lost its only bud in an accident. So the only bloom I saw after all this work and waiting were those on one 74J088 SUNLIGHT BAY X GREENBRIAR CONTRAST. Probably I'm inclined to overvalue it, but it was pretty; cream with slate-violet markings, well proportioned and somewhat fluted. It had a pretty heart, with lavender edges to the style-arms and cream anthers on violet filaments. A bit less spreading, but a more vivid character than PUGET POLKA. In the suniest spot I have to offer it developed a stronger, shorter stem than the limp one I usually get on PCN's and 40 chrom. Sibs.

I have made crosses with PCN pollen on 28 chrom. Siberians from time to time, and occasionally got one or two good seeds, but I can't get them to germinate.

Except for three or four *I. chrysographes*, and *I. dykesii* I had no 40 chrom. Siberians in bloom this year. A nice big clump of *I. wilsonii* was actually reamed by a sophisticated iris borer traveling to and fro hollowing out the slender branches of the rhizome. It was still pretty skinny when I found it. *I. forestii* and the other smaller 40 chrom. Siberians, as well as all the 28 chrom. Siberians, seem to be safe from this pest.

Obviously I was not able to spray at the proper time this year, and the subsequent experiences have taught me more than I ever wanted to learn about the iris borer. Here in western Connecticut growers can never hope to be free of it; since everyone has a patch of *I. versicolor* in his damp spot and large stands of *I. pseud-acorus* are naturalized in most streams. Immunity seems to be strictly limited to irises with very thin rhizomes and to those which bloom very early. Occasionally a borer will attack a dwarf iris that has bloomed, but there seems to be a preference or perhaps only a survival factor for developing bloomstalks. They seem to give the growing larvae an easier and quicker passage to the rhizome which they must penetrate in order to mature. For the first time this year I saw unmistakable evidence that a borer had gone from rhizome to rhizome underground in a clump of dwarf irises. Entry and exit holes were clearly visible in graduating sizes, with the borer still at work in its third rhizome.

Unhappily for GOLDEN QUEEN and KIMBOSHI they inherit fair-sized rhizomes from their *I. pseudacorus* side, and a borer ruined a bloomstalk of GOLDEN QUEEN for me this year.

In my big spreading plantings of Louisiana irises it is hard to spray effectively, but I have had fairly good results by concentrating on the central fan. A borer seems to go through a Louisiana fan from leaf-tip to rhizome awfully fast, and I suspect--though I can't know--that many people in the Northeast who express disappointment with the bloom on their Louisianas are losing their bloomstalks prematurely (and even unnoticed) to borers. I would say that 75% of mine are lost if I don't spray. The side growth in a clump is usually unaffected and easily camouflages the decline of the leading fan, and the poor gardener again thinks, "maybe next year".

The dreary part of gardening in Connecticut is mostly contained in the above. The later beardless in general do very well.

The only problem with 28 chrom. Siberians is finding space for them. Or finding a seedling good enough to replace a named variety. One 74J262 seedling, a ruffled lavender-blue, has form much like a bearded iris (is this *I. sanguinea* character in a fortunate blend with *I. sibirica*? The seedlot doesn't give the inheritance, and I plan to plant it with MTBs some day and see how they set each other off.)

I lost interest in working with *I. setosa* seed when I found even the best growers and bloomers were impermanent with me. Is it their nature to bloom out? It seems I can keep them indefinitely, crowded in a seedbed. Must they be triploid to last? Because I am certainly spoiled by the fine performance of cultivars KIRIGAMINI and HONDOENSIS. Because I grow these in very different sites I can't offer good evidence in the interesting matter of their possible identity. Just two things; the pods of KIRIGAMINI often fatten; HONDOENSIS are always flat (I've never found a seed in any); and if any kind of culture could give HONDOENSIS the breadth of foliage and saturation of colour I get on KIRIGAMINI I would be surprised.

It is amusing to watch visitors compare KIRIGAMINI with *I. laevigata* SEMPER FLORENS blooming nearby at the waterside and try to put a finger on the difference. Usually the last thing they think of is counting petals. The similarity certainly dazzles me.

A pot of special seeds from Jean Witt of *I. setosa* var. *canadensis* is plunged under a hickory tree in Virginia; I hope it is all right.

I. laevigata has settled down very well here in Connecticut in truly boggy conditions by the streamside, even under encroaching shade. All types bloomed freely this year. Keeping these in a few inches of water would probably keep them free of borers, which in any case seldom interfere with bloom, but when the stream falls to a trickle in July the borers enter the rhizome, and immediate surgery is called for. A persuasive reason for waiting is that there is only one grub--what Molly Price calls the fittest survivor--to be dealt with by that time.

None of my *I. laevigata* and Louisianas are from the seed exchange, and I must confess myself baffled by the problem of raising these from seed. Some germination I got on 77N125 in a well-drained bed had evidently died from lack of moisture, or light, by the time I looked for these in May. There are few safe places for seedbeds in a bog--although I find plastic berry baskets very useful for confining seeds and seedlings against flash floods, caving banks, and the like. Has anyone a good set of rules for bringing up *I. laevigata*?

Or for germinating Louisianas? From what I have read, really green seed is a good bet, but all the seed I gathered last year had to wait several weeks before I could plant it in Virginia and hasn't shown anything yet.

Still, Louisianas are excellent for sultry summers in Connecticut, and marvelous in spring if one sticks to *I. fulva*, *brevicaulis* and their hybrids. These give me a spectrum of red, purple, blue from royal to sky blue, yellow, orange and brown, and I can hardly miss the whites, creams, pinks and lavenders that seldom preform. Pestiferous or not, a Connecticut bog can bring out qualities that I suspect are seldom seen outside their native range. Ben Hager described the *I. breicaulis* he sold me as violet-blue, but it is true blue here (just the *I. laeviegata* he named VIOLET PARASOL is royal blue). CREOLE FLAME this year had a velvety, plummy depth that everyone exclaimed at. The browns are good and brown, not bleached to a tan. Louisianas are good winter subjects here in that they resist heaving, probably because they don't go really dormant. Though of course the winter's effect on their foliage is bad (here the thrifty *I. fulva* has a great advantage), and they feel the setback well into the spring. I don't see how mulching could help with the latter problem, and in fact I never have mulched them. On the whole they adapt well, and a few clumps with 38" bloomstalks, three flowers on each, queen it over the later tall bearded blooming on the terrace above.

If I had it to do over I would surely seek out some of the pure *I. fulva* cultivars advertised as particularly good and showy in the north. The fact is I have considered my one clone of typical *I. fulva* perfect and never wished for more.

I. pseudacorus left to naturalize in the bog always seems to bloom well, but my *I. pseudacorus* from the Seed Exchange have met with some problems. For the last two seasons something (besides the borer); weather conditions perhaps; has kept the later blooming seedlings from budding, or opening their buds. Last year they compensated with some 'rebloom' in late July, but it hasn't happened this year so far. *I. pseudacorus* 72N103 has given some fine seedlings, yellows that are very vigorous, and some pretty cream and ivory shades, often with reddish signals, but the pale-flowered plants are hard to keep, even here in Yellow Flag Heaven. I have tried many stratagems, but I have fewer now than five years ago.

A typical yellow-flowered seedling from 72N103 with fine foliage and disease resistance I tried to pollinate from *I. fulva* a few years ago. I vividly remember a misshapen pod from which I got a number of seeds, already loose when I opened it, and that there were two definite categories of seeds, half of them large, spherical with a waxy, pitted, dark orange seedcoat and half much smaller, more egg-shaped, dull brown. None of them compressed as in a full pod. I was sure I had made a wide cross. Like an idiot I put all the seeds together in the only available safe place. The first four seedlings I transplanted but without joy, because they looked like *I. pseudacorus*. The first to bloom confirmed this and I composted the lot. A few more came up in the seedbed and I let them mature through apathy, but when two more bloomed this spring I realized I did have something unusual genetically. Number one had tightly rolled yellow stars barely emerging from the spathes. Number two had lime green buds which faded on opening to cream with a flimsy, crepy texture and a faint signal. The third had yellow falls with slightly rolled edges, and the signal was smudged to form a rust-coloured blot. A rather bright and appealing flower. Am I wrong in thinking that these unusual characters result from a doubling of the parent's chromosomes? And if so would hidden characters have revealed themselves if I had chanced to use a collected *I. pseudacorus* for the podding, and not the 72N103 seedling that came from a variable stock? Needless to say I am now interested in further crosses, but I got no seed from the two that bloomed this year, and I am faced with transporting four or five big rhizomes to Virginia to carry out more experiments.

The *I. versicolor* I grow have always contended successfully against pests, diseases and vagaries of the weather, but I have never been able to regard them without some resentment, since they are a reservoir of problems for the others. I have so

much seed of my own that I have only raised one lot of Seed Exchange plants. Because there are several insects that attack pods, using *I. versicolor* I am sure as their beachhead, I have been more concerned with destroying pods than saving seed. But I am glad I raised the one I call SWEET BLUE from 72N300; it is an enormous clump now, blooms profusely in shade, has extremely good wide foliage - nearly two inches - that makes it look quite different from the typical clump (and the albas, roseas and kermesinas too) when out of bloom, resists disease except for the pod parasites - so that I have no healthy seed from it, and best of all is truly fragrant. To my nose there is a faint but very fine fragrance to both *I. versicolor* and *I. virginia* that I can't detect in any of the well-known colour variants. SWEET BLUE has this scent "in depth". I say it's superior to any other iris fragrance, the vanilla or chocolate of the dwarf bearded or *I. graminea* or JANE PHILLIPS or POST TIME, much as I appreciate them all. SWEET BLUE has chalk-blue buds that open to sky-blue with a large white area, and both standards and falls are wide and rounded but without any notable substance or fluting.

I got a little bloom on *I. virginia* this year but nothing on *I. prismatica*. It seems to me the latter chooses to perform well only when all the others perform badly.

Every year I compare *I. virginia* and *versicolor* on their side by side plantings just to confirm my impression that there is a reddish flush along the style-arms of *I. virginia* that is absent from *I. versicolor*, and to wonder whether this is entirely subjective. After all, the colour variants and inheritance of pigments seem to follow the same patterns in both species. But strolling beside a cranberry bog in Nantucket in late afternoon I spied a blue flag, and though I naturally expected to see a *versicolor*, it had a pronounced reddish sheen, and I was able to get close enough to satisfy myself that it was a *virginia*. Has it happened to anyone else?

I. tredentata I felt had sulked in Connecticut long enough and I moved it to Virginia at the first opportunity. At last sight it had really taken off, but it has spent this summer in a well-drained bed and I would not blame it for sulking again.

For some time I have had no hybrid spurias because of a rust-like disease, which I think is harbored by tougher *I. versicolor*. But all the spuria species I have raised from Seed Exchange seed are apparently resistant. The great question is whether they will be equally resistant after they bloom - when hybrids seem to succumb. The species beg the question by being the most reluctant to flower, and I don't encourage them much, since they produce such great quantities of seedlings which need a lot of time and space to mature. I have a dozen lots that I hope to move south, but they are not very high on my list of priorities. If I can keep their numbers straight I hope to report on them in the future. I have already reported, as so many others have, that *I. graminea* is very easy. And I get nice flowering clumps from Homer Metcalf's SUBBARBATA A.

I believe I reported earlier on lot 74M150, *I. sogdiana*, appearing to be *I. pseud-acorus*. I have now concluded that all my seed is *I. pseudacorus*. I bloomed several pieces to see whether there might be anything unusual, but there isn't. Besides the *I. tectorum* in lot 74M149 there appears to be two others - one looking like *I. biglumis* and another I think is a spuria, but I still haven't bloomed either one. As far as I can see 74M151 is all spuria, but I haven't even transplanted any yet for a fair trial.

Soon I must learn how to germinate Japanese iris seeds. I have never tried before, being up to my ears in typical *I. ensata* cultivars, Marhigo seedlings and other named cultivars, all from nurseries. I have complained before that the only

flaw in the otherwise impeccable performance of Japanese irises in Connecticut is that towards the end of the season the tube will often be lax, and the flower if double will hang its head. Could that be why the gardens of Japan are flooded in the bloom season? The season is usually a very dry one here, and while the roots are in moist ground they are not wet. I wondered at one time whether this might be an after effect of pollination, but I have done my own pollinating this year and I can't verify this.

At least I have tried to do some pollinating. Trying to find a stigma in a tangle of petaloids the other day, I saw a big bee zero in on the target, grasp the two style crests with its forelegs (ah, there they are!) and wiggle its posterior under the style-arm grumbling like a fat boy getting into a sleeping bag. The bee's belly pulled the stigmatic lip down and rubbed off plenty of pollen, doing the job for me. I was impressed by the bee's knowledgeable approach, and on the other hand by the flower's obvious adaptation. The anther is very stout and wide open with a strip of pollen along either edge, and it makes a tunnel reinforced above by the half-cyclinder of the style-arm and matched below by a neat channel in the haft. But how does the bee find the right place so easily? In half these big flowers the signal doesn't even line up with the style-arm, which may be missing altogether - and do these flowers even have nectaries? I tried to learn the answer to the last question by following a small honey bee around, but it didn't succeed in getting any honey that I could see. What it did was to land every time at the very tip of the yellow signal and follow it slowly and methodously until it bumped its head against the style-crests which were still clamped tightly against the haft. Then I realized it was flying only to the newly opened blossoms, which seems as if nectar was its object, but finding its way apparently by sight and touch. Well, another ten minutes' observation might have solved all these riddles, but I had enough for one season and appeal to others for enlightenment.

The Japanese irises which I cannot keep wet enough in July are usually too wet in winter. But not all of them resent it equally. I keep transplanting clumps to the waterside trying to get good colour contrasts, but over the last twelve years the irises have segregated themselves. Only pink, rose, mulberry and red-purple cultivars grow where the soil is wet all year round - and they flourish. The whites, blues and blue-violets grow only on the bank, and there most of them do well too. I wonder whether this tolerance or lack of it can be linked to flower colour genetically? Growers of Japanese irises do seem to differ in their views on the matter of wet-feet-in-winter. Didn't the piece by Alan Fisk in SIGMA mention only ROSE QUEEN as an example of such tolerance? Are there any white or blue cultivars that could be cited?

I wish more could be known about the genetics of Japanese irises, and I particularly wish there were some publication of the work behind the successful *pseudacorus* - *ensata* crosses - whether the same (obviously at least a similar) Japanese was used, whether the cross was ever successful both ways, and what the discarded plant material, if any, looked like. This was the first year I had both KIMBOSHI and GOLDEN QUEEN in bloom, and for a time I wondered...apparently whatever afflicted the later *pseudacorus* affected these, because the bloomstalks remained in a state of arrested development for weeks before opening with the very last Japanese. The plants and flowers look exactly alike to me, and not really beauties, are they? - except that there is a nice compromise in their structure between the confining spathe of *I. pseudacorus* and the lack of support in *I. ensata*. I have made one observation that would be striking if true - there seems to me to be a light perfume, rather an orangey scent about KIMBOSHI. I couldn't smell a thing on GOLDEN QUEEN but there I had no freshly opened blooms to test, by the time I tried. And when I tell you I have had fewer most of every summer, you will perhaps discount this story. But I

would very much like to have this verified - where would the smell come from? Wouldn't it be great if the cross, which doesn't seem to have brought out any other hidden characters so far, had brought out this one?

Nobody I know has been sufficiently taken with KIMBOSKI or GOLDEN QUEEN to ask for a piece as a going away present, but everybody wanted a rhizome of HOLDEN CLOUGH. I was left with only one bloomstalk here in Connecticut, more I hope in Virginia. I let pods form this year and last but got no seeds.

I moved my big clump of *I. foetidissima* into the shade hoping to make its foliage more sightly. The leaves look lovely, but it no longer blooms. The seeds I brought from English hedgerows and planted in the shade are growing up slowly too. I want to start using *I. foetidissima* again with wide crosses (I got a seed once from a cross with *I. chrysographes*, which didn't germinate). It seems to me that *I. foetidissima* and *I. pseudacorus* are the most interesting material for such crosses, and *I. foetidissima* is a lot easier to work with.

I hope to have another go at Pardananda in Virginia if the Seed Exchange offers it again. I tried the very first lot of F₁ seed offered by the SEED EXCHANGE (and got some interesting variations), but I probably should have skipped it because I was having an unhappy experience at the time with Belamcanda, which had a virus that spread to my lilies. The aforementioned seedlings got it too, and I destroyed everything. Later I bought some more lily bulbs and they have been healthy ever since, but I shall go cautiously next time.

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.....I live on the mesa overlooking the Rio Grande Valley, west of Las Cruces, New Mexico, at an altitude of about 4,000 ft. above sea level. Native vegetation includes mesquite, creosote bush, sagebush, yucca, tumbleweeds and of course cactus. Our average rainfall is supposed to be somewhere around 8 inches a year, with most of it falling in July and August. This year we have less than 3 inches to date (Aug. 2nd).

If you want a concise description of our climate, try variable! Winters are usually mild, with many nights on which the low does not reach the freezing point, although there are always a few instances of the temperature dipping into the teens. Most years we have at least one snowfall, and it occasionally last more than one day. The ground never freezes, and with the typical daily temperature variation of around 40°F., gardening continues through the winter months.

Spring brings, not showers, but dust storms. The early aril species beat the worst of the weather, but the late arilbreds and the tall bearded take the brunt of the season. The summer is something of an endurance test, both for the plants and for the gardener. There are many days when the temperature passes 100°F. and this year there have been about 50 such days so far and the "hot" part of the summer is just getting here. Fall brings cooler temperatures, still clear days and a resurgence of ambition. It's the time grandiose plans are laid for the next year.

In terms of iris, this means that the aril species seem quite at home. The sandy soil is quite alkali (pH over 8.00) and the drainage is excellent. This is best demonstrated by the posthole test. We found the ground too sandy to dig postholes without first dampening it. The sand simply sifted out of the posthole diggers. In fact, if you have a hole down to about 2 ft. and fling a garden hose into it flowing full force, the hole will never fill up. Perhaps I shouldn't say "never" as we terminated the test after less than an hour to avoid wasting any more water!

Problem #1 is therefore finding a way to improve the water-holding capacity of the soil. My solution has been to grow even the *oncocylus* species in trenches, not raised beds. These are dug out to a depth of 18-24", a layer of vegetable matter added and sand sifted back in on top. They are boarded up so that they may be irrigated by flooding, and the level is left a couple of inches below that of the surrounding ground. The beds themselves are kept clean. I found that winter mulch is counter productive. It provides a haven for aphids and crickets and lulled the iris into breaking dormancy prematurely.

Most of the *oncocylus* species respond well to this treatment and increase reasonably well unless I neglect dividing them at least every other year. I've tried both leaving them in place and withholding water for the summer, and digging them for storage. My intent in the future is to dig only those that need dividing instead of handling a complete bed.

The regelias have not done quite so well in terms of increase, although they usually survive here. *I. hoogiana* is the most temperamental, I'm lucky to get a single bloom a year. *I. korolkowii* does better. At least two of five variants have bloomed each year. *I. stolonifera* is my most variable. *I. stolonifera* var. *Leichtlinii* grows like a weed, while some of the other variants barely cling to life.

Unfortunately, I have not been able to persuade any species other than the aril ones to bloom. I've tried to grow *I. missouriensis* for several years, and have always lost it to the summer heat before. This year, however, we tried another experiment and built a ramada over the species bed. It seems to give them sufficient shade, and a twice daily shower is sufficient to keep them cool enough that I think I have over a 50% survival rate. Now if I can just get them through the winter....

So far the wildlife has not been a problem this year. In fact, a cottontail comes in to nibble on grass among the *I. missouriensis* and *I. biglumis* clumps almost every evening and has yet to sample the iris. They seem to prefer other things as long as there is anything green around. In the winter, though, I've had them digging the TB rhizomes for a snack. I've tried to teach the St. Bernard to chase the rabbits and ground squirrels out of the garden, but he'd rather play with them. It's a strange sight: the watchdog standing guard so that nothing disturbs the rabbit's meal.

My method of handling seeds would probably not work anywhere else with reasonably high humidity. Simply planting in the open ground is a waste of time, seeds and water. I plant in clay pots, one pod per pot, and either make a plastic cover for the individual pot or put a cover over the entire trench. The pots are sunk to the rims in a garden trench for ease of watering. Individual caps seem to hold the moisture better but are more trouble. In either case, when the fog disappears from the plastic, it's time to water again. The pure aril seeds, whether species or hybrids, do not respond to this treatment, so I've changed to a forced germination technique.

I harvest the seed as soon as the pod starts to split and store them in moist vermiculite at room temperature for at least four weeks, usually six. "Moist" is relative, of course. If drops of water form on the sides of the plastic bag it's probably too wet and the seeds may mold. If the fog-like film totally disappears, the seeds are probably drying out too much.

Next I retrieve the seeds from the vermiculite and soak them in a 50% Clorox solution for 30 minutes, following with a thorough rinse. At this point the seed coat is usually soft enough that it can be scrapped off with the thumbnail. After it is peeled, the growing point can be found and the tip of the embryo exposed by shaving

the end off the seed with an Exacto knife or single-edged razor blade.

The next step is refrigeration. I again use moist vermiculite, but this time place a bag of vermiculite in the bottom of a glass jar and spread the treated seeds out on this. A plastic cover is placed loosely over the top. (I once tried putting lids on the jars and promoted a large scale attack of mold, even though I thought I had everything adequately sterilized). The jars are easier to watch closely than the plastic bags I used to use. I check the jars every few days to be sure the moisture level is acceptable. Again, water drops on the cover is a sign to let the jar dry out a bit, while a completely dry cover means it's time to add water.

Sometime between one and seven weeks after being placed in the refrigerator the embryos start to elongate. Three weeks is probably the most common period required. If the lot was a small one, I usually move the entire jar to the Gro-lite and continue to watch the seeds for about another week. I wait until the root is about $\frac{1}{4}$ to $\frac{1}{2}$ inch long and the leaf is starting to differentiate; then move the seed to a sand filled peat pot, being careful not to cover the leaf. As it grows I gradually fill in more sand around the plantlet.

If there are a large number of seeds in a single jar, it is unlikely that all will be ready at the same time. In this case I transfer a few at a time into a separate dish to put under the Gro-lite. When the plants have grown to a height of 1-2 inches in the peat pots, the roots are starting to curl around the bottom of the pots and seem to benefit from transplanting. To minimize the number of moves, I transfer them directly to the larger (typically 8") pots in which they will spend the winter. Weather permitting, they move to the greenhouse at this time.

The greenhouse is unheated most of the time. Supplementary heat is necessary only on the nights we get a hard freeze. This cool greenhouse climate keeps the seedlings growing, although rather slowly, through the winter. By early March they are ready to be moved from pots to outside beds- the greenhouse is getting so hot that they must escape or go dormant.

There are several critical points I have observed in this process. The first is in chipping the seed: If the materials are contaminated the seeds may start to rot before they can germinate; if the slice is too deep the growing point is cut off and it can't germinate; if the slice is too thin the cut may callus over and it can't sprout.

The second is in the transfer to peat pots. This would probably not be a trouble spot in a place with relatively higher humidity. Here, the seeds may dry out too quickly, so that the seedling separates from the seed too soon and can't survive alone. On the other hand, if the leaf surface is not exposed the efforts to keep the humidity up may backfire - the plant can't breathe and therefore tends to rot.

ED: Sharon enclosed a coloured print of a clump of five magnificent blooms, full out, of *I. iberica* x *robusta*, which unfortunately I can't reproduce here. Blooms like this make the labor of growing them seem ~~saworthwhile~~ worthwhile and I do hope Sharon can continue this success. They remind me of ones I grew here in 1966; one from the ARchibald expedition to Iran, and which I managed to bloom for a few years before it was lost to our winter. The collected forms looked quite similar to these of Sharon's but not as large as they did have to struggle here and were not full sized rhizomes when received, so took a year to develop to bloom size.

Mrs. H. Catton, Wyuna Gardens, R.D. 2, Hastings, Hawkes Bay, New Zealand.

First I would like to tell you how much I enjoyed the last edition of SIGNA (No. 24). I find all of them most interesting and helpful, but all the information about growing from seed was terrific! I do grow quite a few species from seed but most of my work with iris seed is in growing my own crosses among the miniature and medium bearded and aril medians. I find with those I have most success if I plant them as soon as they are dry but not too shrivelled, and I plant them in clay pots in a half and half mixture of peat and sand; the sand I use is rather coarse and contains a lot of pumice. I collect it around Lake Taupo where most of the sand and rock has been put there by volcanic eruptions many ages ago. I make sure that the mix in the pot is thoroughly soaked before planting the seed and then I sink the pots in a frame filled with sawdust, which is under a deciduous tree. I usually get a small germination in the autumn and then the main germination in the spring. We don't get very heavy frosts and the only thing I have to watch for are snails and neighbours cats, so baits for the first and a wire netting enclosure for the second.

I love pure arils and would like to grow more to use in my hybridizing, but this climate just doesn't suit them; we are about 8 miles from the coast in the province of Hawkes Bay on the east coast of the North Island. You can sometimes grow and flower them for a couple of years by lifting and storing while dormant or by growing in pots which you can put under cover from December to March, but either way you will lose them if you get a long spell of humid weather. I have a friend who has been growing *I. susiana* for years in pots, most successfully. She lives in Rotorua, which is about as far inland as you can get in the North Island, but this last summer after an extra humid period, she found that half her rhizomes had rotted. It seems to be the same story wherever you go with regard to *susiana*, everyone seems to have grown it well for a few years and then it has just faded away. That includes myself. I had a lovely clump of it; now it is down to one tiny fan. Most arilbred irises do very well, so I have decided that I will just have to content myself with those.

I have managed to create suitable conditions to grow some pumilas and also several other dwarf and median bearded species such as *Ii. chamaeiris*, *mellita*, *reichenbachii*, *aphylla* and *subbiflora*. One little chap that does very well is *cretica* and I have several of John Terington's stol-pums doing very well. I have been trying crossing strong growing pumilas with some of the stronger growing dwarfs to try to get some MDBs that will grow and flower well here, as many with pumila breeding don't.

To grow the pumilas I built up a bed about 9" and filled it with a very gritty compost mixture and placed quite big stones among the plants so as they would have shade from the hot afternoon sun and somewhere to tuck their roots. In hot dry weather I would go out each morning and trickle water over the stones. I find I have to replace the soil every few years. They also get fed the regular iris fertilizer twice a year and some dolomite in the winter. I have a $\frac{1}{4}$ acre section of mostly TBs which I grow commercially, but the dwarfs and medians are my first love. The species that do best here would be possibly the *evansias*, *wattii*, *confusa*, *milesii*, *tectorum* and hybrids *Darjeering*, *Nada* and *Bourne Graceful* that grow like weeds.

The small varieties are much harder to grow well. I have a lovely clump of *I. gracilipes* and *cristata alba* doing well; *I. lacustris* just survives and last year the blue *cristata* folded it's wings, but this was perhaps lack of care. I didn't mention *I. japonica* and it's variegated form that runs beneath the trees and has to be thinned out periodically by the wheel-barrow load. *Sibiricas*, *Louisianas* and *Spurias* all grow quite well as long as you give them as near as you can get to

the right conditions. The small Spurias such as *I. graminea* do well for me and some clumps of seedling Spurias that are horribly neglected never fail to flower and multiply but some new hybrids were almost lost through my ignorance in not learning about them first. One disease that is prevalent here is mustard seed fungus and it is not only attacks irises but other plants with fleshy roots; even some weeds are affected.

I have had considerable success with a fumigant sold here as Basamid. It also helps to control the weeds. I don't like weed killers on the whole as I always have a feeling that continued use of any ^{so} of these preparations must have some detrimental effect on plants. I hope I'm wrong.

I am really making a special effort to grow some Louisianas well this year. I've had some older ones for years and always liked them but was so carried away by the ones I saw growing in Bob Raabe's and Grace Grovenor's gardens when I was in Sydney last at the convention that I came away really fired with enthusiasm. I don't think for one moment that they will ever do as well here; we just don't get enough humidity but I can try to at least give them the other conditions that they like. I don't have a lot of luck with PCNs either, especially any that have a big proportion of *Ii. tenax* or *douglasiana* in them. They rot off at the base and I should obviously prepare better drainage for them. Two people who are growing them well here say that their beds are sited where there had been an old driveway and it is very gravelly there. I know one gets a lot of fallen leaves as well.

I have two very interesting plants that were given to me by one of our members who grew them from seed of *Pardancanda norrisii*, fifth generation, that he obtained from the SIGNA seed pool. Both are very attractive, well branched with lots of buds and one is a rosy-lilac with a very deep toned signal with an outline of white; the other is a beautiful waxy cream shading to quite bright yellow at the base and the styles are bright yellow as well. The friend who grew them in the first place set some seed on the lilac one with pollen from my *Belamcanda* and has some healthy seedlings growing from this cross.

Paul Richardson, 78 Thackoray St., Upper Hutt, New Zealand. (Sept. 30/80)

.....We are now well into spring here, following a mild but wet winter and a wet summer. The bearded ones haven't been too happy but the species have thrived. Although a relative newcomer to "Society" life, I have grown *I. innominata* since the late 1940s when I bought four named varieties from Carl Teschner.

I have recently started to raise my own plants from these which presumably were developed from the Riddle Strain sent to Jean Stevens. My seedlings have all very fine foliage (I grow no other PCNs) and a predominance of yellows in the seedlings, so it would appear that they are still relatively untainted by other species. Some of the seedlings, all bee pollinated, have good deep colour and some broad frilled sepals. Not many have both; worse luck! I am now growing a much wider range of irises, but still the *innominata* is one of my favourites.

Keith Blankinship, 12030 - 8th., NE, Seattle, Wash. 98125 (Sept. 12/80)

Just a note to tell you something I thought might be of interest to you. I have one stalk of Iris Pal-Tec in bloom. There are two flowers on the end and another bud showing colour. This plant is part of a small clump that bloomed in the spring and this is the first time I have had it bloom this late in the year. I have had Pal-Tec for over five years and did not know that it had any remounting tendencies, but it is nice to have an iris in bloom this late in the season.

ED: But will it bloom next spring? Let us know the result Keith.

Nigel Service, Bazalgue, Baladou, 46600 Martel, FRANCE. *also, 1986 & 1987 England.*

.....In SIGNA 24 you reproduced the KEY TO THE SECTIONS OF THE GENUS IRIS issued by the BRITISH IRIS SOCIETY SPECIES GROUP, and say in your footnote that the application of the bracketed numbers is not explained. Members of SIGNA may be interested to know that these numbers refer to the sections into which Dr. Peter Werckmeister divided the genus for the purpose of his book CATALOGUS IRIDIS.

This method of dividing the Iris species into twenty-nine sections, although of no taxonomic weight, is, because of its simplicity, the one used by the BRITISH IRIS SOCIETY SPECIES GROUP in their SUMMARY OF THE IRIS SPECIES which has been issued in parts over the past several years.

You might say that this summary is directly complementary to the SPECIES IRIS STUDY MANUAL, without duplicating much information given there, and so SIGNA members might like to know a bit more about it.

The twenty-nine sections include Hermodactylus, Gynandriris and Pardanthopsis as well as Juno, Iridodictyum and Xiphium. Each species is briefly described, together with its principal forms and a fairly full list of synonyms included. Each section opens with a brief review of the taxonomic situation, distribution and chromosome counts, and concludes with information on cultivation. It is well enough known not to need stressing that British views on nomenclature and other matters, like those of other nations, do not always coincide with American views.

The summary is duplicated on paper of the European A4 size, a format not dissimilar to that used in the Study Manual. If members of SIGNA are interested in obtaining copies of the SPECIES SUMMARY the person to contact is the Chairman of the B.I.S. SPECIES GROUP:

The price of the 21 sections
issued to date is L3 (3 pounds).

F.W. Worth,
17, Waterer Gardens
burgh Heath
Tadworth
Surrey, KT20 5 PB, ENGLAND.

As they are issued the sections are sent out automatically to members of the B.I.S. SPECIES GROUP.

ED: The B.I.S. Species Group sent out its first its first NEWSLETTER in April, 1966 having held its first meeting on Feb. 1st, 1966 and had 37 members at that time. The bulletin file I now have is 3/4" thick and has covered many iris subjects- and a few not too close such as crocus. If you wish to join the B.I.S. Species Group the membership fee in 1980 was 1. pounds and the Treasurer was:

*S.H.S Anderton
4 Clabon Mews, London SW1 OEJ, England.*

BOOK REVIEW

Quite some time ago Dr. Akiro Horinaka wrote to me asking if I could obtain a coloured photograph of the Royal Botanical Gardens here at Hamilton, Ont. as he wanted to reproduce it in a new iris book he and his co-worker Kōji Tomino were writing. I sent along a few slides and as well a black and white photo obtained from the R.B.G. files. I was most pleased to receive recently the finished book, with my slide of the mass display of TB irises in the Spring Garden reproduced in colour, along with another labeled sent in by Fischer, although I am ^{not} sure of the location as I cannot read Japanese. I suspect it may be part of the Presby Iris Display Garden at Montclair, N.J. with Barbara Walthers in the middle background. These two

gardens and one other in Japan are the only ones pictured. There are additional colour photos of Japanese irises and eight tall bearded to show the colour range found in this class. A Japanese painting of a water garden and irises, with the irises depicted appearing to be the species type of Japanese irises; obviously old, as is the chest shown above it painted in iris garden scenes. I might add that the frontpiece photo of the Japanese iris garden is a mass of purple and white mixed cultivars, at least a level acre shown and not by any means the entire area planted. Buildings and trees in the background are typical Japanese. A beautiful sight to behold and one the growers can be most proud of.

This was the first all-Japanese book I had ever received, others being partly in English and with the customary page 1 at the front of the book. Page 1 in this book is at the back and continues for 276 pages (5" x 7" size) to the "front". Throughout the book there are numerous black and white photos of iris and gardens, as well as drawings, maps and even some Japanese postage stamps showing iris flowers. Even if I cannot read the text, I am sure this will prove to be a worthy reference work on the Japanese irises. Thanks again Akira for sending me the copy.

AN ERROR & COMMENTS

In SIGNA 24, p. 813, starting ten lines from the bottom of the page: "In *I. songarica* the perianth-tube is very short and distinctly funnel-form." Should read "In *I. songarica* the perianth-tube is from 4 to 6 cm long and linear, whereas in Series Spuriae the perianth-tube is very short and distinctly funnel-form." One complete line was omitted in error and although the grammar was correct, the meaning was anything but correct. My apology is due Mr. Luscombe for this unfortunate mistake.

Mr. Luscombe also had some comments to make re the footnotes to #4. Index that appear to well taken. I quote from his letter:

"Re the "Footnotes" on p. 5 of the Index at the back of SIGNA 24; in SIGNA 21 the eminent Russian botanist V.I. Grubov gives a very meticulous and detailed exposition of the revised nomenclature which is valid now that *I. ensata* Thumb. represents the former *I. kaempferi* Sieb. On p. 641 Grubov particularly states that *I. biglumis* Vahl 1806 is a later synonym of *I. lactea* Pallas 1776, so I cannot conceive of the grounds whereby Dr. Lenz supports *I. biglumis* and rejects *I. lactea* Pallas. V.I. Grubov's article seems to me to be thoroughgoing and final."

ERRATA AND ADDENDA

ED: Once again in the interest of accuracy, present a list of mistakes in previous issues. Please correct. Sent in by Roy Davidson.

My thanks to those who sent AIS Bulletins to fill the gaps. (Roy Davidson)
For the issues 20-22, please make the following corrections:

- p. 576 par. 3: A closer look at this Balls specimen in the autumn of 1979 disclosed that all three prongs to the beak had been similarly broken in the press! (This discussion incidentally brought correspondence and photographs from Germany; Dr. Leep has examined a similar spuria in Turkey several times).
- p. 584 Bottom: Such a hybrid was described as *I. X sancti-cyri* Rousseau 1950. See the AIS Bulletin 235, p. 46.

- p. 596 Mid-page: Note there is no guarantee this seed will give the quality flowers of the original, increase of which is flourishing, and the flowers proved to be of even finer quality than remembered at the last of the season in July in Wales.
- p. 597 Bottom line: Those "fleshy bags" are known too on the roots of *I. minutaurea*, seeming thus to be of diagnostic importance to the Chinensis Apogans.
- p. 605 Ensatae: Read later (p. 641) that Koidzumi had attempted to restore Pallas' name *Iris lactea* as applying to the Ensatae if it is to be considered as a monotypic polymorph, and which (in the opinion of the writer there) actually has priority. Incidentally a reference at Kew called attention to what Maximowicz had (at least tentatively) called "*Iris maackii*", seeming by its capsule to belong here, but which bore lateral capsules on the stalk beneath the terminal spathe, just as do some of the Longipetalae of the SE U.S.A.
- p. 606 Last line: "cream and wine" - in other words they are amoenas.
- p. 638 Title: Breeding Experiments with *I. pseudacorus*. Insert Eckard Berlin and substitute *pseudacorus* for *attica*.
- p. 648 Small & Alexander actually described far less than a hundred, but their enthusiasm brought the total number of taxa to almost that number.
- p. 650 3rd. line from the bottom: Strike the word elevated.
- p. 653 Line 3: Wakehurst Place, the seat of the Loder family, now a National Trust property, is used by Kew as an annex where nature brings to perfection a few things such as the Asiatic and North American *Abies* and *Picea* which do not flourish in the Thames Valley; it is in Surrey, south not east of Kew.
- p. 662 Line 22: Surely these plants from the famous old Reasoner's Tropical Nursery were *I. hexagona*, and *I. hoogiana*?
- p. 686 3rd. line from the bottom" Acorus is an Aroid, not an Irid; related to Calla
- p. 689 Line 7: To conform with what Anderson stated (P. 682) this should read "...too wet for grass and too dry for cat tails (Typha)"; and par. 5: add "especially when dealing with *shrevei*."
- p. 690 Par. 3: Line 3: Read "any constant morphological or ecological distinctions." The author apologizes for these oversights.
- p. 691 Line 12: Dr. Paim had written "size may not be..."
- p. 705 2nd. par: Bruce McIntosh did name the *I. cristata* mentioned; it was pale lilac and he christened it by the quiet name WHISPER. (See AIS bull. 233 p.12)
- p. 707 The first item deals with HOMERIA.
- p. 708 Line 10: 'Holden Clough' - see further p. 705 (also this issue p. 708).
- p. 711 Bottom: There is varied opinion on whether rootless bulbs of Junos can survive, and some evidence that certain of them can be propagated by root cuttings.

(The printer rather messed up the manuscript of the AIS Bulletin #235; under the heading "*Iris X robusta*" on p. 48, note that Edgar Anderson registered one by the name of 'Indomitable' in 1939, a dark blue self. It seems quite possible that this may have gotten into commerce via the water garden catalogues as "Blue Water Flag.")

SMALL SPURIAS WANTED

Mrs. Gladys Klobberdanz, 712 Brook Vale Dr., Modesto, Calif. 95355, would like to locate plants of the small spuria species: *brandzae*, *urumovii*, *pontica* (*humilis*), *sogdiana*, *pseudocyperus* and any colour forms of *I. halophila* with small flowers and short stems. Do write to her if you could supply any of these or others for a small Spuria breeding project.

WORTH REPEATING

(Early AIS Bulletin Extracts)

ED: These were selected by Roy Davidson from his collection of older AIS Bulletins, many of which were donated to him just for this purpose and as references.

EARLY RECORDS OF SIBERIAN BREEDING: Sir Arthur Hort wrote in Bulletin 2 (1921) that although he had never deliberately pollinated *Iris sibirica* or its Asiatic form, as he knew *I. sanguinea*, he had seed from the best plants given to him by Michael Foster, especially from a lovely light blue and that he has in the garden a "rich variation of this tribe," the best of which combined the tall habit of *I. sibirica* and the red spathes and large flowers of the oriental one. I have gone so far (he added) as to have given names to a few of the more striking, called for birds such as Halcyon, Blue Jay and White Throat." We know of course, that Foster was famous for crossing everything and anything that happened to be in bloom, and some of these gift plants may quite well have been unrecorded (or unremembered) hybrids between the two species. At any rate, this may well be among the earliest records of the cross, preceding as it does Miss Preston's account of her intentional interbreeding of the two species using Barr's *I. sibirica* 'Maxima' and *I. sanguinea* 'Snow Queen'.

FIFTY YEARS OF FLAMINGOS: A note in Bulletin 42, p. 65 (Jan. 1932) is surely among the very earliest references to the flamingo phenomenon, as it proved to be "...impressed from a hybridizer's standpoint by an apricot coloured iris with a most vivid orange beard which Mr. Wareham has named 'Goldfish'." Most of us still regard these tangerine or flamingo irises as relative newcomers, forgetting how fast the seasons roll. It is now half a century since their first surprising antecedents commenced popping up in seedling lots. 'Seashell' from Dr. Loomis was exhibited at the Chicago World Fair where it was given a gold medal, and it is surprising to find that this is not a matter of record in the check list. We now enjoy a range of colours (call them pink or not, as you will) in a range of sizes and a range of seasons that neither Wareham nor Loomis could possibly have envisioned when they first saw what Iris had brought them from over her rainbow.

"HUNTING FOR RARE BITS". Ethel Peckham, whose name we all know as that of the lady who so ably commenced the checklists, reported a trek to Baker Island, Maine, in Bulletin 12, p. 11 (Oct. 1924). I find no such island on my maps but perhaps it is now renamed; at any rate they passed Mount Desert and were to find growing "very rankly where the high watermark boulders drop away to swampy ground, *Iris versicolor* with such a variation of seedpods that one wonders if they could not be hybrids with *I. setosa*" a species they were later to find (in its var. *canadensis* of course) on the southwest shore where it was confined to a zone only five feet wide just at the edge of the beach among rocks" but just before conditions became swampy, "that was where *I. versicolor* has sole possession" she observed. Plants were established at the New York Botanical Garden where she was curator for bulbs.

Iris 'Gerald Darby

Roy Davidson

Last April a friend who was returning from New Zealand brought from Jean Collins - at the end of its growing season there - a fine fat rhizome of 'Gerald Darby'. I was, for myself undecided as to whether to let it grow another immediate season without a rest, or to induce it to just sit, which would have given a

year-long dormancy. The plant itself made the decision; after a six weeks period in a cool shaded place in a pot of fat soil, it was put into the potyard garden. We had had June in April, a normal May and then April in June, so that the results might not be those which ordinarily would have taken place; today August 18th, there is a fine flower on one of the four fans. (The fourth flower came in mid-September). The growth was slow and I daresay not as robust as will follow. The leaves are firm and much like the virginicas I have known in California (but which are killed by the first frost for me) and they average about 15 inches with a single one to 21 inches; all were strongly purple-stained basally but this colour is dissipating at present. The stalk is unbranched and also dark-stained, as are the tidy, enwrapping green spathes, at 1 foot up the unbranched stalk; there are four terminal buds; the colour is blue-violet heavily striated on a white ground so that the haft is noticeably lighter with a patch of yellow velvetiness, grading to greenish haft; styles and standards are of about equal length and similar colouring, and the flower, though not a large one, has a very pleasant balance, as does the entire plant.

I am unable to decide to what species to assign it, but feel that should there be a pod of seed, the characters of the seedcoat will be the deciding point. I will wager though it is near to the plant in the American nursery trade during the 30's and 40's as *Iris caroliniana*. (It didn't set any seed).

THE WESTERN CHINA IRIS COLLECTIONS OF REGINALD FARRER.

Tibet & Kansu 1914-15

ED: Excerpted by Roy Davidson.

Farrer is remembered as the "Father" of Rock Gardening (in Britain) though there were those of us who learned from Kenner and from Carrevon and Robinson. What Farrer did however, was to compile the plants suited to rock gardens into the two volume reference THE ENGLISH ROCK GARDEN, and thus he gained eternal fame. He was one of the early twentieth century plant hunters in that treasury of plants in western China, plants decimated or destroyed elsewhere by the forces of the Ice Age. A contemporary of Wilson, Forrest, Kingdon-Ward, he explored regions none of them penetrated and died in the field while preparing to return from the last of his trips.

The complete field notes of plants and seeds as seen by him and his companion on that last journey, William Purdom, have never been published, although excerpts have found their way to light. Barry N. Starling, Librarian for the ALPINE GARDEN SOCIETY (England) has transcribed these notes and from this record is here presented those entries dealing with irises.

Each entry first consists of the initial discovery by the number assigned and any descriptive notes made at that time. Further information is added if the plant was later seen and especially if seed was obtained; in absence of any second notes it is to be assumed that none was gathered, whether so stated or not. He painted a number of the subjects in the field, commencing with April 18, 1914.

- F. 15 *Iris tectorum*. Abundant in masses on steep grassy downs about Hsino-Chuang Ping-Lu. (The true plant, abundant in cool valleys of the foothills in South Kansu. Dec. 1915. Later explained as distinct from F. 758).
- F. 19 *Iris henryi*. In hot, coarse turf on the arid mountain opposite Kini Chow at some 6500 ft. on the loess. Very pretty, with fugacious white flowers and a slightly running, grassy habit. April 28th. (No seed).

- F. 29 *Iris ensata*. Subalpine sward. General in South Kansu, 4-5500 ft. April 18th
 Pretty in quantity, spidery in the individual. Possibly the
 same as F. 413, less possibly as F. 414 & 473. (No seed entry under F. 29).
- F. 55 *Iris ruthenica*. Below Dier-Kan on a lovely promontory above the East Road
 River in turf and amid scant scrub, May 5th. Very dwarf; a
 pretty dark blue flower.
- F. 90 *Iris goniocarpa*. (Dykes) Coarse thick turf on the hot lower flanks of
 Thundercrown 7-9000 ft. & F. 124: a dainty grassy beauty
 with purple-velvet dotting on waxy white falls. Painting and photograph (I.
goniocarpa, the typical form, intermediate between last year's from the turf
 places amid light, low scrub. One of the loveliest of Irids).
- F. 124 *Iris goniocarpa* B. High alpine on Th'crown, very abundant, 10-12000 ft.
 June. Painting and photograph. Beginning a thousand
 feet higher than the last of F. 90 and utterly different in habit and beauty,
 Sept. 18th Nov. 30th.

In a further entry F. 124 is clarified as the "exact" intermediate between the
 two forms of the species that constitute his F. 90; albino plants of this
 intermediate were secured. (Seed entries combined as F. 90 & F. 124, 1916)

- F. 177 *Iris* sp. (Prismaticoid) High grass ridges opposite Choni, 10,000 ft. July.
 (Alpine hay of the Tibetan ranges, rather rare. Poor starry
 purple flowers in grassy tufts. 1916).
- F. 325 *Iris* sp. No further entry. (No. seed).
- F. 496 *Iris ensata* "hyacinthiana". Very abundant all over the loess lands of the
 Sining district, forming dense, wide drifts over the levels and
 plains. May-June. Very fragrant of hyacinths. (...with flowers of soft
 blue & white...It should have a hard poor soil in a hot starved place if it
 is to show its real floriferousness. It covers many miles of landscape in a
 carpet of colour. 1915).
- F. 497 *Iris bungei* "ionosma". Occasional among the tussocks on the bare and torrid
 downs about Tien Tang Ssu ("Cheterton") especially at the entrance
 to Ghyll. Intensely fragrant of violets. Early June. Painting. ("amid
 sun-browned turf....grassy tuffets half-hiding the thin and spidery blooms,
 piercingly redolent of violets. 1915).
- F. 498 *Iris* sp. "hyopgaea". Abundant, not on loess, but on loam, over the great
 grassy fells around Chebson Abbey and over the fells going to Ping
 Fan, 8-9,000 ft. End of May. Painting and photograph. Remarkable for length
 of style and almost underground ovary. (...long grasslike foliage and very
 lovely flowers of rich blue and delicate design. 1915).
- F. 500 *Iris* sp. "kremophylla". Only seen on the ledges of one sheer limestone face,
 just below the last ascent of the Wolvesden Pass, on the warm expos-
 ures. End of May. Yellow or purple flowers, the yellow slightly smaller.
 Painting and photograph. (...a cushiony "chamaeiris", with small flags of
 clear yellow or musty purple. 1915).
- F. 501 *Iris ensata* "kelaina". Wolvesden Valley below the inn. One tuft. In real-
 ity this is only a unique aberration of F. 496, to very dark
 purple. A most interesting and abrupt variation of a plant otherwise
 remarkably stable. Painting and photograph. (No seed).

Further notes: F. 758 (Seed sent last year as F. 15 with doubtful identification
 as *I. tectorum*. The two are certainly distinct but grow together above
 Da-Ba-San. It has a very Moroid look).

#678 *Iris* sp. collected by Purdom while he was on a side trip to the alps
 of Kweite. (No seed).

Iris cretensis.

G. P. Baker.

Reprinted from the British Iris Society Year Book 1935

Of the varied unguicularis from the Greek Islands and Syria there is one which has its home in Crete, though not perhaps confined to that island. It is a very quaint little plant and has a close morphological resemblance to the north-west African plant. With data incomplete, Dr. Turrell, of Kew, has recently described this little plant now figured in Bot. Mag., tab. 9369. In naming it, he is forced into a tentative position, for whilst it would be right to consider it a varietal form of unguicularis, it may also be almost classed as specifically distinct to the African type. Anyone believing in evolution might well hazard that it was in Crete at the time of the old civilization of Minos, that from it the type has been evolved. To the taxonomist the subject is most interesting and Dr. Turrell would welcome any new facts or material bearing on plants centred round *I. unguicularis*.

As far back as 1878 the Bot. Mag. figured an Iris under name of *cretensis*. This plant from its size and colour scheme in no way represents the small plant now under consideration, however much it may be a faithful representation of an Iris from one of the other Greek Islands. Furthermore, I am inclined to think that Dykes in his writings on *I. cretensis* never saw living material of our plant, and based his arguments from information derived from the same source as did T.C. Baker, the writer of the 1878 article. It is my impression that had he seen this small plant he would have been as puzzled to determine its rank as Dr. Turrell has been before definitely naming it *I. cretensis*.

It will be seen from the illustration the natural size of the rhizomes are short-creeping; stems very crowded and surrounded with many narrow linear leaf sheaths of a firm texture, rather on a glaucous shade of green. From the centre of the clustered sheath is a single flower on its tube not more than three inches long. Often as not buried amongst its leaves, standards of a red-violet veined with a deeper violet; falls on a white field, flushed with the same red-violet and deep violet veins; back of falls pale green down to the perianth tube; honey guide deep orange, spreading out laterally; crests lacinate and coarsely toothed on the outer margin.

The story connected with the finding of this small iris, although it has appeared in one of our earlier Iris Year Books, is worth repeating. It was in 1925-26 on my first visit to the Island. I was on a mule; the track in the ascent of Iola passed through a forest of small oak. Ever intent on searching for plants from the saddle, and not watching where the mule was taking me, I suddenly found myself in the branches of a tree which unseated me. I fell into several tussocks of what I thought was grass. The flowers of a small iris suddenly revealed themselves in the tussocks and these no other than this choice little iris.

On another occasion a year or more later, when again riding, my party on reaching a plain at an altitude of 4,000 feet observed a fragrant scent coming from tussocks of what we thought was grass, but which on close inspection turned out to be *I. cretensis*. Again the third year of my visit to Crete when in the company of Hiatt Baker, I suddenly observed tufts of the iris growing on a mud wall. I drew Hiatt's attention to the plants, he doubting my word, and remarking that it was nothing but grass. However, he dismounted and examining the plants said, "G.P., you are right, here is a seed vessel down at the very base of the plant."

DORMANCY AND SURVIVAL:

Letters from Alaska

Angus Robertson to Roy Davidson, Nov. 27, 1979.

I can only report that the two irises (*I. foetidissima* and *I. pseudacorus* 'Variegata') you sent back with me in early March for hardiness testing have both made excellent growth and have gone into winter as apparently vigorous plants. However I have my fingers crossed for their survival. An interesting observation of all the native plants here, including the *I. setosa* down below me on the road near the bay at nearly sea-level, as well as those I moved from there up here--all these plants go dormant when the first hints of winter come. The foliage on all perennials collapses and life forces retreat to the underground parts very readily. Both those two irises and the polyanthus primroses I brought with them showed no signs of that survival mechanism; they kept struggling to grow through preliminary freezes and have disappeared beneath the snow with green leaves intact. The ability to retreat into dormancy may be the key mechanism of winter hardiness. Next spring we shall see. The only remaining green hereabouts are the spruce needles and the pyrolas and to some extent the *Cornus canadensis*.

As ever Robbie.

May 22, 1980

The two test irises came out from under the snows recently and are now making some new growth. I had planted along with them some divisions of the local *I. setosa* and the enclosed picture shows dramatically the point I will try to make. The *setosa*, completely deciduous, began growth immediately, making an explosive response to its accustomed very short growing season. The others are piddling along as if they had a long time to get on with it, which of course they haven't. So along with the habit of retreating to a safe dormancy below ground during winter, this comparison highlights a second adaptation to these northern latitudes, an immediate and fast response to the shortness of the season. The two southern cousins do not have either of these two characteristics, which may be actually more critical to cold survival than their ability to withstand freezing itself, and this they have done. As to the primulas, four survive, two fine, healthy and now with flower, and the other two just survive. More later.

Robbie.

September 2, 1980

Yesterday our winter began up here this year; the birdbath froze solid when the thermometer dipped to 27°F. during the night, and the season is over. *I. pseudacorus* as you saw in the picture, was a slow starter but grew to two multi-leaf fans of 46½ inches and looks fine. *I. foetidissima* didn't fare so well; one struggling fan gave up early and the remaining foliage was less vigorous than last year. I suppose that is precisely what one should have expected from an evergreen species. Will let you know the outcome when spring has come again.

Best Robbie.

(Robertson lives at considerable altitude above the Matanuska Valley and quite away from all moderating maritime influences. It will be interesting to follow up on this, and perhaps other species can be similarly tested for their reaction to such a short season).

It might be the place here to report that the reverse of this experiment is not meeting with too much success. The plant of *I. setosa* var. *interior* sent here (SIGNA p.741) dwindled during the winter following and has not made much of a recovery. In fact, I'd say that at the end of the second growing season it looks gravely doubtful if it will appear at all to try a third season. I believe that it needs to be cold-dry in the dormant period, and the frozen condition is its natural state at that time.

Seed of *Iris setosa* var. *interior* is available in packet amounts from: Sally Walker, who collected north of Fairbanks this past summer, Her address is: 500 East Yavapai, Tucson, Ariz. 85705. She also has the Arizona *missouriensis*.

QUESTIONS, PLEASE

Q. The checklist entries leave me a little less than reassured about "kermesina" and 'Claret Cup' as at one point they are said to be synonymous, but how can this be when the latter is recorded as having been raised from the former?

A. Granted this does seem contractictory; perhaps a review of the terminology as it pertains might help to understand the situation; the two can be considered as synonymous without being identical; that is the odd truth. From the checklists we find the name "Kermesina" was registered to Amos Perry in 1906; it appears as a clonal designation and the symbols "RM" tell it was a "red" of medium intensity. In his monograph (1913) Dykes alludes to a rich red-purple....an approach to crimson, adding that "this form is often catalogued as variety kermesina." Later in the HANDBOOK (1924) he was to refer to "rich red...sometimes known as the variety kermesina." In this publication latin was not set in italic face and the word is not capitalized, so we may safely conclude he intended the same inference in each instance, that of botanical variety, rather than the clonal sense of Perry's registration. Here seems to be the root of the misunderstanding, and we should keep well in mind that such terms are most unfortunately open to rather free interpretation, both from individual idiosyncracies as well as the mood of the age.

But back at the beginning of it all, Linnaeus failed to clarify the distinction that typified the two species *Ii. versicolor* and *virginica*, thus leading Dykes to consider the two together to be called *I. versicolor*. With such mis-guidance, Simonet was later to further confuse the issue, for he reported a chromosome count for *I. virginica* that was actually made on a red-purple form of *I. versicolor*, what we know today as the var. *kermesina*.

It is generally accepted today that *I. versicolor* var. *kermesina* includes all the red-purple forms of the species, one of which is also called 'Claret Cup'. This was grown by H.M. Hill from a plant known to him as 'Kermesina', probably fertilized by its own pollen. It was registered to Hillson (the firm name) in 1948. We have no knowledge of the origin of the parent, although we might fairly assume it could well have been the Perry plant. Hill was an ardent collector who offered many old and authentic, historically significant cultivars in his lists. The photograph in Cave's book THE IRIS is remarkably like a plant still grown as 'Kermesina' and may quite safely be taken as the type on which the botanical variety is based.

The word "kermesina" refers to a particular intensity of "red" colour typified by a dye made from the bodies of females of a scale insect of the genus *Kermes*, from which also stems the word "crimson".

Q. Recently reprinted material on iris rust (SIGNA p.463) brings to mind that we really don't know much about it. Would not the removal of valerian control it?

A. Before you rip out that splendidly fragrant mass of the garden heliotrope, be aware there may be other carries of this iris rust. Topa's report to which you refer reveals the causative organism in Roumania to be the same as that of the common iris rust here, *Puccinia iridis*, and we can presume the life cycle to be analogous to

that of the rust of cereal grains, caused by *P. graminis*, whose alternate host is a species of *Berberis*. This has unfortunately caused a bias against all barberries, even to *Mahonia* which some botanists insist be called *Berberis*, so let's not fault the garden heliotrope alone, at least not yet. A European nettle is also said to be involved.

In 1969 the plant pathology department of the University of California (Berkeley) conducted some controlled experiments using the then new systemic fungicide Plantvax. The work was AIS supported in part and reported in the Bulletin (#201 p.65; #204 p.32) but neither the organism nor its alternate host was mentioned. In view of the extreme ugliness of this rust and its possible consequence to commercial growers we wonder that more studies are not instigated. Topa inferred by his list of irises infected that no species could be expected to be immune--bulbous or rhizomatous, bearded or beardless. Although *Hermodactylus* was also mentioned, it is apparently unknown whether other iridaceous genera can be affected, *Crocus*, *Gladiolus*, *Sisyrinchium* for example.

Puccinia iridis is one of the very large family of rusts belonging to Pucciniaceae and responsible for about half of the rust diseases of plants, including cereals, hollyhocks, snapdragons, et al. Members of the highly specialized Order Uredinales of Basidiomycetae, in their life cycles may involve as many as four distinct spore forms, each in its own time and in the presence of a specific host, usually one of a pair of alternate hosts.

The WORLD OF IRISES (p.342) tells that bearded and bulbous irises are especially prone, as are certain native species, *Ii. tenax*, *fulva*, *missouriensis* and *versicolor*. High humidity in combination with only moderate temperature favors the spread as evidenced by the rust spore formation, which can be spread from leaf to leaf of irises at this stage. It is commonly severe in the southeast and relatively uncommon in the northwest. Dark brown on blackish spores formed later carry the parasite over the winter to infect the alternate host (yet unidentified in this country). A rigid sanitation regime is the most effective control, the burning of all old leaves. The red spores are said to overwinter in leaves not severely frozen. A second rust of iris is reported as caused by *Puccinia sessilis*, found at least on *I. versicolor* with the grasses of the genus *Phalaris* the alternate host, its spores blackish. Conflicting reports, however, fail to distinguish if this is actually a species separate from the black spore phase of the *Puccinia iridis*.

Pirone (N.Y. Botanical Garden) in DISEASES AND PESTS OF ORNAMENTAL PLANTS, 5th Edition, 1978, recommends a spray control using one of the Ferbam products. Ben Hager reports they've been affected this wet season for the first time, and that along the California coast, where it presents an annual problem, PLANTVAX is used extensively.

Roy Davidson.

MISCELLANEOUS COMMENT

Roy Davidson

SEED RECORD ON 'Holden Clough'.

A rereading of Mr. Patton's original report of this hybrid iris of unknown quantity tells us that he had occasional seed but that it didn't appear to have any promise. Jean Collins has written that she also has had seed on more than one occasion, and that she may possibly have a plant from one of the early lots, but she's

no so boasting until it has flowered. This year there was one further seed and it is not very "promising" either, but it will be planted. The seed reported did not germinate, whether due to its abnormality or its unfair handling is not to be guessed at.

I. lacustris IN SCOTLAND

The editor has asked for comment on Elaine Hulbert's observation, along with those of myself and Jean Witt, as to the phenomenal success of *I. lacustris* as a popular and easy cottage garden subject in and around Edinburgh. (Signa p.703). In the autumn of 1979, I was to observe in the BOTANIC GARDEN in Edinburgh. It appeared to be the size expected of *I. lacustris* all right, and not being in flower it was difficult to form an opinion; however, there were a few long dry and wispy perianth tubes that led me to think it was actually a small *I. cristata*. Panayoti Callas has observed that the rhizomes can make an important distinction, that those of *I. cristata* are familiar as spreading over the surface and rooting down at the thickened outer end, but that those of *lacustris* are subterranean. By this point, the Edinburgh plants are not the latter; they were making the matted tangle in perfect view.

POLJAKOV ON ENSATAE

Translation by Michael Rogoyski

Article by Roy Davidson

Some time ago our British member, Michael Rogoyski, sent me several of his translations of obscure Russian material dealing with irises. Some of these have figured in our editorial affairs from time to time, yet they have not been published. We are of the opinion that, although we may not necessarily be in agreement with the opinions expressed, it is important that they be made available as part of the total literature of the iris, and we do wish Mr. Rogoyski to know of our gratitude.

One of these papers is from the undated No. 12 issue of the BOTANICAL MATERIALS (Leningrad) in which P.P. Poljakov published on distinguishing the diversity within the Ensatae Irises based on the seed morphology; translation of the key follows:

Series Globosa

Iris ensata Thunberg - elongated, spherical seeds.

Iris iliensis Poljakov, new species* - nearly spherical seed, slightly compressed from the sides and elongated to a slight beak.

Series Rhomboidea

Iris pallassii Fischer - shiny, irregularly rhomboidal seed.

Iris biglumis Vahl - semi-spherical seed, flatly compressed on two sides.

(*Werckmeister's CATALOGUS IRIDIS gives 1950 as the date of publication of the name *Iris iliensis*) A note here might help explain some of the complications involved. There is no meeting of minds as to just how many species are involved within the Ensatae. In THE WORLD OF IRISES, Lenz confirmed the attitude taken in SIGNA in past discussions, that if the group is to be considered as a single polymorph, then *Iris biglumis* Vahl is the name to be used by acceptance. Irregardless, there has been some seed distributed under some of the various other names, and it will be interesting to know if members who have grown any of them find the above to describe the seed of what they have. It has been observed that the degree of the angularity of iris seed

may depend quite considerably on growing conditions, number of seed per capsule, etc., and that most, if not all the seed from the garden forms known as 'Hyacinthiana' and 'Lactea' have seed that is of the Globosa persuasion, distinctly apherical and with a "neck" - what would be called pyriform, pear-shaped or with slight beak.

(We should also call attention to the fact that *Iris ensata* as described originally by Thunberg is not the species here referred to and that therefore the description of the seed is not accurate for that species as we now know it).

The following is quoted from THE ALPINE GARDEN SOCIETY QUARTERLY BULLETIN, June 1980:

A SPECIAL PLEA

The almost universal dropping of Latin as a school subject may be mourned by some and hailed avidly by others--it is perhaps partly true to say that the two opinions are likely to be held by the older half of the population on the one hand and the younger on the other, leaving aside those who could not care less either way.

Be that as it may, there is a greatly increasing tendency for people to misuse words of latin origin because of this omission and an innocent and friendly letter from one alpine gardener to another may well arouse ire and a well-aimed cast at the waste-paper basket instead of a wish to parcel up a much-sought plant or packet of seed.

A genie is he who emerges from a bottle--he and his brother are genies. A genius is someone like Einstein--he and Newton were geniuses. A genus is a group of plants sharing certain characteristics--two of them are genera, not genuses.

A species is a group of plants within a genus which share further characteristics. Two such groups are species. Species is the singular and the plural, like "sheep". Specie is gold and silver coin and has no singular. One should not, therefore, refer to "specie roses" or declare that "it is a specie".

SIGNA SPECIES SLIDES

All our members by now should be aware that SIGNA has a very comprehensive collection of species slides available for borrowing. The fact that so few of you, only four last year, have made use of them must mean their usefulness has been overlooked. They are just the thing for a feature showing at a winter meeting of any iris group, not just the species hounds.

This year has seen the slide collection augmented by lovely clump of *I. tectorum* from Robert Ward of Little Rock and eight lovely slides of arils from Khaim Rinsky of Israel. As well twenty slides of arils and seedlings arrived from Sharon McAllister of Las Cruces, N.M. and four slides from Francesa Toole; two being of *I. reichenbachii* and the others arils.

These contributors would appreciate their slides being shown and enjoyed by others, so don't let them down and have me report next fall that only four members were interested enough in species to view these slides.

B.R.

MISCELLANEOUS NOTES

Jean Witt

More notes from Leo Michl, Lebanon, Missouri. He writes that the soils in his area are not as "sweet" as the limestone rock would suggest, due to the pervasive presence of tannic acid residues from the oak forests. This is a factor in his being able to grow Pacific Coast Natives successfully in a limestone region. "*Iris arenaria* has been especially fine this year, and of course, *I. cristata* stops all the ladies as usual. I've lost *I. gracilipes*--again." To add to all his other problems, May 7th brought frost to 28°F., catching new growth and rhododendron flowers. But you know how it is--Iris growers don't quit!

Elaine F. Hulbert, Cos Cob, Conn. would like to put forth a theory about borers and asks for comments from our members:

"Why, when *Ii. pseudacorus*, *versicolor*, *virginica* and the Louisiana irises are found growing wild or naturalized do they invariably prefer swamps or streamsides? Why--when they can be cultivated as well or better on dry land--don't they colonize the higher banks or rich clearings in woods?

It is natural that gardeners have for long supposed that these species need wet conditions because that is where they are found; but those who have tried them in their borders have been pleasantly surprised at their adaptability. I believe that all of these American wildings (and gone wild *I. pseudacorus*) are simply avoiding the iris borer. Having observed native and naturalized stands of *I. pseudacorus* *I. versicolor* over some years in Connecticut and New York State, I can tell you that they do attempt to spread up the banks of ponds and streams--but they fail. Only the part of the clump with wet feet remain healthy. Notably, this is the only part that produces mature capsules.

The wild irises of the Gulf Coast apparently never had borers--but they were always found in swamps. Joseph Mertzweiller reported in the bulletin of THE SOCIETY FOR LOUISIANA IRISES for 1970-71 that in his garden in southern Louisiana--the borer moved in and did a lot of damage before being controlled with chemicals.

If we in the Northeast grow all these irises successfully in borders it is because we control the borers--perhaps inadvertently--by routines of spraying and general hygiene. If they were left to themselves I don't think they would last long, unless they were lucky enough to have a pool to retreat to for the crucial few weeks when the borer is in the rhizomes."

(Note by Jean Witt:) We don't have the iris borer in the Pacific Northwest, allegedly because our summer drought interferes with its life cycle. Our naturalized *I. pseudacorus* stands on Lake Washington remain in the wet swampy margins and do not move up slope--presumably because their seedlings cannot make it through the summer drought in upland locations. However, I feel Elaine might just have a point with regard to the native species in the Northeast, and I hope our membership will respond with comments on her suggestion. Would growing the wet-land species in beds that could be flooded during the crucial borer season be a solution to the Problem?

Why did my plants of *I. lacustris* wait until the end of August to bloom? Did it take all summer to build up enough heat to bring out the buds? We saw this species in the BOTANIC GARDEN at Edinburgh, Scotland in 1978 in bloom in September--perhaps it tends to bloom late in climates with cool summers--in any event, it's nice to have this modest show at summer's end. The small blue-violet flowers are really nice; and after getting off to a slow start, the plants now seem to be doing quite well.

J.G.W.

EDITORIAL COMMENTS

Bruce Richardson

As I type this final page of SIGNA 25 the afternoon of Nov. 27th, our first real snowfall of 2 inches lies beyond my office windows and signifies that fall is finished and real winter is not far away. It also means that any real amount of fall work outdoors is over too, although I do like to prune the shrubs around the house in the fall and have about 1/3 of a bushel of acorns yet to plant in the woods. It is 12 days since I started cutting the stencils for this issue, with a backlog of only one already cut as a left over from the April issue.

Fall is always a busy time here with our apple orchard to harvest, with no time to even think of SIGNA until that was completed. As well I had an extra job to take care of this fall, moving as many iris as could best be fall moved, due to our finally obtaining a four acre severance from the farmland. A new location for many of our plants had to be found within the four acres, so all the species such as the Siberians, Junos, Spurias, our lilies, three kinds of raspberries and some 200 junipers to line the laneway and the new planting area. The rest of the species will be moved in the spring or August, along with strawberries, daylilies and other odds and ends. Hardly an ideal way to commence retirement as if a farmer ever really does. We battled the Regional Government for two years to get this severance and enable us to retain this home I built in 1950 to last us as long as we lived in retirement. It might be of interest to know that one of the key reasons we were able to succeed was because of the unique collection of species iris, as well as some other rare plants, especially a weeping type cut-leaf maple (only two are known, the other one in the Royal Botanical Gardens collection).

The weather has been unusually variant in the east this summer, but near normal here, except for a bit too much rain at wheat harvest. In spite of no snow cover last winter, the iris came through never better, with no heaving, perhaps because of the deep frost by the time the ground thawed the heaving period was past. The eastern seaboard states were drought dry most of the summer, but southern Ontario near normal; Central Ontario and the near north about as wet a summer as seen for many years and north and west Ontario about the driest on record with the worst fires in 50 years in the forest over much of that area. This is 1000 miles west of the central area that was so wet.

You will note this issue contains considerable in the way of letters, perhaps in response to my suggestion it "was like pulling teeth" to get our members to write. Looks like I touched a tender nerve maybe? Anyway, whatever the reason this is the response we want and there is plenty in this issue to stir you to send comments. A couple of people have asked me for directions for germinating Japanese iris and I realize this is one area where the previous germination ^{issue} fell down. We just didn't have anything to print! How about coming up with some answers to germinating these seeds; perhaps our knowledgeable Japanese members can help us out here? ~~not on time. April 1st mainly because of the late arrival of the seeds from the~~
The Species Iris Robin sits on my desk, having arrived a couple of days ago, but no time to excerpt it for this issue, so long delayed already. It will be a start for SIGNA #26, but there is little else on hand for that issue. It will come out on time, mainly because I won't have time for it later on in the spring, as that time will again be a busy one with moving 300-400 junipers to our NORTHLAND, along with 300 seedling red oaks. Right now it looks like we will be running the orchard yet another year as the climate for selling development land is not a healthy one right now, so business as usual down on the farm. With some cooperation from the Post Office this should reach you before Christmas, so I do wish you the best for the season and the New Year.