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SIGNA



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THE SPECIES IRIS STUDY GROUP

OF NORTH AMERICA #20

THE SPECIES IRIS GROUP OF NORTH AMERICA

April, 1978 - NO. 20

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EDITORIAL COMMENTS

Bruce Richardson

Usually this first page of SIGNA is reserved for the Chairman's remarks, but Roy Davidson has written quite a bit elsewhere in this issue and left this page blank.

As has been mentioned several times in past issues, your old executive is wearing out and need replacement. This subject will come up at the species meeting of the A.I.S. convention this spring, and Roy is definitely expecting to find a replacement at this meeting. He has had health problems, among others, this past summer as most of you know from what has previously been written in SIGNA and feels he must cut down, not only here but in other fields as well, so please come prepared to discuss this seriously, with suggestions as to what can be done to replace Roy. It is really urgent and has already been long delayed.

Homer Metcalf has set up the bookkeeping involved with SIGNA in a more simplified form than formerly, with the idea in mind that it can be handled easily and with less work of a skilled nature when a new secretary takes over. Most of the recording and collection of dues will be done by the A.I.S. and the computer they employ, so correspondance will be the main part of the work. As many of you know, Homer will be retiring in about a year from now and plans to travel a bit, so will not be able to continue the work of the Secretary. It is not too soon to find someone to take over this most important post.

Those of you who have patronized the Seed Exchange will know that this is the last year for Jean Witt, who in the past has done such a wonderful job of managing this important function of SIGNA. Important to our members who are enabled to obtain sometimes rare seeds with little bother, and as well important to the finances of the Group in these difficult times of inflation and constant demand for money. It is indeed a pleasure to be able to say that the healthy financial aspect of the Group is due largely to the funds generated by the Seed Exchange, although the unpaid labor of your Executive is no small contribution either. Dues alone would not pay the publication costs of SIGNA - and it is low compared to commercial printing rates.

Next season the Seed Exchange will be operated by the IRIS SOCIETY OF MINNESOTA, so seeds should be sent there for the exchange. Not sure just who will be the mailbox, but if you send them to Joan Cooper, at least until we know different, they will arrive at the right destination. Her address is listed under the Officers of the Society. Jean tells me we are still not getting enough seed to meet all the demand, so collect all you can this fall. Seed of *I. hexagona* has not turned up and we hope our Mississippi members can come up with a supply. We would like to ask our travelling members to look out for seed, and if you are in Alaska try and locate all forms of *I. setosa*. Perhaps you have friends there who could gather seed, especially the forma *platyryncha* which has full sized standards instead of setae.

No luck at finding a white flowered form of *I. setosa* var. *canadensis*, so would some of our members who are growing the white flowered *I. setosa* from Japan try and cross it with the very dwarf forms from eastern North America? Remember, it will take at least two generations to recover a dwarf white from such a cross, and perhaps longer.

The B.I.S. Yearbook for 1977 has arrived with its usual assortment of interesting articles, including a number of species. It is noteworthy that three quarters of the

Continued on p. 598

SEARCH AND RESEARCH: TURKEY YELLOW

Roy Davidson

This will be a report by default since I was to spend the summer in Britain rather than in the field with the John Watson expedition in Turkey. I'd had the opportunity before departure However, to research some stations in the herbarium at Kew where Brian Mathew was most helpful, having spent some time in the Turkish field himself.

We wanted particularly to refind the now famous "Turkey Yellow Spuria", and the following information should be added to that in the A.I.S. Bul. 226, p. 51.

Exant at Kew are two sheets relating to this yet misunderstood aberrant yellow iris. The first was collected in capsule 23 September 1934 by E.K. Balls and is recorded as E.K.B. B2045a and it was from "...low meadows...broad river valleys, probably flooded in spring..." at Memla, between Iskilip and Cankina at 2000 ft. This is somewhat NE of Ankara, perhaps 100 miles distant, in the central Anatolian plateau on the Kizil (Halys) River. The beaks of the capsules are very short on this Balls specimen.

The second is from an area geographically rather remote from the first, from the province of Mugla on the Mediterranean coast of southwestern Turkey in a quite different ecological habitat, specifically "...at Dalman,, in large clumps...places marshy in winter, collected by P.H. Davis (author of FLORA OF TURKEY published at Edinburgh) and numbered 13573. It was in capsule when taken on 26 July, 1947, and the capsules are quite distinct from those of the Balls specimen, possessed of a long attenuated beak, fully an inch in length.

Seedlings from this last flowered at the Royal Botanical Garden, Kew, and all were yellow. A third sheet in the folder is of one of these garden plants, dated 3 July, 1953, and it bears the notation "Colour of *aurea*, shape of *monnieri*."

Through reading Lenz's record of the source of the seed from which he grew his seedling dubbed "Turkey Yellow" we see that it was not this latter, and certainly was from closer to the Balls collection, although "environ of Ankara" would not seem likely to be as far distant as 100 miles; perhaps this is more frequent than we have been led to believe. The Mugla station could be as far as 300 miles from Ankara, as far as 400 miles from the Balls collection site.

And now the tough truth; although both areas were diligently searched this past summer, not one iris could be found.

Iris stylosa is still with us, in the catalogues at least, about 80 years after the botanists, aided by leading gardeners such as William Robinson and Gertrude Jekyll, started to tell us that *I. unguicularis* had prior rights, and should supplant it. There were many good reasons for ignoring "unguicularis" for Desfontaines discovered the plant in Algeria a year or so before the Abbe Poiret. He merely waited rather longer before publishing the name "stylosa" in a botanical flora, the famous FLORA ATLANTICA, whereas Poiret published his almost as an aside on a travel book, VOYAGES EN BARRARIE. Desfontaines ignored "unguicularis" for its ugliness, its improper birthplace, and because he found the first anyway."

A RECLASSIFICATION OF IRIS SPECIES BEARING ARILLATE SEEDS

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In his revision of the genus *Iris* L., Rodionenko (1961) placed in the subgenus *Iris* only those species with aggregations of multicellular hairs (beards) on the outer perianth segments. Beardless rhizomatous and nonrhizomatous species were placed in other subgenera, or were transferred to genera other than *Iris*. In his system, subgenus *Iris* consisted of section *Hexapogon* emended to include all species with arillate seeds, and section *Iris* containing the remaining non-arillate species. *Hexapogon* consisted of subsection *Regelia*, *Pseudoregelia* and *Oncocyclus*. *Regelia*, however, had the same circumscription as subsection *Hexapogon* (Bunge) Bentham emend. Lawrence (1953), and Rodionenko's use of the name *Regelia* was superfluous (see also under section *Hexapogon* below)

Data published since the Rodionenko revision of the genus make even more obvious the heterogeneous nature of subsection *Hexapogon* (Bunge) Bentham emend. Lawrence and its synonym *Regelia* (Dykes) Rodionenko. The following new system for the arillate species in *Hexapogon* is proposed.

Iris subgenus *Iris*Section *Iris* (This type section of the subgenus lacks arillate species.)Section *Hexapogon* (Bunge) BakerSection *Regelia* LynchSection *Oncocyclus* (Siemssen) BakerSection *Psammiris* (Spach) J. TaylorSection *Pseudoregelia* Dykes

The essential features of this reclassification are (1) the segregation of species previously included in section *Hexapogon* (Bunge) emend. Rodionenko (1961) into five distinct taxa, and (2) the designation of a type of the section *Regelia* Lynch. A compendium of literature relevant to section *Iris* is also included.

Iris subgenus *Iris*

Iris sect. *Pogiris* Tausch in Hort. Canalius I (1823); *idem* in Schultes Additamentum Mantissum, 2:369 (1824), *quoad typus*, -- *Iris* subgen. *Euiris* Alefeld in Bot. Zeit. 21:296 (1863), pp.; *non* Boissier Fl. Orient., 5:118 (1884); *non* Klatt in Linnaea, 33:591-604 (1866). -- *Iris* sect. *Euiris* in Bentham and Hooker, Gen. Pl. 3:687 (1882). -- *Iris* sect. *Pogiris* Tausch emend. Lawrence in Gent. Herb., 8(4):353 (1953). -- *Iris* sect. *Iris* emend. Lawrence in Gard. Irises 142 (1959).

Type of the subgenus: *I. germanica* L.

Species composing subgenus *Iris* are characterized by distinctly rhizomatous stems, and flowers with beards of multicellular hairs on the outer, and occasionally the inner, perianth segments.

Key to the Sections of Subgenus *IRIS*

1. Seed without an aril; capsule usually dehiscent very near apex, but if dehiscent considerably below apex, then some internal placentation ruptured at maturity
.....Section *Iris*

1. Seed with conspicuous creamy-white aril; capsule dehiscent subapically or laterally; mature placentation intact 2
2. Both inner and outer perianth segments with conspicuous more or less linear beards. 3
3. Spathe valves (bracts) 3 or 4; rhizome usually compact, slowly creeping; seed with small aril; chromosome number of counted species: $n=9$ Section *Hexapogon*
3. Spathe valves 2; rhizome stoloniferous, readily spreading; seed with large aril; chromosome number of counted species $n=11$Section *Regelia*
2. Only outer perianth segments bearded, or if all segments bearded then beards on outer segments scattered 4
4. Beard on outer segments scattered; spathe 1-flowered; seed with large aril.Section *Oncocyclus*
4. Beard on outer segments linear; spathe usually 2-flowered; seed with aril much smaller than seed 5
5. Rhizome creeping or spreading by stolons; flowers essentially monochromic though sometimes lightly veined.....Section *Psammiris*
5. Rhizome compact, gnarled; flowers usually dichromic, spotted.Section *Pseudoregelia*

Iris section *Iris*

Iris subgen. *Pogiris* Tausch l.c.; *idem* in Schultes, l.c.--*Iris* subgen. *Pogoniris* Spach in Ann. Sci. Nat. ser. 3, 5:103 (1846); *idem* in Hist. Nat. Veg., 13:48-68 (1846), p.p.; Klatt in Bot. Zeit., 30:515 (1872), p.p.; Baker in Journ. Linn. Soc. Lon. Bot., 16:143 (1877), p.p.; Randolph in Bull. Amer. Iris Soc. 109:4 (1948), p.p.; --*Iris* subgen. *Euiris* Alefeld in Bot. Zeit., 21:296 (1863), p.p.-- non Boissier, l.c. non Klatt l.c.--*Iris* subsect. *Pogoniris* (Spach) Benth in Benth and Hooker, l.c.; Pax in Engler and Prantl, Nat. Pflanzenfam., 2(5):145 (1888), p.p.; Lawrence l.c.--*Iris* sect. *Pogoniris* Baker, l.c., p.p.--*Iris* subgen. *Eupogoniris* Randolph, l.c.

Type of the section: *I. germanica* L.

In his reclassification of *Iris*, Lawrence (1953, 1959) divided subsection *Pogoniris* into the series *Pumilae* and *Elatae*. To the former were assigned those species which are less than 3 dm tall, and either acaulescent or if caulescent, then not branched. Series *Elatae* comprised the taller species which are distinctly caulescent and branched. Although he cited these taxa, Rodionenko did not include them in his system.

Recent collections of bearded irises have included forms which could justify emending series *Pumilae* to include the low growing species which are nevertheless caulescent and branched, e.g., *I. furcata* MB, *I. timofejewii* Woron., and perhaps others. Anyone systematically treating these non-arillate species should include such emendation if the taxon is retained.

Because of the numerous morphological, karyological, generic and distributional differences between the arillate and the non-arillate species, Rodionenko (1961) removed arillate species from section *Iris*, based on *I. germanica* L., and gave them sectional rank collectively in *Hexapogon*. His circumscription of section *Iris* is retained here.

Iris section *Hexapogon* (Bunge) Baker in Gard. Chron. ser. 3, 5:787-788; Boissier, Fl. Orient., 5:119 (1884).

Iris subgen. *Hexapogon* Bunge ex Alefeld in Bot. Zeit., 21:296 (1863), nom. illegit.; Baker in Journ. Linn. Soc. Lon. Bot.; 16:147 (1877), nom. illegit.--*Iris*

subsect. *Hexapogon* (Bunge) Benth in Benth and Hooker, Gen. Pl., 3:687 (1882); Pax in Engler and Prantl, Nat. Pflanzenfam., 2(5):145 (1888).

Type of the section *I. falcifolia* Bunge.

Species included within the section:

- I. falcifolia* Bunge 1847
- I. longiscapa* Ledebour 1853

The name *Hexapogon*, first used by Bunge (1847) in describing the new species *I. falcifolia* and *I. filifolia* Bunge (an invalid synonym of *I. longiscapa* Ledeb.), was taken up by Alefeld (1863) for a sub-genus circumscribing the two Bunge species and *I. susiana* L. Because *I. susiana* was the type for Spach's earlier subgenus *Susiana* (1846), Alefeld's use of *Hexapogon* was illegitimate (Article 63, International Code of Botanical Nomenclature (ICBN), 1969). Baker (1876) transferred *I. susiana* to section *Oncocyclus* and first validly published *Hexapogon* as a section comprising *I. falcifolia* and *I. filifolia* Bunge only. (The following year he raised *Hexapogon* to the rank of a subgenus, but his use of the name at that rank was illegitimate (Article 65, ICBN).)

In 1892 Baker transferred the *Hexapogon* species to subgenus *Pogoniris*, and introduced the name *Regelia* for a subgenus containing three species described by Eduard Regel. Although it is apparent that Baker intended to segregate *Regelia* from *Hexapogon* and *Pogoniris*, he did not adequately characterize *Regelia*, and it remained a *nome. nudum* until validly published as a section by Lynch in 1904. A type was not designated.

Dykes considered *I. falcifolia* and *I. filifolia* Bunge to be synonymous, and transferred them (1913) from *Pogoniris* to section *Regelia*. Because one or the other of these species of *Hexapogon* must be considered the type for the earlier section *Hexapogon* (Bunge) Baker, Dykes' use of the name *Regelia* was illegitimate (Article 63, ICBN). Rodionenko's use of *Regelia* for a subsection (1961) was illegitimate for the same reason. Lawrence did not acknowledge section *Regelia* Lynch, and combined *Regelia* Dykes, including *Hexapogon*, with *Psammiris* species in subsection *Hexapogon* (1953, 1959).

I. falcifolia and *I. longiscapa* are xeritic species of the Turkmenian and Uzbekian deserts in southcentral U.S.S.R., and a few similar but restricted localities in Iran and Afghanistan. They are characterized by weakly or non-stoloniferous rhizomes, very narrow leaves, thin and leafless stems, and spathes of 3 or 4 bracts enclosing 2 to 5 small flowers with all perianth segments bearded. *Iris longiscapa* has been examined karyologically (Randolph and Mitra, 1961), and is the only bearded iris species yet counted with the diploid chromosome number 18.

Iris section *Regelia* Lynch, Bk. *Iris* 56 (1904): Fedtschenko in Komarov, Fl. USSR, 4:539 (1935): *nec* Dykes, Gen. *Iris*, 123 (1913), p.p., *nom. illegit.*

Iris subgen. *Regelia* M. Foster ex Baker, Handbk. Irideae, 1 (1892) p.p., *nom. nudum* - *Iris* subgen. *Pogoniris* Randolph in Bull. Amer. Iris Soc., 109:4 (1948), p.p., *affin. sect. Regelia* Lynch; *non* Spach (1846), l.c.; *non* Baker (1876), l.c. - *Iris* subsect. *Regelia* (Dykes) Rodionenko, Gen. *Iris* L., 198-199 (1961), p.p., *nom. illegit.*

Type of the section: *I. korolkowii* Regel.

Species included with the section:

- I. afghanica* Wendelbo 1972
- I. darwasica* Regel 1884
- I. heweri* Grey-Wilson & Mathew 1974
- I. hoogiana* Dykes 1916
- I. korolkowii* Regel 1873
- I. kuschkensis* Grey-Wilson & Mathew, ? edit.
- I. lineata* M. Foster 1887
- I. stolonifera* Maximowicz 1880

To my present knowledge, a type of section *Regelia* as circumscribed by Lynch has not previously been designated. After a study of that author's protologue, and in an attempt to preserve the originally intended and the current usage of *Regelia* (Article 7 B, ICBN), I have selected and here designated *I. korolkowii* Regel as the type of this section.

The *Regelia* Species are essentially montane species characterized by more or less stoloniferous shizomes bearing unbranched scapes each with a 2-bracted spathe containing 2 (rarely 3) flowers with all perianth segments bearded. They differ from all other arillate sections except *Oncocyclus*, with which they show the greatest affinity, in general distribution, plant habit, spathe and/or floral morphology, and, except for chromosome numbers in *Psammiris* and *Pseudoregelia*, in karyotype. Intersectional hybrids between *Regelia* and the remaining arillate sections (except *Oncocyclus*) have been difficult or impossible to obtain. The rare hybrids produced have been sterile.

In contrast, there is marked fertility in intersectional diploid hybrids between *Regelia* and *Oncocyclus*, and, excepting the large metacentric chromosome of *Regelia* species, a striking similarity of haploid karyotypes in the two sections. The taxa are differentiated, however, by the weakly or non-stoloniferous rhizomes, 1-flowered spathes, and widely scattered beards on the outer perianth segments of *Oncocyclus* species.

Iris section *Oncocyclus* (Siemssen) Baker in Gard. Chron. ser. 3, 5:788 (1876).

Oncocyclus Siemssen in Bot. Zeit., 4:706-707 (1846). - *Iris* subgen. *Susiana* Spach in Ann. Sci. Nat. ser. 3, 5:110 (1846); *Idem* in Hist. Nat. Veg., 13:70-71 (1846). - *Iris* subgen. *Oncocyclus* (Siemssen) Alefeld in Bot. Zeit., 21:296 (1863); Baker in Journ. Linn. Soc. Lon. Bot., 16:142 (1877). - *Iris* subsect. *Oncocyclus* (Siemssen) Bentham (1882), *l.c.*: Pax (1888), *l.c.* - *Iris* subgen. *Pogoniris* Randolph in Bull. Amer. Iris Soc., 109:4 (1948), *p.p. affin gen. Oncocyclus* Siemssen; *non* Spach (1846), *l.c.*; *non* Baker (1876), *l.c.*

Type of the section: *I. paradoxa* Steven.

Species included within the section:

- I. acutiloba* C.A. Meyer 1831
- I. antilibanotica* Dinsmore 1933
- I. atrofusca* Baker 1894
- I. atropurpurea* Baker 1889
- I. aurantica* Dinsmore 1933
- I. barnumiae* M. Foster & Baker 1888
- I. biggeri* Dinsmore 1933
- I. bismarekiana* (Dammann) Regel 1890
- I. bostrensis* Mouterde 1954

- I. camiliae* Grossheim 1950
- I. calcaria* Dinsmore *inedit.*
- I. cedretii* Dinsmore ex Chaudhary 1972
- I. damascena* Mouterde 1967
- I. demawendica* Barnmueller 1902
- I. ewbankiana* M. Foster 1901
- I. gatesii* M. Foster 1890
- I. grosshelmi* Woronov 1928, ? *hybrid nat.*
- I. hauranensis* Dinsmore 1933
- I. haynei* (Baker) Malliet 1904
- I. heylandiana* Boissier & Reuter 1977
- I. hermona* Dinsmore 1933
- I. iberica* Hoffmann 1808
- I. kirkwoodii* Chaudhary 1972
- I. lineolata* (Trautvetter) Grossheim 1950
- I. lortzei* Barbey 1881
- I. lupina* M. Foster 1887
- I. lycotis* Woronov 1915
- I. maculata* Baker 1876
- I. manissadjani* Freyn 1896
- I. meda* Stapf 1885
- I. nigricans* Dinsmore 1933
- I. paradoxa* Steven 1844
- I. petrana* Dinsmore 1933
- I. polakii* Stapf 1885, *p.p.*
- I. sari* Schott 1876
- I. schelkownikowii* Fomin 1907, *Hybrid nat. ?*
- I. schischkini* Gossheim 1950
- I. sofarana* M. Foster 1899
- I. sprengeri* Siehe 1904
- I. susiana* Linnaeus 1753
- I. urmiensis* Hoog 1900
- I. yebrudii* Dinsmore ex Chaudhary 1972

Of the arillate irises, the section *Oncocyclus* is the most refractory to systematic treatment. The situation has resulted from the numerous interspecific phenotypic variations among populations and collections of apparently valid species, and the frequency of natural hybridization among sympatric species and the use of specific epithets for hybrids and their notomorphs, and variations in interpretation and use of differentiating criteria among taxonomists. It is possible, therefore, that the list immediately above lacks the names of valid *Oncocyclus* species, and includes names which may be synonymous with others. It should be considered a tentative listing in lieu of more thorough examinations of putative species and hybrids, and of systematic analyses based on characteristics perhaps somewhat more instructive of this section than gross morphology and habitat alone.

The *Oncocyclus* species are found in dry desert and montane habitats from the eastern Mediterranean coastal region east and northeast into Iran, Afghanistan and Turkmenian U.S.S.R. They are characterized by weakly or non-stoloniferous rhizomes, more or less falcate radical leaves, and a scape bearing a 2-bracted spathe containing a single flower. Both inner and outer perianth segments vary remarkably in outline among the species, from the much reduced sepals of *I. paradoxa*, the type for the section, to the narrow and acutely pointed segments of the *I. meda* - *I. acutiloba* complex and the wide rounded perianth of *I. susiana* and similar cultivated species. All, however, possess a beard of multicellular hairs scattered widely and often densely along the haft and onto the blade of the sepal.

Iris section *Psammiris* (Spach) Taylor comb. nov.

Iris subgen. *Psammiris* Spach in Ann. Sci. Nat. ser. 3, 5:110 (1846); *idem* in Hist. Nat. Veg., 8:69-70 (1846).

Type of the section: *I. humilis* Georgi.

Species included within the section:

I. bloudowii Burge ex Ledebour 1833

I. humilis Georgi 1775

? *I. mandschurica* Maximowicz 1880

I. potaninii Maximowicz 1880

Because there has been some reluctance to reject *I. flavissima* Pallas as a later synonym for *I. humilis* Georgi, a brief nomenclatural history of this species is included here.

Messerschmidt found a low-growing yellow iris near the Transbaikalian town of Ulan-Ude. Its description ("*Iris humilis angustifolia*...") was first published by Ammann (1739) after number 133, page 101.

Gmelin (1747) described after his number 31 "*iris foliis ensiformibus, caule bifloro*. Tab. V. Fig. 2" and included as a synonym "*Iris humilis angustifolia*... Mess. Amm. (Stirp. rar.) Ruth post 133." Gmelin stated that his number 31 (as *Ammanni*) had also been observed by Messerschmidt in the hills near Ulan-Ude. It is obvious that Gmelin considered his number 31 to be the same as Messerschmidt-Ammann number 133.

Georgi (1775) again observed the iris in the southern Baikal region, and published the following description of it under the name *I. humilis*: "*Iris humilis, angustifolia, lutea, Messerm. Amman. (Stirp. rar.) p.101, Radix flavo alba fibrosa. Caulis 3. ad 6. pollicum, saepius biflorus, folis gramineis, duplo longioribus.*" It is apparent that Georgi considered his *I. humilis* to be the same as Messerschmidt-Ammann number 133 (the only "*iris humilis angustifolia*" on page 101), and his diagnosis is comparable with Gmelin's figure 2, plate V.

In 1776, Pallas published the name *I. flavissima*, and included as a synonym: "*Iris foliis ensiformibus*....Gmel. Flor. Sibr. I. p. 31. tab. V. fig. 2 cum synon. Ammanni." Thus *I. Flavissima* is the same as Gmelin number 31 and therefore Messerschmidt-Ammann number 133, and *I. humilis* Georgi, also conspecific with the latter, is the first validly published name for this species.

Spach (1846) first published *Psammiris* as a monospecific subgenus based on *I. arenaria* Waldst. & Kit., a later synonym of *I. humilis* Georgi. Baker (1877) later combined psammirises with *Pogoniris*, where they remained until Lawrence (1953) transferred them to subsection *Hexapogon*. Although most forms of *I. humilis* have more or less stoloniferous rhizomes and radical leaves which are tinged with anthocyanin pigments at vernal emergence (characteristics sometimes assumed to show affinity with common garden forms of some *Regelia* species), the psammirises differ from other arillate species in karyotype, general distribution ranges, plant habit and/or floral and rhizome morphology.

The psammiris karyotype (Simonet, 1934; Gustafsson and Wendelbo 1975) is quite distinct among arillate irises, unlike even those of *Regelia* and *Pseudoregelia* species with similar chromosome numbers (Randolph and Mitra, 1961; Zakhariyeva and Makushenko, 1969). The few intersectional hybrids produced experimentally between *Psammiris* and other arillate species are sterile.

Psammiris are found in open meadows and on hillsides from southcentral Europe east into transcaucasian U.S.S.R., and on exposed mountain slopes and in grasslands and shaded, dry mountain valleys from the western Altai region north and east into Mongolia, Manchuria and transbaikalian U.S.S.R. They are the most widely distributed of the arillate species; and the only arillate irises native to central Europe.

Although there are some differences in flower stalk and length and rhizome morphology among *Psammiris* species and geographical forms of species, all produce narrow radical leaves which frequently dry to leave fibrous vestiges near the rhizome, and thin scapes bearing 1 or 2 2-bracted spathes each with 1 or 2 short-lived flowers with more or less elongated perianth tubes. The withering flowers become characteristically helically twisted (Spach, 1846; Ugrinsky, 1922).

Iris section *Pseudoregelia* Dykes, Gen. Iris, 129 (1913).

Iris subgen. *Pseudoregelia* Baker, Handbk. Irideae, 2 (1892), *nom. nudum*. - *Iris* sect. *Pseudoevansia* Lynch, Bk. Iris, 55 (1904) *nom. nudum*. - *Iris* subsect. *Pseudoregelia* (Dykes) Lawrence in Gent. Herb., 8(4):356 (1953); Rodionenko, Gen. Iris L. 199 (1961).

Type of the section: *I. kamaonensis* Wallich ex D. Don.

Species included within the section:

- I. goniocarpa* Baker 1976
- I. hookerana* M. Foster 1887
- I. kamaonensis* Wallich ex D. Don 1841
- ? *I. leptohylla* Lingelsheim 1922
- I. sikimensis* Dykes 1908, ? *Hyb. nat.*
- I. tigridia* Bunge ex Ledebour 1829

Baker (1892) created the subgenus *Pseudoevansia* to include several small Asian species which he believed were related to the crested *Evansia* species. His differential diagnosis was based exclusively on the rudimentary crests terminating the beard of pseudoevansias, structures now known to have little taxonomic significance. Lynch (1904) retained *Pseudoevansia* as a section, but failed to describe the taxon further. The name remained a *nomen nudum*. Dykes (1913) examined *Pseudoevansia*, transferred some included species to other taxa, and fully characterized and published the name *Pseudoregelia* as a section circumscribing the remaining species. Both Lawrence (1953, 1959) and Rodionenko (1961) retained the name for a subsection with the same circumscription.

The pseudoregelias are essentially montane often alpine species found from the Indian Himalayas north and east into Nepal, Tibet, Mongolia and eastern Siberia, and west into the Altai region. They superficially resemble *Psammiris* species in dwarf plant habit and floral morphology, but differ significantly in rhizome morphology and in karyotype (Simonet 1952). The known *Pseudoregelia* species exhibit no close affinities with other arillate irises. Fertile intersectional hybrids involving pseudoregelias have not been produced.

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A NATURAL INTER-SERIES HYBRID IN EASTERN CANADA

The following is a free-form translation from the French language, of an item appearing in FLORE LAURENTIENNE by Frere Marie-Victorin, published by the University of Montreal Press in 1964. Translated by Jean G. Witt.

Iris versicolor and *Iris setosa* occur sympatrically in the coastal prairies of the north coast of Anticosti Island (off the Gaspé Peninsula, Quebec), and probably hybridize there. The genetic impurity which results without doubt the determining cause of the anomalies (fasciation, polymery) which are rather frequent in the region. Wherever the two species are adjacent, *I. setosa* var. *canadensis* occupies the drier sites, while *I. versicolor* is found in the wetter depressions.

Ecologically, *I. versicolor* is restricted to the zone intermediate between the salt-marsh and the dry slopes.

I. setosa, a pre-glacial relict, found a refugium in maritime habitats, but is not a halophyte. (a plant that grows in saline soil, as in salt marshes. ED.)

LETTERS

Comments on A RECLASSIFICATION OF IRIS SPECIES BEARING ARILLATE SEEDS by
Ernest G.B. Luscombe and Dr. John J. Taylor

Mr. Luscombe to Prof. Homer Metcalf, Jan. 7, 1977

.....I see that he has followed Rodionenko 1961 in stipulating Sub-genus *Iris*, Section *Iris* for the non-arillate species, but has departed from both Rodionenko and Lawrence in using the category of Section for each of the arillate sub-groups. On page 351 of Lawrence's 1951 Reclassification, he specifies that Irises in Sub-section *la Pogoniris* possess a beard of multicellular clavate hairs, but he distinctly stipulates that all the iris species within the arillate groups have unicellular hairs composing the beard. According to Dr. Taylor's Reclassification of the Arillate Species, they, as well as the non-arillate bearded Irises, have multicellular beards.

All taxonomists seem to have difficulty in circumscribing the *Oncocyclus* taxon. The scattered nature of the hairs of the beard is not invariable. Linear beards are found in species such as *I. meda* Stapf (p.125 Lynch) *I. mariae* Barbey (p.106 Lynch) the yellow flowered form of *I. barnumae* M. Foster (p.106 Lynch) and *I. barnumae* var. *zenobia* Mouterde: a dwarf very stoloniferous *Oncocyclus* iris widely distributed in the northern part of the Syrian desert, more particularly around ancient Palmyra. This plant has a clearly distinct linear beard. See *Iris Year Book* 1950 pp. 76-78. On page 417 of Dr. Taylor's Reclassification he again stipulates that *Oncocyclus* species have multicellular beards. Also, the stem bearing a single flower is not an absolute criterion as Mr. Brian Mathew of Kew Herbarium says that the recently discovered *I. afghanica* (*Regelia*) only bears one flower to each stem.

Dr. Taylor to Prof. Homer Metcalf, Jan. 27, 1977

.....I certainly agree with his statement (page 2) that all taxonomists have difficulty with *Oncocyclus*. Some forms intergrade with *Regelias* to the extent that differentiation on superficial characteristics alone may be difficult. My abbreviated key is, I am quite aware, of little value in disposing of some of those forms. I hope that more extensive collecting of *Oncocyclus* (and *Regelia*) species become available to botanical taxonomists so that they may determine the best criteria for segregating these two sections (if indeed they should be). When the extent of intraspecific variations is known for each *oncocyclus* species, differentiation of *Oncocyclus* from *Regelia* may be less troublesome. But I believe the extent of such variations cannot always be determined from specimens collected in the wild, and hope that the lesser-known species, varieties, hybrids and/or forms of uncertain taxonomic position, will also be brought into cultivation for study. I believe it is not uncommon for an iris species to produce fewer flowers in its natural habitat than when in cultivation (although *I. afghanica* has not yet varied in this respect to my knowledge), or to be more stoloniferous in light soils than in heavier (as I have observed in *I. humilis* Georgi and *I. bloudowii*). In my opinion, the circumscription of a species should not be based on features which may vary widely from one habitat to another. I think some *oncocyclus* species have been so circumscribed, and it would appear worthwhile to me to bring them into a common habitat, the botanical garden. Be that as it may, my key is obviously inadequate, and is based on traditional, even unexceptional criteria. I have not yet seen Wendelbo & Mathew's *Flora of Iran* but expect two such careful taxonomists have treated the differentiation of *Oncocyclus* from *Regelia* in a much more erudite and useful manner.

Mr. Luscombe is also correct in noting that I followed in part Rodionenko 1961. I agree with the latter that the name *Regelia* should be used, not solely to commemorate *Regel*, but because the name does have taxonomic validity as a section (in

contrast to Lawrence's opinion), and the circumscription of that section (Regelia Lynch) includes only species which have been called by the trivial name "regelia" from the time of Baker until the present. When it appeared to me that Hexapogon of Lawrence included three distinct types, one of which (Regelia) was much more closely allied to section Oncocyclus than to either of the two remaining Hexapogon types (Hexapogon and Psammitis), I removed Regelia and Psammiris from Hexapogon. Because Rodionenko had invalidated Regelia at subsectional rank, I used the same names, along with Oncocyclus and Pseudoregelia, for sections. Whether Regelia and Oncocyclus are sufficiently distinct to justify separate sectional status is probably questionable. I do not believe that either, however, shows much affinity with the remaining sections. (Rodionenko assigned all arils to section Hexapogon).

The matter of unicellular hairs in arils has been discussed by members of the Aril Society International from time to time, but was, I believe, settled when drawings and descriptions of multicellular hairs were published in the Yearbook of the ASI several years ago.

ED: Dr. Taylor's paper was here and ready to reprint in SIGNA 19, but permission to reprint was not obtained in time for that issue. The delay has made it possible to publish commentary on it by both Dr. Taylor and Mr. Luscombe.

The Biological Society of Washington was most kind to grant permission to reprint.

IRIS DOUGLASIANA 'CANYON SNOW'

Maria Ealand

Starting with a batch of seed marked *Iris douglasiana* 'Alba' received from the American Rock Garden Society seed exchange in 1967, Dara Emery eventually set out ten plants for further study in the Santa Barbara Botanic Garden where he is horticulturist. The plants flowered in the spring of 1969 and from them he selected for quantity propagating one beautiful snow-white iris which he later named 'Canyon Snow'.

When the supply had increased sufficiently, Emery gave plants to the McCaskill Gardens in Pasadena, from where some were sent to Cordon Bleu Farms in San Marcos, California.

In April of 1964 'Canyon Snow' was registered with the American Iris Society whose judges at the 1975 International Iris Show in San Diego considered it outstanding. The following year it received an American Iris Society Honorable Mention Award.

The flowers of 'Canyon Snow' have broad petals with falls held perpendicular to the stem. There is a small yellow signal at the base of each fall. The plant grows twelve to eighteen inches tall and is free blooming, usually producing three flowers per stem, each about four and a half inches across.

Emery is in the process of developing a new yellow iris. The Santa Barbara Botanic Garden gave as a Christmas present to each of its members last year a potted plant of Emery's new perennial lupine which comes in mixed colours of red, rose, pink, salmon, yellow, purple and white.

Reprinted from the American Rock Garden Society Bulletin 35(3): 121, 1977.



Iris rossii Baker

Redrawn from T. Makino's ILLUSTRATED FLORA OF JAPAN p. 715 1953



Iris serotina

A REDISCOVERED SPECIES OF SECTION XIPHIMUM

Jean Witt

We worry a good deal these days about endangered species being lost to the various activities of modern man, but here is a plant that has been in eclipse for more than a hundred years simply for lack of sufficient information about it! *Iris serotina* was described by Willkomm in 1861, but has been so rarely collected that even the Kew Herbarium had no specimen until 1973. It was dismissed by W.R. Dykes in THE GENUS IRIS (1913) as merely a slender, autumn-blooming form of *I. xiphium*, and all but forgotten.

Bulbs collected by Mrs. Rosemary Strachey on the Sierra Cazorla in Southern Spain, bloomed in England on 14 August, 1974. Our drawing was made from the painting by Margaret Stones which accompanies the article by Brian Mathew in Curtis' Botanical Magazine, Vol. CLXXXI, part 3, tab. 733. Mrs. Strachey has since located another colony near Granada, and the species has also been recorded in the Sierra Magina. It has also been collected in the Middle Atlas and in the Rif Mountains of northern Morocco.

Though some authors have assigned *I. serotina* to Section *Juno* because of its vestigial standards, these are erect and not down-hanging, and the plant lacks the *Juno's* persistent fleshy roots. There seems little doubt that it belongs in Section *Xiphium*, and it is distinct from other species of that section by reason of the tiny standards and the late season of bloom. Its foliage is mostly dried up by flowering time; the flowers, two to three in number, are violet-blue with darker veins and a yellowish zone in the center of the falls. The standards, described as "aristate" meaning awned--that is, with a bristle-like point--are 7-14 mm long and 1-2 mm wide at the base, and green in colour. A cylindrical pod 2.5 to 3.7 cm long and about 1 cm wide follows the flower; seeds are light brown and compressed.

Requirements of the species in cultivation remain to be determined.

SOME ODD BITS

From a book entitled Charlemagne by R. Winston, 1968.

- P. 26: "The battered crown belonging to an 8th century ruler of Aquitaine bears fleur-de-lis, the iris symbol used in later centuries by French Royalty.



- p. 27: In a manuscript illustration of 1375 "the artist, attempting to link the great medieval Emperor to the kings then ruling France, embroidered Charlemagne's robe with fleurs-de-lis.
- p. 28: In an illustration of the 10th century, Charlemagne is depicted with a fleur-de-lis scepter and fleur-de-lis crown.
- p. 15: "Pepin the Short (died 768 A.D.)....is depicted on a bas-relief in a German church" with a fleur-de-lis scepter shaped like this:
He was the father of Charlemagne.



Encyclopaedia Britannica says that tradition attributes the origin of this symbol to Clovis, founder of the Frankish monarchy (c. 466-511), but that "The fleur-de-lis is common in ancient decorations, notably in India and in Egypt, where it was the symbol of life and resurrection, the attribute of the god Horus. It is common also in Etruscan bronzes." Whether the symbol was originally a lily or an iris, or even an arrowhead is considered debatable.

The artifacts pictured in Winston's book considerably antedate the 12th century; the encyclopaedia's date for the first definite association of the fleur-de-lis with the French monarchy. It might be interesting to try to track down the Indian and Etruscan examples.

IRISES AS ITEMS OF FOOD

Not much is written of the use of any parts of irises as palatable food sources. It is evident that most species have a flavor, strong and distasteful to both man and most beasts. However, in Japan it is recorded that the rootstalks of most of the indigenous species have been emergency sources of starch in times of hardship. *Ii. ensata* (Kaempferi), *setosa*, *sanguinea* and *tectorum* have been so used. The well-roasted seeds of *I. pseudacorus* may be used as a coffee substitute and have been so utilized in middle Europe. Gerard wrote that the rootstalks of *Iris* (*Gynandriris*) *sisyrinchium* were called "Spanish Nut" and were eaten at the tables of the rich in "delicious sallads and otherwise". ***

A LETTER FROM BEN HAGER: Did you ever compare the seed of *Iris versicolor* and *Iris virginica*? I ran across something in the garden this year and can't for the life of me say why I'd never noticed it before. Seed of *versicolor* is round, bright chestnut-red and shiny. Seed of *virginica* is completely different; if handed a bunch of them without comment, it would be very easy to misidentify them as *hexagona*. (Sid did). They have the same corky cover and are fitted with the flat sides together like seeds of the Louisianas. The only immediate difference is that you would think them to be underdeveloped, smaller Louisiana seed. ***

IRIDACEAE

Part of an article on the iris portion of Iridaceae by Per Wendelbo 1959. Reprinted from Symb. Afghan IV. K. Danske Vid. Selsk. Biol. Skrift, X, no. 3, 185-191. (Copenhagen).

Iris cabulica Gilli - Fig. 73d - E: Kabul-Umgebung: Scherdarwasa, Westhang am Geroll, 5. IV. 1935, flr. (Kn. 22).

The material was collected in the same locality as that in which Gilli (1954, 147) collected his type material.

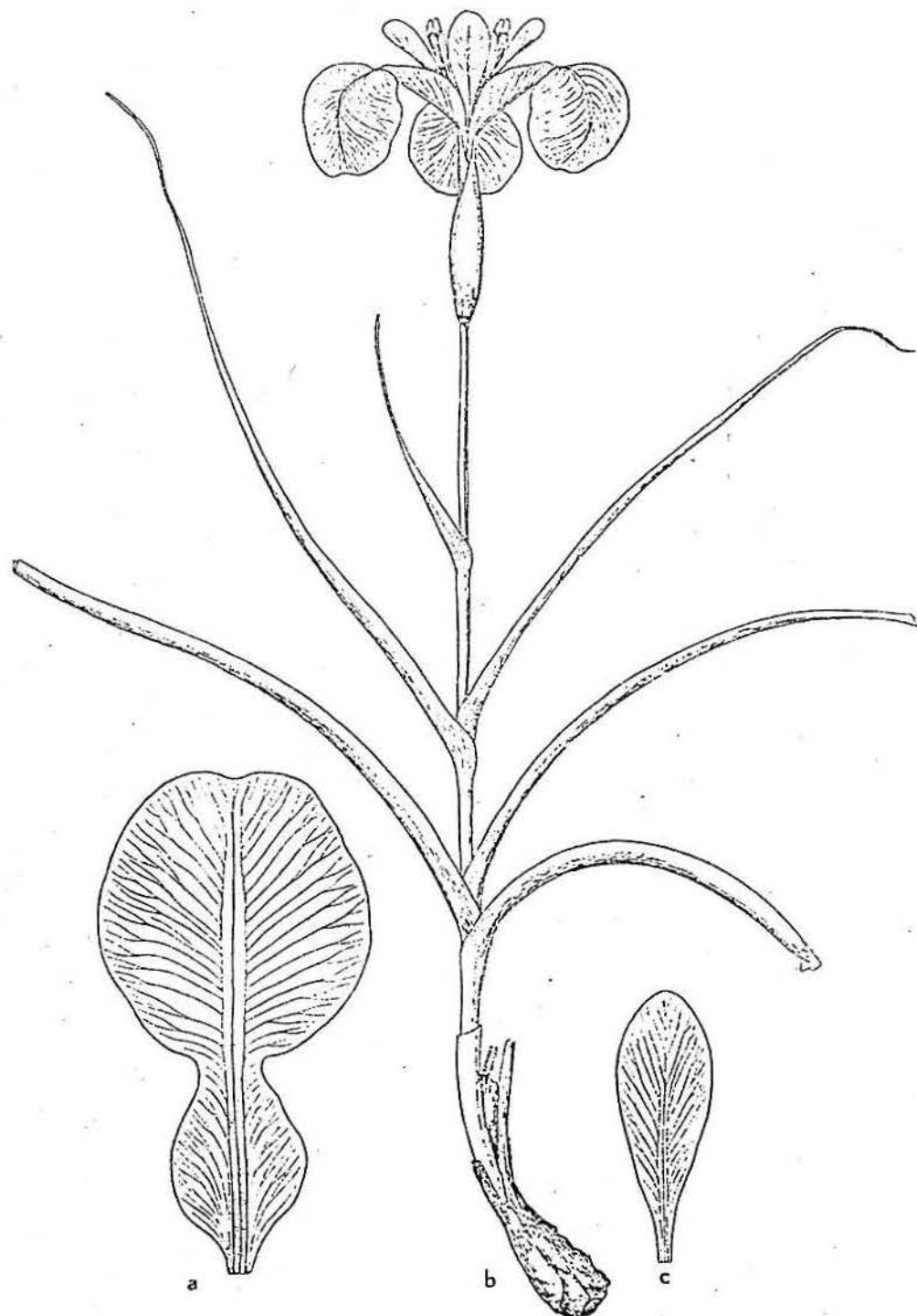


Fig. 72. *Iris cycloglossa* (K. 4468). a. Habit. $\frac{4}{9}$, b. Inner perigon segment, c. Outer perigon segment, b, c. Nat. s.

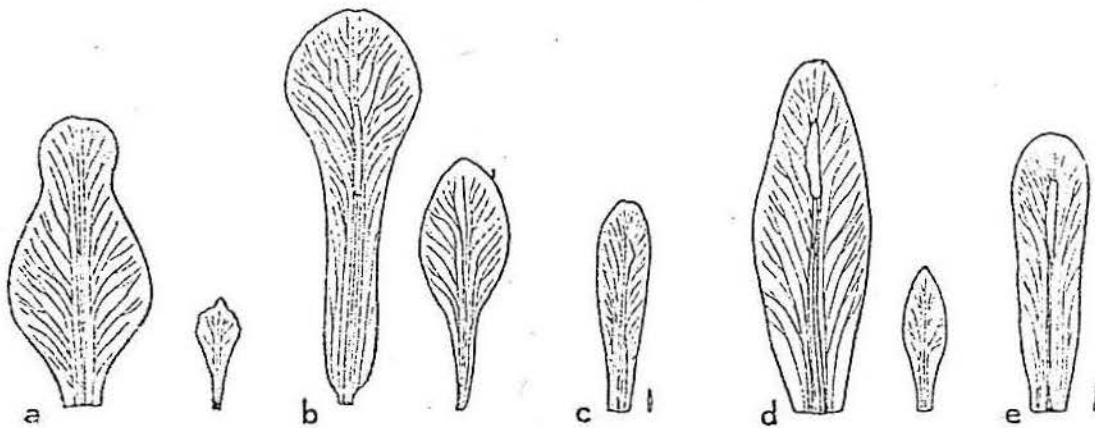


Fig. 73. Perigon segments of species of *Iris* subg. *Juno*, inner (left), outer (right): a. *I. Stocksii* (K. 3545), b. *I. Fosteriana* (K. 3477), c. *I. liniifolia* (N. 774), d. *I. cabulica* (K. 22), e. *I. drepanophylla* (K. 3718). Nat. s.

Iris cycloglossa Wendelbo, sp. nov. (Subgenus *Juno*) — Fig. 72 a-c.

Bulbus oblongo-ovatus, 3.5 cm longus, 1.5 cm latus, tunicis in vaginam ad superficiem terrae pervenientem prolongatis, papyraceis, exterioribus fuscis, interioribus pellucide fulvis. Caulis inter florendum 20 cm altus, siccus sulcatus, glaber. Folia 6, biseriata, canaliculata, anguste lineari-ensiformia, longissime attenuata, sursum decrescentia, inferiora usque ad 30 cm longa, basi 1 cm lata, 11—13-nervia, omnino glabra, margine laevi, plus minus albedo. Spatha bifolia, uniflora, phyllis longe acuminate ovato-lanceolatis, 6.5—7 cm longis, papyraceis, praeter marginem angustum colore stramineo. Pedicellus ca. 1 mm longus. Ovarium 2.8 cm longum. Tubus 3.5 cm longus, e spatha non prominens. Segmenta perigonalia exteriora erecto-patentia, ca. 4 cm longa, ungue ca. 0.5 cm longo, angusto, in laminam ovalem, ca. 3.5 cm longam sensim dilatato; interiora 7 cm longa, ut videtur erecto-patentia lamina reflexa, probabiliter omnino lilacea, ungue ovato, 3.5 cm longo, 2 cm lato, late alato, nervo medio, praesertim basim versus, papillis plus minus longis obsito, lamina suborbiculari, apice leniter emarginata, ca. 3.5 cm diam., pilis, papillis, crista media ut videtur destituta. Stamina 3, filamentis 1.3 cm, antheris 1.5 cm longis. Styli 3, ca. 4 cm longi, 6 mm lati, bilobi, lobis oblongis, obtusis, ca. 8 mm longis, stigmatibus bilobis. Capsula ut semina mihi ignota.

SW: 60 km SW of Herat, ca. 1500 m, 8.V.1949 (KØIE 4468, Holotypus, W).

This new species seems to occupy a somewhat isolated position within the subgen. *Juno*. None of the other species of this group seems to have both a broadly winged haft and an orbicular blade of the fall. The form of the seeds would be of great interest as it might help in revealing the kinship of *I. cycloglossa*, but unfortunately fruiting material is missing.

Iris drepanophylla Aitch. et Baker — Fig. 73 e — SW: Herat, 1200 m, 14.IV.1949, flr. (K. 3718). Without locality, 1884—85 (AITCHISON 1127).

Iris Fosteriana Aitch. et Baker — Fig. 73 b — NW: Kushk, 1000 m, 12.III.1949, flr. (K. 3477).

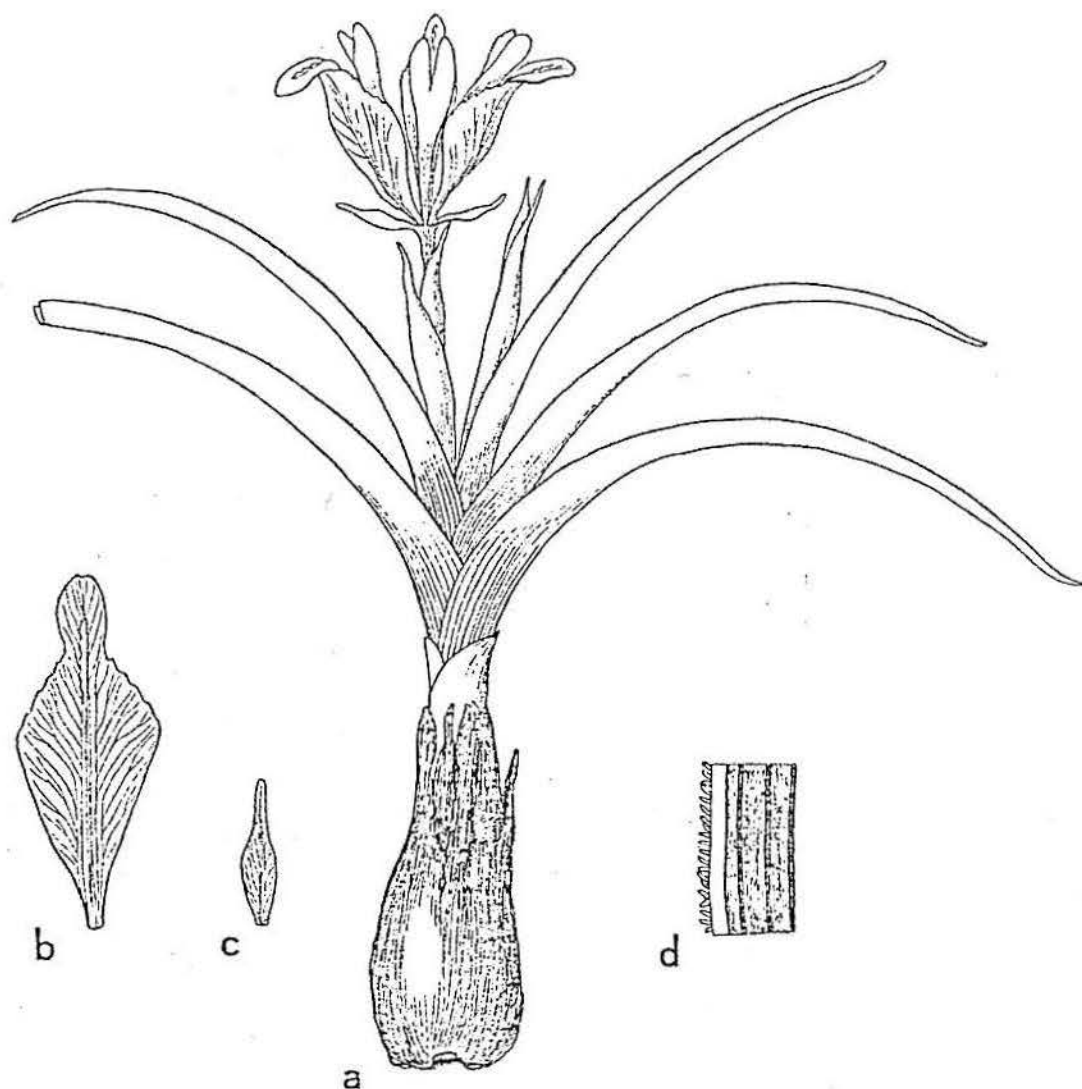


Fig. 74. *Iris microglossa* (M. s. n.). a. Habit. $\frac{2}{4}$, b. Inner perigon segment, c. Outer perigon segment. Nat. s., d. Leaf margin. $\frac{6}{1}$.

Iris halophila Pall. — C: Bamian Valley, 2500 m, 18.VIII.1948, fr. (K. 2830). Dozo Plain, 5000 ft., 23.VIII.1939, fr. (Kz. 13520). Danghori, swamp, 2400 ft., 4.V.1938, flr. (M. s.n.).

The group around *I. halophila* is very difficult. This species should have yellowish flowers, but MEINERTZHAGEN's material is the only one in flower, and from that it is impossible to tell the colour.

Iris linifolia O. Fedtsch. — Fig. 73 c — E: Schaschburdschar, 11.V.1949, flr. (N. 774).

The material consists of two specimens. The colour of the flower is stated to be greyish green. The material seems to match the description (VVEDENSKY 1935, 564) in most characters, but differs in having the tube of the perigon 5 cm long as against 4 cm, and in having an 8 mm long linear standard not 5 mm long and trilobate. DYKES (1913, 208) writes that it is usually trilobate. *I. parvula* Vved. does not seem to differ much from *I. linifolia*, and I would think they might be the same according to descriptions. *I. Tadshikorum* Vved. also comes near to *I. linifolia*, but the colour of the perigon is stated to be violet with a question mark (cp. VVEDENSKY 1935, 563).

Iris microglossa Wendelbo, sp. nov. (Subgenus *Juno*) — Fig. 74 a-d.

Bulbus oblongus, 4 cm longus, 2 cm latus, tunicis papyraceis, in vaginam ad superficiem terrae pervenientem prolongatis, exterioribus fuscis, apice laceratis, interioribus pellucide fuscidis vel albis. Caulis biflorus, florifer 5—6 cm longus, foliis omnino indutus. Folia biseriata, inter florendum usque ad 16 cm longa, 2 cm lata, ensiformia, longe sensim attenuata, multinervia, canaliculata, plus minus recurva, margine ciliata, plus minus albida. Spatha diphylla, phyllis acuminate ovato-lanceolatis, plus minus pellucidis, 6.5 cm longis, uniflora. Pedicellus 1—2 mm longus. Ovarium 1.5 cm longum. Tubus 4.5 cm longus, e spatha non prominens. Perigonum dilute lilaceum et margaritaceum ("pale mauve and pearl white"); segmenta exteriora acuminate lineari-lanceolata, 1.5 cm longa, 0.4 cm lata, patentia; interiora 4 cm longa, ungue erecto late alato, rhombico-obovato, 3 cm longo, 1.6 cm lato, medio papilloso, margine plus minus dentato, lamina reflexa, oblonga, 1 cm longa, ca. 0.6 cm lata, emarginata, in dimidia parte inferiore crista media dentata, ca. 1 mm alta ornata, omnino dense papillosa. Stamina 3, filamentis 0.7 cm, antheris 1.3 cm longis. Styli 3, 3.3 cm longi, 0.5 cm lati, bilobi, lobis oblongis, obtusis, 0.7 cm longis, stigmatibus bilobis. Capsula ut semina mihi ignota.

C: Doab, 7000 ft., 30.IV.1938 (MEINERTZHAGEN s.n. Typus BM).

I. microglossa seems to be closest to *I. Stocksii* Boiss., from which, however, it differs in several respects. The leaves seem to be thinner and have more nerves, the margin is not distinctly white and it is ciliate. The standards are linear, not spatulate and dentate to more or less lobate. The fall has a narrower blade which is cristate. The colour of the flower is stated to be pale mauve and pearl-white, and thus differs much from the darker colours of *I. Stocksii*. *I. cobulica* is distinguished by the much larger, oval standards and a different fall (fig. 73d).

Iris Sisyrinchium L. — SW: Farah, 800 m, —1949, flr. (K. 4295). — SE: Zw. Kandahar und Kalati, 3.III.1953, flr. (V. 2939). Zwischen Kandehar und Kuschki-Nahrod, 1000 m, Steppenrand, 30.IV.1935, fr. (Kx. 306). — E: Sarobi, feuchte Weizenfelder, Feldraine, 25.III.1952, flr. (V. 2479). — NW: Qala Nau, 1100 m, 2.V.1949, young fr. (K. 3885).

Iris songarica Schrenk — SW: Shin Dand, 1200 m, 5.IV.1949, flr. (K. 3594). — SE: Zw. Kalati-Ghilsai und Kandehar, Steppe, 28.V.1935, flr. (Kx. 203). — E: Katawas, Jussufkbel, 9.4.1949, flr. (N. 773). Kabul, 7500 ft., 29.V.1938, flr. (M. s. n.). Passhöhe westlich von Kabul, 12.V.1935, (Kx. 43). Kuram Valley, VII.1880, fr. (ARCHISON 365). — C: Unai, Dasht-i-Top, 5.VI.1951, buds (V. 1654). — NW: Ardewan, 1500 m, 13.VI.1948, flr. (K. 2252).

Iris Stocksii Boiss. — Fig. 73 a — E: Sarobi bei Kabul, 1800 m, lehmige Steppe, 25.III.1952, flr. (V. 2491). Paghman, 8—9000 ft., 21.V.1939, flr. (Ch.-M. s. n.). Logar-Tal, Mohmandi-Schelau, 12.IV.1935, flr. (Kx. 38 a). Kabul, 7050 ft., 11.IV.1938, flr. (M. s. n.). Istalif, 12.IV.1949, flr. (N. 775). [Kuram Valley: Kuram, 9.IV.1879, flr. (ARCHISON 71)]. — SW: 45 kms S. of Herat, 1400—1500 m, 1.IV.1949, flr. (K. 3545). Nadi Ali, 1000 m, Weizenfeld, 20.2.1952, flr. (V. 2901). — Baluchistan: STOCKS 961.

The find of this species South of Herat, KORE No. 3545, is rather surprising, and at present it represents an isolated station, but the species most probably has a much greater geographical area than expected.

SEED EXCHANGE MISCELLANY

Jean Witt

We have some additional notes on various 1977 numbers which were too long to print in the list:

- 77 N 146. Gordon Loveridge says of his *Iris virginica* that the original plant came from Melrose Gardens and that the seedlings vary from typical *Iris virginica* to orchid and black stems.
- 77 Z 218. *Sisyrinchium striatum* from Marjorie Barnes who says "Pale yellow with fine violet lines; long-blooming season--almost all summer; 2 to 3 feet here (Seattle), but taller at Berkeley Botanic Garden and shorter where I've seen it growing on San Juan Island. at the Friday Harbor Lab." This species is native to Chile.
- 77 J 276. *Iris sibirica*, from Marlene Ahlburg, which came from a natural area on Mt. Kojca, which is just over the Austrian border near Srat in the neighborhood of Maribor, Yugoslavia. This is a limestone area and this collection should therefore be lime-tolerant.
- 77 J 257. *Iris sibirica*, from Dr. McEwen. The original of this was collected near Dubash by Eckard Berlin.
- 77 J 254. *Iris sibirica*, from Dr. McEwen. The original was Rodionenko # 1547 collected in Mongolia.
- 77 J 256. *Iris sanguinea*, from Dr. McEwen. The original was Rodionenko # N 3032, collected near Lake Ha Ka, Eastern Siberia.
- 77 J 255. *Iris sibirica flexuous*, from Dr. McEwen, also originated from Rodionenko.
- 77 Y 209. *Pardanthopsis dichotoma* (*Iris dichotoma*), from Bruce Richardson. The original plant came from John Laur. It has reproduced itself from seed several times in Bruce's garden at Hannon, Ontario.
- 77 N 124. These came to us from Japan via Hachiro Negishi, and were contributed by Mr. Schozah Goto, an iris hobbyist and breeder of Aichi Prefecture, Japan. Included were seven different lots as follows:
- #1. Tsukigage, F₁, Mr. Koda strain.
 - #2. Tsukigaga, F₂
 - #3. New #4, Mr. Goto strain
 - #4. Yuki No Shizuku F₁
 - #5. Tsukigage, Mr. Koda strain
 - #6. Shi-Shugetsu, Dr. Tomino strain
 - #7. (Harusame, Mr. Kodo, X Shi-Sekyo, Mr. Goto) F₂

From all our members who received these seeds, our sincere thanks; and we hope to have reports back from you in due course.

- 77 G 043. *Iris kamaonensis*. Our apologies to all who did not receive this species, the amount, as usual, was very limited. Those still wishing it would do well to order it direct from Geo. W. Park Seed Co. Inc., Greenwood, South Carolina 29647. It is, oddly enough, one of the few species of iris for which there is a commercial seed source.

77 U 203. Members who grow seedlings from this cross should remember that white may well be a recessive trait, so that no white flowers will appear in the first generation. It will then be necessary to self or intercross your seedlings and grow another generation in order to recover whites in the large flowered type.

77 U 208, 76 U 214, 75 W 176. Trying to transplant seedlings of Xiphiums, Reticulatas and Junos will almost certainly mean losing them! Treat them as you would other bulbs--let the foliage die down before trying to move them. By the end of their second summer the bulbs should be large enough to see, and can be moved safely to their permanent location.

From Mr. Akira Horinaka we received a fine colour photo showing a beautiful hybrid of *I. pseudacorus* X *I. kaempferi*. The flower petals are creamy yellow with a darker signal outlined in brown, and slightly darker styles.

Dr. Robert Egli sent a colour print of a wild form of *I. chamaeiris* collected from the Sea-Alps in the south of France, a bitoned yellow flower with a golden beard.

George C. Bush, of York, Pennsylvania writes that he has bloomed a white-flowered seedling from bee pods on F₃ generation *Pardandanda norrisii*. There also deep purples in this lot. The white seedling set three pods and George is anxious to see what they will give. The photo he sent will join earlier photos of this interesting intergenus hybrid in our SIGNA species scrapbook.

77 T 206, 77 T 207. The former appeared due to a typing error, and the latter was omitted. Those who received seeds of the *I. foetidissima* with lilac flowers which Roy Davidson collected last summer at Nant Gwilw, Wales, please note that its number should be 77 T 207.

COLOR PHOTOS OF IRISES NATIVE IN SOUTHERN UNITED STATES

H.N. Metcalf

The following recently published books contain color photos of several species of irises (and other irids) native in the southern United States:

"Wildflowers of Louisiana and adjoining states" by Clair A. Brown, published in 1972 by Louisiana State University Press (Baton Rouge), has color photos of *Iris brevicaulis*, *Iris fulva*, *Iris giganteaerulea*, and *Iris virginica*, as well as the irids *Nemastylis geminiflora*, *Sisyrinchium capillare*, *Sisyrinchium atlanticum*, *Alpphia drummondii* and *Eustylis purpurea*. Brief descriptions and natural ranges of the species accompany the photos.

"Wildflowers of the Southeastern United States" by Wilbur H. Duncan and Leonard E. Foote, published in 1975 by the University of Georgia Press (Athens), has color photos of *Iris virginica* and *Iris verna*, as well as of the irids *Belamcanda chinensis* (an escape), *Sisyrinchium albidum* and *Sisyrinchium atlanticum*. As with the preceding book, that by Duncan & Foote provides brief descriptions and notes on the natural ranges of the plants.

Hachiro Negishi

ED: The following is from a letter Mr. Negishi sent to Mrs. Jean Witt dated July 11, 1977. As well he included two larger drawings of the root system of *I. rossi*, which indicates it is very extensive, fibrous and penetrating deeply into the ground. The pictures make the root system appear to be out of proportion to the top growth. Since he indicates that it grows on rocky sands that are well drained, it is not surprising that it has such a large root system.

Mr. Negishi's address is: Tomo Institute of Arboriculture, 526 Kido, Tatebayashi 374, Japan.

The seeds were recently gathered by Mr. Ichiro Harada, whose home address is Jogecho, Konu-gun, Hiroshima-Pref. (zip code) 729-34. Mr. Harada is President of a lumber company and is now, at the age of 72, continuing his study of the cultivation of *I. rossi*, which he commenced about 1958, collecting related material, keeping in touch with the researchers concerned and advising them of his activities. He is a true volunteer or demon for *I. rossi*, and his passion and zeal have earned him deep respect from those interested in this species.

In 1974 I sent Dr. M. Boussard of France, the roots and soil in which *I. rossi* grows in its native areas, but it did not grow for Dr. Boussard.

In 1976 I was able to obtain seeds from Mr. Ichiro Harada, and sent them to Dr. Boussard, the American Iris Society, the British Iris Society and the Gesellschaft der Studen Freunde in West Germany, to distribute to their members.

I will not describe *I. rossi* here because it has been reported in the Handbook of the Iridae, Baker, published in 1892, as well as some other iris literature. Instead, I will mention some important points in regard to its cultivation.

Iris rossi grows in the wild at the foot of low mountains, on banks and like places in small numbers in a scattered manner (*I. rossi* never constitutes a large colony). According to Mr. Harada, ants carry the seeds and eat the adhering clay-like substance, thus making for a scattered population. The soils on which it grows are sloping areas of weathered mountain sands, mixed with heavy clay, resulting in appropriate moisture levels along with good drainage.

In the areas near Mr. Harada's home where *Iris rossi* grows wild, it comes into full bloom from the middle to the end of April. Mr. Harada explains that this is a time of full sunlight.

In June *Iris rossi* is covered by bamboo grass, eulalia of the family of true grasses, and by other miscellaneous trees and weeds. Although the leaves would now have grown to a height of 60-70 cm, according to Mr. Atsuta, they are difficult to locate.

Perennial plants and bulbs that bloom in the spring are easy to see and locate then, but difficult to find later as they hide out in the ground cover. This is the case in Japan as well as in other countries.

The actual size drawing shows the roots penetrating as much as a foot into the soil in April, 1973, but only a light growth of 3" high above ground, indicating root development proceeds much earlier than that above ground. Black dots shown at

the ends of the roots are fleshy bags, the purpose of which is not clearly understood so far.

The second drawing is that of a clump of *Iris rossi* that had been planted in a vegetable field and had multiplied to 200 growing points. It died, perhaps on account of the fertilizers used on the field. The root shown is only about one-third of the full length (ED: 27"), the lower part extending deep into the rock, making it impossible to dig it out in its entirety. In wild locations even the largest clumps have no more than ten clusters. (ED: Mr. Negishi refers to them as "stumps").

Mr. Harada sows his seeds of *Iris rossi* every year at the end of June. Sprouts appear towards the end of July, about a month after planting the seeds. Germination as high as 66% has been recorded over the first year period. They grow much the same as other iris. Usually it requires at least three years from germination to bloom, however, this time can be shortened.

EDITORIAL COMMENTS

continued from p. 575

index is taken up with names of species iris. I expect we will have a review of the Yearbook in our next issue; there wasn't quite time to get it ready for this issue as it was three months coming from England (slow boat? or slow post office?) Along with the Yearbook came the B.I.S. Newsletter, also with its iris articles as well as announcements of current events. This issue (No. 68, Jan. 1978) was devoted almost entirely to species articles, leading off with one on *I. setosa* by the species expert Ernest G.B. Luscombe, very lengthy, detailed and most informative. *I. gatessi* is commented on by A.B. Reid, giving his experiences in growing and flowering it, in particular his methods of handling it. The Newsletter closes with a note from the past, being an article written for the 1968 Yearbook by the late Angela Marchant. Some of you may know her as the secretary of the B.I.S. Species Group, and deeply involved in the formation of that group; a year or so before we got underway. I valued her friendship and her species knowledge is well shown in this article on MOISTURE-LOVERS FOR WATERSIDE BEDS, a list and description of many species iris suitable for wet conditions. Not a cultivar in the lot.

Another name we are becoming familiar with is that of Akira Horinka of Japan. Besides writing a book on iris, he is in the nursery business. Perhaps I should say the Iris Nursery business, judging by the catalogue he sent here a few months ago. Some thirty pages of iris largely (there are some glads and crocus too) and all in colour. Three quarters of the catalogue comprises colour photographs, many taking up three quarters of a page for one clump of iris. Incidentally, I have never seen finer colour photos of iris than are here displayed and really make the catalogue a collector's item and a joy to behold. No colour iris catalogue on this continent comes even close to the quality of these prints.

However, they say nothing is perfect, and the imperfection here (for us who read English only) is that all the print is in Japanese. The exceptions are the latin names of the species, which are quite properly in English characters. As you might expect from a catalogue from Japan, there are many pictures of the Japanese iris cultivars that are breathtaking in their beauty. Even without being able to read the Japanese names, it would be possible to order from this catalogue, as they are charted by number for identification on each page. ****

SOME LESS COMMON XIPHIONS

Jean Stevens

Reprinted from the British Iris Society Year Book 1956

In grace and delicacy of form the Xiphion Irises yield to no other section of the genus *Iris*, and this is particularly true of the species or wild plants comprised in this section. Lovely as are the Spanish Irises of gardens and their horticulturally-produced hybrids, the Dutch Irises, one cannot deny that in the development of size and a greater colour-range some of the almost ethereal grace of the wildings has been lost. Spanish Irises have been grown in European gardens at least since the middle of the sixteenth century, and probably much earlier, and it is only natural that over the centuries size, substance and colour-range should have been improved. I would be the last to criticise or condemn such an achievement. Nevertheless, when in this year of grace 1956 one gets the opportunity to grow and see collected wild forms, one realizes that in developing the species some charm has been lost. In writing thus I have in mind some of the various forms of *Iris xiphium*, which, owing to its comparative ease of culture and hardiness, has lent itself to garden development, both by the selection of the best seedling forms and by hybridization with the species most closely related to it. Despite the wide though undefined claims of the early Dutch nurserymen that the Dutch Irises were the result of interbreeding amongst all the various species of the section, a little experimental work amongst such members as *II. boissieri*, *juncea*, *filifolia* and *latifolia* convinces one that this cannot be true. I do not think that Dykes's contention that the Dutch Irises were originated only by inter-crossing the various forms of *I. xiphium* with *II. tingitana* and *fontanesii* can seriously be questioned. There must be a wide difference in the genetical constitution of *II. boissieri* and *juncea*, as one instance. Hybrids between these two species are quite sterile. Again, the influence of the dominantly spotted basal sheath of *I. filifolia* is entirely absent from any of the older Dutch Irises. *I. latifolia* also is a very doubtful starter, as the present-day hybrids of this plant show the very strong influence of its vividly violet colour as well as of its distinctive foliage.

In writing this article I set out to give some information on the behaviour of some of the rarer species of the section, rather than to revive once again the old argument as to the origin of the Dutch Iris, and, through my experience with the species has a definite bearing on the hybrids, I must not allow myself to be diverted from the subject!

No doubt owing to climatic handicaps, many of the rarer Xiphions do not appear to have been recorded in English gardens at their optimum growth. Dykes gives the height of *I. juncea* as "about 12 inches", and other writers agree. *I. filifolia* is given as "12 to 18 inches, bearing a single, usually 2-flowered head". Brought to my mind as I write this is a recently-expressed wish of one of my English horticultural correspondents, "If only the English climate was a few degrees warmer!" We who live in a climate which *is* a few degrees warmer, still look to England as the nursery garden of the world, and particularly in this so in the matter of data and information on species. Our warmer climate brings its own problems, but, provided we overcome these, we often find that the height, size and other attributes of many species of plants are much in excess of what we have been taught from English writings. It is partly, therefore, as a record of what some of the rarer Xiphion Irises can produce, and partly to add a small quota of information, that I am writing these notes.

Ever since I first saw the illustration of *I. filifolia* in *The Genus Iris* I coveted this plant, but it was not until Capt. Collingwood Ingram sent me some seed and bulblets in or about 1950 that I had the opportunity to grow this lovely and most distinct species. Like many another iris-lover, I had imported and flowered the plant put out as the true *filifolia* by a Dutch nursery firm, only to find that, though the basal sheath had the distinguishing purple spotting, neither in form and habit, nor in colour, did this Dutch bulb conform to Dykes's description and illustration. When the true plant first flowered for me on the small bulbs which grew from the bulblets and seed sent by Capt. Collingwood Ingram, I was delighted to find that at last I did have the true plant. Responding to the much longer growing-season with which bulbous irises beginning their leaf-growth in autumn are favoured in this climate, the bulbs of *I. filifolia* continues to grow in size until they were as large as any normally well grown Spanish Iris. In 1953 I planted them out in newly-broken pasture ground, and was amazed to find what *I. filifolia* could be, at what I must conclude is its optimum growth and size. As the season advanced the stems continued to grow in height until in full flower they were not far short of 3 feet. As a matter of record I asked a friend in the Dept. of Industrial and Scientific Research to come and see them. This friend has all the scientist's penchant for throwing cold water on extravagant claims, and when I remarked to him that my *filifolia* must be over 30 inches he took out a rule and measured half a dozen of the tallest, though there was little variation in the height of any of them. They were 33 and 34 inches. The stems were not spindly, but, while not coarse, were firm and strong enough to carry the head of large, richly purple flowers with their distinctive golden signal-patch. The blue "jalo" around this patch where the gold and violet meet and merge, commented on so often by W.R. Dykes, is not so striking as I had anticipated, and can easily be missed by the casual observer.

To my mind the most amazing point about these well-grown *filifolias* was not their unexpected height, but their branching. Let us recall that description in *The Genus Iris*: "stem about 12 or 18 inches high, bearing a single, usually 2-flowered head". In 1952 I had flowered *filifolia* with a small side-branch carrying a third flower on one of the largest bulbs, but this year every flower-stem was branched at least once, and several had two or three side-branches. The terminal head had in several cases three flowers, and three or four of the stems carried ten flowers opening from the terminal and side branches in succession. One stem actually produced eleven flowers, four side-branches with two flowers to each branch-head, and the terminal three flowers.

Iris filifolia, from seed, produces only very slight variations in colour, and that in the depth of purple and the comparative size of the signal-patch. With me there was no variation of the colour tone, nor was there any variation in the shape of the flower. I tried many crosses with various other Xiphion species and found *filifolia* to cross readily with *I. latifolia*, but not with *I. juncea* or *boissieri*. So far these seedlings of *filifolia* x *latifolia* have not flowered, but it is interesting to note, in comparing the germination dates of the seeds of *latifolia*, *filifolia* and of this hybrid, that the hybrid germinated at an intermediate season. It is of further interest that the seedlings large enough to have developed a basal sheath all have the spotted sheath of *I. filifolia*.

Shortly after Capt. Ingram first posted me bulblets described as *I. filifolia*, he wrote that he was posting me a further lot, as although he had grown and ripened the seed in a glasshouse he had serious doubts lest, due to insect activity, the first lot had been crossed with one of the other Xiphions which he was growing in the same house. When the first lot of bulblets reached flowering size this proved

to be correct, and the flowers were a lavender-violet with yellow and violet influence, and were variable. However, every bulblet produced the purple spotted basal sheath of the true *filifolia*. These hybrids appear to be completely sterile. This hybrid lot of *filifolia* bulblets brought to my mind the plant offered by the Dutch nursery firm as the true *I. filifolia*. This also has the spotted sheath and is sterile, the colour being a rich purple in the standards and haft but a brighter blue-purple in the falls. From this one is naturally brought to wonder if it also is a hybrid of the true *I. filifolia*. I think there can be very little doubt.

Iris juncea responds to virgin soil, or a soil lately broken in from an established pasture, by giving extra height and size of bloom, but of all the Xiphions I have grown *I. juncea* is the least tolerant of poor drainage. Even where the humus content and soil crumb are ideal the rains of winter must be able to drain away from around the bulbs rapidly. Under ideal conditions I have grown *juncea* up to 30 inches in height, with a proportionate increase in the size of bloom. As is well known, this is a variable species both in the shape of the fall petals and in the amount of brown venation raying from the self-coloured signal-patch. There is also quite a distinct variation in the pure yellow colour amongst seedlings, though this a matter of shade of yellow and never of tone. I have never seen any hint of gold in the glowing yellow of this species. Perhaps the most striking variation I have grown from seed was a flower with large shovel-shaped falls, almost without any brown raying. The height and width of the standards in proportion to the falls is also quite variable, in the poor forms the standards being considerably reduced and somewhat out of proportion. It is remarkable that, even with very heavy stems of 30 inches in height and vigorous growth, I have never seen a bulb of *juncea* with side-branches, nor does the flower-head ever produce more than the two blooms.

I. juncea is a prolific seeder, and the seed is very easily germinated. Nowever, the young seedlings are extremely prone to any of the many fungus troubles present in garden soils, particularly the fusaria, and I find it advisable to water in around the young seedlings regular applications of a good fungicide such as colloidal sulphur. Failure to take prompt measures can result in the loss of every seedling bulb in the matter of a few days. Another great enemy of *I. juncea*, and in fact of any of the Xiphion section is that scourge of the bulb world, Mustard Seed Fungus. In New Zealand we do not have the same brand of this disease which is such a problem in Holland, *Sclerotinium bulborum*. Our Mustard Seed Fungus is *S. rolfsii*, a smaller-spored but just as damaging species. *I. juncea* is not easy to get to cross with other Xiphion species, and the only hybrid I have been successful in making with it was by the use of *I. boissieri*. This hybrid first occurred with me through the agency of bees or other insects, though I later repeated the cross by hand-pollination. The result in both cases was identical - a strain of completely sterile plants, bearing flowers in varied shades of smoky bronze and smoky purple, some with scant beards, and some with only a pubescence where the beard should have been. The hybrids are intermediate in every respect between the two species.

I. boissieri, despite every care, has never been a vigorous grower with me, though I have grown it in many types of soil and in many conditions over twenty years. At its best its height is between 15 and 16 inches, and I have never seen it with more than the single-stemmed, two-flowered head. It flowers with me a little after the height of the Tall Bearded season, that is, after *juncea* and before *I. taitii*. *I. boissieri* comes through the ground early in winter, having an active growth-season of approximately seven months. Seed is set freely enough, but germination may be delayed 18 months or even 2½ years after sowing. This fact, taken together with its reluctant vegetative increase, and the fact that the seedlings

are as prone to fungus diseases as are those of *juncea*, no doubt accounts for the fact that it is a species whose hold on life always seems precarious.

It does not appear possible to get much detailed or reliable information on that royal-coloured species, *I. latifolia*. I refer to this as a species, as I find it hard to accept the botanical rating it is usually given of a varietal form of *I. fontanesii*. It would be most interesting and informative if we could interest some cytologist-cum-botanist in the comparative genetical constitution of the two plants. I know that the ability of a form to breed true to colour, the fact that its season of flowering is different from that of another similar plant, or a different habit of growth, do not separately constitute features great enough to warrant specific distinction, but surely when not only one but all of these traits are distinct, it is not reasonable to assume that two such distinct plants can be considered forms of one species! *I. latifolia* has a deep red-purple basal sheath, a very distinct and richly glabrous leaf-colour, silvery on the deeply-channelled upper surface, and the habit of making a large number of leaves which attain great length. These leaves do not extend up the flower-stem, remaining horizontally outspread at ground level. Seedlings vary in tone from dark violet to blue-violet, but are always rich and deep in shade. Unlike *I. fontanesii*, which flowers very early spring, *latifolia* flowers in summer - about four months later. The stem is somewhat weak, and by the time the flowers open is often zigzagged and untidy-looking, I fancy, from the weight of the buds it is carrying, but more probably from temperature changes during growth. The terminal head never carries more than the two lax blooms, though often one and sometimes two weak side-branches carry an extra flower.

Three garden developments from *I. latifolia* are grown in New Zealand, but whether these are selected seedling forms or hybrids I have not been able to ascertain, though I hope to track down the story of their origin during my forecoming visit to California, where they were bred. They have been distributed under the names of NATIONAL VELVET, EDWARD SALBACH and ROYAL PURPLE. As garden plants they are infinitely preferable to the species not only because the stems are strong and upright, but also because the flower itself is more compact, the falls broader, and the substance even better than in the species. NATIONAL VELVET and EDWARD SALBACH are in shades of deep blue-violet, the latter is the broader flower with more conspicuous signal-patch, but the former is of much stronger constitution. ROYAL PURPLE, as the name suggests, is a rich deep purple, the exact colour of the usual colour seen in the species. I feel sure that these plants are not just selected forms, as they bear the definite appearance of being of hybrid origin, though with what species or forms of Spanish or Dutch irises I am loth to hazard a guess. The standards of all three varieties are greatly reduced. Unlike the long, thin and narrow standards of *I. latifolia*, these varieties have the somewhat truncated, firmly upright standards of *I. xiphium* itself.

the last species I want to discuss is the latest of all the Xiphions to flower, the most sweetly scented, and the most delicately graceful in form. *I. taitii* used to be considered merely a form of *I. xiphium*, but nowadays appears to be accorded specific rank. It is quite possible that in the past late-flowering forms of *I. xiphium* were sent out as *I. taitii*, thus giving rise to its demotion from specific rank. Despite its late flowering (midsummer) it starts its growth in autumn. By winter the leaves, though still slender, are long and well developed. It can therefore be assumed that it would not be likely to tolerate a long cold winter. In this garden *I. xiphium* comes into growth towards the end of winter, at least three months after *I. taitii*. *I. taitii* is a very deceptive plant to grow, remaining throughout the spring and early summer with slender, almost thread-like foliage. Then, as the

heat of summer comes, the base begins to swell, and the buds run up. From the strong upright stems, well clothed in silvery green leaves, opens what at first appears to be a flower too small for its stem - pale silvery lavender, with tiny light yellow signal-stripe. But the flower develops out of its sheath, the side-branches open up to make a graceful head of several blooms, and the stem assumes a proper balance. I have always liked the sharply sweet fragrance of *I. xiphium*, but *I. taitii* does not have that somewhat pungent scent. Its scent is more comparable with that of the violet or freesia, fresh, sweet and defined. At its best my stems of *I. taitii* are about 30 inches in height, but any loss of vigour from too long a summer storage will reduce this sharply to 18 inches. It is obviously a species which requires at least ten months in the ground, though it does need an annual lifting to ensure good healthy bulbs. Seed is produced fairly freely, and if sown immediately can be induced to flower within three years. Unlike *I. boissieri* and *juncea*, it increases freely by the formation of side-bulbs when it is doing well

IRIS FILIFOLIA

Collingwood Ingram

Reprinted from the British Iris Society Year Book 1949

There are two irises which, at certain seasons of the year, give colour and character to the South Spanish landscape. These are *I. sisyrinchium* and *I. alata*. Where they occur they are sometimes found in incredible numbers and in such places they literally carpet the ground with their cobalt or sapphire-blue flowers. But from the gardener's point of view, the most interesting, and certainly the most useful, member of the genus is the comparatively rare *I. filifolia*. I say "rare" only because it appears to be very locally distributed in Andalucia; where it has formed colonies it is often plentiful enough. Having narrow, grass-like foliage, it is extremely difficult to find when out of flower, but if detected the plant can always be recognised by the curiously mottled sheaths at the base of the leaves. In the immature state these sheaths are strongly marked with purplish-crimson spots usually arranged so as to form irregular transverse bands. Actually they are the aerial extremities of the tunic surrounding the bulb and in this species are seemingly more or less permanent. In course of time these withered sheaths, or tunic-tips, accumulate to form above ground-level a distinctive shaggy tobacco-brown tuft. So far as I know this feature is unique among the irises of the Xiphium section.

Judging by a dried specimen in the herbarium of the Gibraltar museum, the form occurring on the limestone formation of the Rock itself is not only more robust in habit but bears proportionately larger flowers than the plant found on the Spanish mainland. As I have now succeeded in obtaining specimens from both localities, I am hoping that I shall, in due course, have an opportunity of ascertaining whether this difference is constant or not.

Two or three years ago I crossed *I. Fontanesii* with *I. filifolia*. It is of interest to note that the seedlings, which have not yet flowered, have inherited the curious mottling on the sheath which is such a characteristic feature in their pollen-parent.

SHOULD BOTANISTS READ MILLER?

Roy Davidson

(The Bulletin of the Alpine Garden Society (England) asked this question in September, 1971, and presented a very good basis for protest).

"The fact that botanists have been reading Miller's Garden Dictionary has led to some irritating upsets in nomenclature and it is worth asking whether this study was really necessary. Do we really want to upset such well-known, long-accepted names as *Iris ochroleuca* (among others) and talk of *I. orientalis*? Since there do not appear to be any type specimens in a Miller herbarium, we tend to be left solely with his diagnoses, and, as may be seen, these are not always convincing (although quite properly in Latin, but he thoughtfully provides a translation."

A quote from Miller.

"*Iris orientalis*. Iris with a bearded flower, a three-cornered germen, very long sword-shaped leaves and a stalk longer than the leaves, with two flowers..... The seeds....were brought from Carniola by the Rt. Rev. Dr. Poccoke, late Bishop of Ossory, who found the plants growing naturally.

This plant hath a thick fleshy root divided into many knots on tubers which spread and multiply in the ground... From these roots arise clusters of flat sword-shaped leaves...which are more than three feet long and little more than an inch broad in the broadest parts, ending in points; between these arise the flower stalks, which grow four feet high....(the flowers) are divided into nine leaves. Three of these stand erect, which are white, and six turn down and are joined together at their base, the lower spreading out in a broad, obtuse, reflexed fall, having a beard which is of a bright yellow colour; the upper segment is arched over the lower, so as to form a sort of lip which is reflexed backwards."

It is, as you will concede, probable that *Iris ochroleuca* is the plant described but the diagnosis is very inaccurate. *I. ochroleuca* is not bearded, and when he describe *I. spuria*, Miller said "*corollis imberbis*", so we cannot say he was misled. When you add to this the fact that *I. ochroleuca* is not found in Carniola (part of Austria) and does not have six falls, there seems every reason to stick to Linnaeus' name, which presumably has a type specimen to supplement the diagnosis."

COMMENT: We read into Miller's description that he was speaking of falls and style-arms collectively, and they are indeed joined at their base, and further, three are arched over the lower set of three, but this is typical of all members of Iridaceae which have the iris pattern of flowers. We can do no better than to quote what Dykes had to say on the matter when it came to naming this species in his monograph THE GENUS IRIS.

"Miller's name *I. orientalis* can hardly be retained...because it is based on some confusion. His figure is indeed exactly *I. ochroleuca* except for the curious transversely spreading beard. His description, moreover, contains the words *corollis barbatis*, and, though the members of this group often bear a kind of microscopic pubescence along the center of the haft and the blade of the falls....the processes are unicellular and quite different from the multicellular hairs of pogoniris beards."

Dykes also points out that the species has never been known from Carniola, and reminds us that the acceptance of the Linnaean name *I. ochroleuca* would allow retention of Thunberg's *I. orientalis* for the eastern relative of *I. sibirica*.

The Werckmeister catalogue of nomenclature of the genus (1967) accepted the Linnaean *I. ochroleuca*, and we could do no better than to follow. Likewise with *I. orientalis* Thunberg for the Sibiricae, but it would seem that *I. sanguinea* is firmly entrenched for that one.

QUESTIONS

Q. About the old problem child, the Ensatae, are we to infer from Mathew's treatment that the plant of the Asian steppes should now be known as *I. oxypetala* Bunge with *I. moorcroftiana* and *I. ensata* in synonymy, rather than *I. biglumis* Vahl? I am wondering why *I. lactea* Pallas 1776, which appears to be the oldest, has not been taken for these plants.

A. Since it was Davidson who stuck his neck out on this, it was Davidson to whom the ball was passed. He writes: No one has taken the time to unravel the tangle represented by the above questions. I do not qualify as a taxonomist, but in the preparation for the treatment for the AIS Bulletin # 209 everything available on the matter was studied. It must be remembered too, that circumstances can alter and interpretations; in my own mind Ensatae consists of one polymorphic species, and represents a situation not unlike the widespread *I. missouriensis* of our own west. If one were to consider that it consisted of more than a single species then the following reasoning would not pertain. To begin with, I assumed that *I. lactea* Pallas could not be considered, even though said to be the oldest; there would appear to be some discrepancy as to its legitimacy. Dykes listed it in synonymy without date as per Index Kewensis, and Werckmeister has added a question mark in his listing, seeming to indicate he is not certain it should be referred to here at all. Next in sequence are three other names attributed to Pallas: *an spuria* (this without publication date), and *caespitosa* and *caricifloia*, both cited as manuscript names, the latter subsequently published by Roemen & Schultes 1817 and again by Link 1820. But before any of these could possibly pertain, three others must be mentioned: *I. graminea* Thunberg 1784 (immediately to be rejected of course, since Linnaeus had made prior use of the name for another plant in 1753); *I. triflora* Balbis (which does not receive any further mention until included by Werckmeister in synonymy); the next possibility is *I. biglumis* Vahl 1806.

Before the list is through there are no less than eight other entries, of which *I. oxypetala* Bunge 1832 is not in Dykes list; it is included by Werckmeister, where it is referred, in part at least, to *I. grijsii*. On this matter Dykes had allowed a footnote to the effect that it "might be related to the Ensatae", but it seems never again to have had mention in that light. But before *I. oxypetala* Bunge can be considered, there are two strong contenders, *I. pallassii* and its variety *chinensis*, both Fischer 1821 (the latter has unaccountably been once suggested as the one to apply here), as well as *I. moorcroftiana* Wallich 1828. And we must not lose sight of the fact that by now *I. caricifolia* Pallas has been twice published. This may be a deeper well than we bargained for!

I will here add that the name *I. oxypetala* is usually credited to C.A. Meyer 1834, rather than to Bunge, perhaps implying something not very solid about the latter? In the event that no one of the above can measure up to acceptance, there are more: *I. longifolia* Royle 1839, *I. fragrans* Lindley 1840 and *I. doniana* Spach 1846. For-saking all others, there are also the well known horticultural names "hyacinthiana" and "pabularia".

Q. How much variability can one expect within *Iris setosa* var. *canadensis*? And is that the right name or should it be called *Iris hookeri*, the name given it sixty years earlier?

A. Dr. Paim, a member from New Brunswick, has observed this in the wild and sent us seeds; consequently we passed the question on to him for the following reply: "When I visited the Gaspé coastal region I was not carrying a camera and so have no photographic record of the variation. Also I am not at all certain that such variation is innate; it may be due to local conditions of soil and exposure. On the exposed headlands every rock may have a different chemistry, but soil texture and degree of protection seemed quite similar. Yet all plants from there have come to look quite alike in the garden within 2-3 years time. A clump from Brier Island off the tip of Nova Scotia, Bay of Fundy, may be inherently smaller, but I have doubts about that one too because it was put into a poor site. Last August I saw whole headland meadows covered with iris, too early for seed, and I noted no degree of variation in the size."

SIGNA p. 307 carried a discussion of horticultural forms of *I. setosa*. The situation presented there was much as Dykes knew it when he wrote (1913) of the many forms obviously distinct and yet equally obviously unworthy of a specific name." He cited Penny's *I. hookeri* (1840) in synonymy under *I. setosa* var. *canadensis*. What we grow in the northwest by the name is a very compact form that came from Scotland under an erroneous seed packet name; beyond that we know nothing. As Dykes wrote, both short and tall as well as intermediate races can be maintained by preventing their intercrossing.

As to which is the "right" name, here is an example of a situation where it does not seem that the rule of priority has been followed, but actually it has been. In order that the rule can be exercised, all names to be considered must have been given in the same taxonomic category. Here we have *I. hookeri* Penny 1840, given in species designation, and *Iris setosa* var. *canadensis* Foster 1903, given in a category ranking below that of species, in this case geographic variety. Sir Michael could have taken up Penny's prior name and reclassified it, but he did not.

There seems little evidence if any for regarding it as a species distinct from the *Iris setosa* of Asia and northwestern North America, and thus it must be called *Iris setosa* var. *canadensis*.

Q. I understand that a hard and fast rule on the latinization of commemorative proper names ending in -er has been written into the code for nomenclature, i.e. *bakerana fosterana*. What other iris species are affected.

A. Fortunately there are few. Aside from the two you mention, the names of two other botanists are commemorated in *I. graeberana* and *I. hookerana*. Possibly certain other examples will occur within the lesser taxa (varieties etc.) as well as in the improperly designated clone names, which--correct or not--are still with us.

AMOENA PATTERN IN *Iris attica*

The Dwarf Iris Society was considerably elated (some members ever dubious) a decade or so ago at the report of the amoena-patterned *I. attica* that was brought back from the ruins of the Temple of Poseidon on the Sunion peninsula of southern Greece, and registered as 'Sunion'. Now it is apparent that the pattern is not at all unusual, the Polunin record attests that this species is locally abundant, not only there, but at Hymettus and on the lower slopes of Mt. Parnassus, the "usual ones being cream and white."

SPECIES FOR COLD CLIMATES

Joan Cooper

There are colder areas in the continental United States than the Twin Cities of St. Paul and Minneapolis, Minn. but not many. Average temperature of 44.1°F. has little significance compared to the variations from -34° to 105°F. One of our coldest winters was that of 1976-77 though spring came early. Most of the species of which I write lived through that winter.

Perhaps more significant to hardiness than the low temperatures is the long winter with the ground sometimes freezing to a depth of 5-6 feet. My own conclusion is that those plants whose roots can withstand the frozen ground can withstand a long winter as well as a short one. In fact, I believe that the deep freeze usually retards growth until spring temperatures are relatively stable, and as a result, our plants do not suffer damage from spring frosts as frequently as those in more moderate climates.

Broadleaved evergreens are rarely successful here because of dehydration during the several months when the plants cannot obtain moisture from the frozen ground, and are simultaneously dehydrated by cold dry winds. However, with iris, winter covering is quite effective in preventing the problem, and we have successfully raised some species considered difficult in milder climates. We will not confine this report to difficult ones, but include those we know have been successfully raised here.

Most Minnesotans routinely cover all iris with hay, straw or leaves in November, removing the mulch in March or April, whenever examination shows that growth is beginning. The winter mulch can then be converted to summer mulch for beardless iris and other perennials, or composted. With beardless iris I only pull the mulch slightly to one side.

Among the dwarf bearded species we are (not surprisingly since they need cold to prosper) able to grow the many *I. pumila* varieties with ease. Other successful MDBs raised by myself and others here include *Ii. attica*, *barthii*, *binata*, *furcata*, *mellita* (including its variety *rubromarginata*), *scariosa* and *subbiflora* as well as several varieties of *chamaeiris*. All are said to dislike wet feet, but probably no more so than than TBs except for *I. mellita*.

The many clones of *I. aphylla* thrive in our climate and bloom with an abandon unequalled by most iris. Also successful in SDB size are *Ii. benaccensis*, *olbiensis* and *virescens*, while taller medians *Ii. alberti* (BB), *cengialti* (MTB), *illyrica* (MTB) *Kochii* (IB), *imbricata* (BB), and *I. variegata* (MTB) are also happy with us. Again good drainage seems to be the only requirement.

Most of the tall bearded species, diploid or tetraploid, are grown more as curiosities than for garden beauty, but we can report successful growth of *Ii. cavarnae*, *croatica*, *kashmiriana*, *mangaliae*, *mesopotamica*, several forms of *I. pallida*, and *I. sambucina* (*squalens*).

Among the regelia species, *Ii. hoogiana*, *korolkowii* and *stolonifera* have pleased their owners, and the following oncocyclus have met with some degree of success: *Ii. gatesii*, *haynei*, *hermona iberica* (does very well), *paradoxa* and *sari* (also does well). Among the pseudoregelias *I. kamaonensis* has lived two years but failed to bloom so far. Also growing in at least one Minnesota garden is *I. potanini*. The arilbreds fare very well and are conspicuous at most Iris Society of Minnesota Shows.

In the Series Sibirica I have all those listed in the SIGNA manual growing in my garden. My first *I. chrysographes*, black form, bloomed after a spring planting in 1977, and *I. delayayi* is also new; so these two must still prove their hardiness. My 40 chromosome siberian seedlings from the seed exchange number about 300 and have proved to be very hardy. Growing these from seed is one of my adventure projects. *I. sibirica* and *I. sanguinea* are superbly happy here as are the garden siberians.

My other adventure is growing the Pacific Coast Natives from seed and plants, and I am surprised at my own success. *I. bracteata* struggles on. *I. douglasiana* bloomed last spring after that extra cold winter, as did two different clones of *I. tenax* (one is a lovely orchid and the other a lighter orchid with violet eyes) and an unidentified pink with red eyes. A number of seedlings and three or four cultivars have wintered successfully and are anticipated eagerly in the spring of 1978. Also wintered, but not bloomed as yet is *I. thompsonii*, a natural hybrid.

Among the Series Spuria bloom has been reported here on *Ii. graminea*, *halophila*, *ochroleuca*, *songarica* (this is apparently in error as reported in SIGNA, fall 1977), and *I. spuria*. I have also plants, proven hardy but not bloomed as yet, of *Ii. carthaginiensis*, *klattii*, *monieri* *sintenisii*. I find *I. ochroleuca* very shy blooming here which probably explains why many of the older cultivars are also. Newer cultivars perform much better for us.

Series Laevigatae provides us with five species--the so called water iris. However, they are happy with us in any moist (or moistened) garden spot. *I. ensata*, parent and grandparent of the Japanese cultivars, has wintered successfully, but has not yet bloomed in the same moist acid bed as its decedents. *I. laevigata* probably requires more water than the others but has bloomed in at least one perennial border here. *I. pseudacorus*, the European Yellow Flag, blooming at the same time as the TBs, still gets its share of attention, especially in the tall erect golden yellow form. The ivory form may be almost as striking when my clump is larger. *I. versicolor* and *I. virginica* have recently become a confused lot in Minnesota. Where we had presumed all our native blue flags were *I. versicolor*, we now find that many are *I. virginica* var. *shrevei*. Several people here are collecting colour variants of both species, and we expect interest to grow.

Also surprising and pleasing to us is that we can successfully grow several Louisiana species and cultivars. Two slightly different clones of *I. brevicaulis* thrive and bloom every spring (one reportedly for the past 50 years). New plants of *I. fulva* and *I. nelsonii* survived and increased, but did not bloom after the cold winter. Cultivars have usually done well but not always. None have died, but a few sulk a lot.

I. missouriensis appears to be a thoroughly hardy and variable species. If you have not succeeded with the PCNs, these might be a pleasant substitute. The first three *I. missouriensis* I have ever seen are so nice and so different from each other that they surely must have great potential for hybridizers.

Also showing good and different genes in every seedling are the Series Tripetalae species, *I. setosa* and *I. hookeri* (ED: correctly *I. setosa* var. *canadensis*. See "Questions" in this issue). They are tall and short, ruffled and tailored, light and dark, and hardier than the oak trees. I also lay claim to being the only person to grow and bloom *I. tridentata* in Minnesota; delivered in the spring of 1977, it bloomed in early July. If it is still there in the spring of 1978 we'll let you know. Surprising that the most northern and most southern iris species should be in the same series.

Series Ensatae with only one species, *I. biglumis*, (again see "Questions") may

be getting bigger. Seed labeled *I. songarica* produced many plants similar to but significantly different than *I. biglumis* as reported in SIGNA last fall. I have three other authentic *I. biglumis* clones, interesting and, if not entirely beautiful, they are not unattractive.

Hardy, not imposing, but really OK is the lesser blue flag, *I. prismatica*. I am looking forward to a white and a larger form that I planted out this past year.

I. unguicularis is, as far as we know, not hardy. Seedlings in my basement window will eventually get a trial on the other side of the glass.

I. verna is not mentioned as being a variable species, but I have a beauty and an ugly duckling. Hardy--yes! But how do I get it to increase and bloom annually?

In the Evansia Subsection are delicate, exotic beauties, at least some of which wink those crazy eyelashes (or crests) at Minnesota's cold. *I. cristata* forms thick spreading mats of lavender at Eloise Butler Wild Flower Garden in Minneapolis, and at least five colour variants including white, survived and bloomed after that cold winter in my garden. And alongside *I. cristata* winked (those crazy eyelashes again) the unbieveable *I. tectorum alba*. The lavender form also grows well for us. (Also winking as I write this is NADA, a hybrid of *I. japonica* X *I. wattii*, blooming in my basement with no artificial light from 2-23 to 3-6-78. So gorgeous I can't believe it. We hope to see *I. lacustris* with blooms as large as a nickle in the spring and *I. milesii* has been through two winters but has not yet reached bloom size.

The one seedling that grew of *I. foetidissima* has lived through two winters in my garden, seemingly undamaged under its leaf and straw blanket, but has yet to bloom.

Iris dichotoma, iris or not, has been a pleasant addition to many gardens here for years. I have also grown the hybrid with the Blackberry Lily, *I. pardancanda norrisii*, which bloomed prettily, but did not prove as permanent as *I. dichotoma*.

Among the bulbuous iris, *Ii. danfordiae*, *reticulata*, *histroides* and perhaps others of the *reticulata* group are grown, but with what degree of permanence I am not sure. The "Dutch" iris have not proven permanent for me though they usually bloom well enough the first spring after planting. We will, no doubt, be trying more of these in our search for new iris to grace our gardens and impress our friends.

I find that one of the most significant helps in growing the less likely species (or hybrids) is planting just as early as possible, and in the case of many of the more delicate ones, I believe spring planting is needed--for the PCNs in particular. Growing from seed may be desirable for acclimatizing, but is also so much easier on the budget which is a real asset when the most likely possibility is loss of the plant. Would I risk a \$2.50 *unguicularis* to test its hardiness? No. But those 20 seedlings worth from 25¢ of seed--well, why not? Will risk NADA? Not on your life--not till it runs out of space and all my friends have a piece.

Hopefully, this report will give some of you courage to try the unusual, also, report your successes--and maybe even your failures.

ED: Thanks Joan for your homey sort of article, which is just the sort we have been asking for for a long time, in vain its has seemed for the most part, except for the "Letter" section. This is for a large segment of our membership and serves to be a nice balance for the "scientific type". Lets hear from more of you - now!

REVIEW: THE BRITISH IRIS SOCIETY YEARBOOK - 1976

Roy Davidson

Again the various reports of activities, shows and gardens of Britain bring to those of us who dote on species a great many items of special interest. We learn for example, which of them made a good showing in the year of the worst drought in two centuries. This season the Dykes Centennial year, may tell us even more in that respect.

At the early Spring Show (February), Mrs. Goodman's prize-winning *dsnfordiae* was scented "as though the lid had been lifted from a honey-jar"; we learn also of a very fine, broad-petaled, deep violet-blue *histrionides* (or hybrid) grown from bulbs obtained in 1962 by the Rev. Blakeway-Phillips. (Perhaps some of it will find its way into commercial channels so that we all in time, enjoy it.) A pan of some thirty flowers of *winogradowii* shown by J.C. Archibald must have been breath-taking (if one might make a mental comparison from having seen a single pale gold blossom with elegant long standards.)

Such newly described and newly discovered--and of course newly cultivated--species as the *Regelia I. afghanica*, and the Junos, "Doab Gold" (*I. doabensis*) and the pale blue *I. microglossa* were shown by Dr. Jack Elliott. (It is only through the patient persistence and far-sightedness of such clever growers that these rarities will ever come to be listed as "common in cultivation". (Long may they grow).)

EVANSIAS

Mrs. Hansford recalls having seen on the grounds of one of the resort hotels around Taiwan's Sun-Moon Lake what she took to be *I. japonica*...."just that one iris, but somehow in England it has never looked so happy." (Could it be that this is what was described by Ohwi as *I. formosana*? We recall that the Japanese occupied this island for a period of fifty years, from 1895-1945, and surely they brought familiar plants with them. But was this one of them? And if indeed it might be *formosana*, how do the two differ?).

Perhaps notable is reference to a "large form" of *I. wattii* shown by Mr. Jeffs. (We had always thought there was only one clone of this in cultivation. Could it be possible that 'Jean Stevens' 'Queen's Grace' (*wattii* X probably *tectorum*) somehow came into Mr. Jeff's possession unbeknownst to him? Two of Dr. Ellis' seedlings from (*japonica* 'Ledger' X *confusa*) have at last been written up, even so briefly. Number 2 is said to have large flowers on a well-branched stalk. (See SIGNA p. 381).

CULTIVATION

No less than three accounts of growing species of many kinds offer as many viewpoints. The Rev. Blakeway-Phillips recalls the pleasures of some of his favorites and most enthusiastically recommends *I. unguicularis* as the one he could least do without, mentioning the deep violet-purple 'Mary Barnard' as the best-loved of all. (As this grows here in the northwest, it is certainly to be admired for both beauty and vigour, but as yet there is no commercial source). Jenny Robinson also favors 'Mary Barnard'; she grew *subbiflora* in the acid bed, out of space necessity, and with good results; similarly with *pumila*, and she threatens to paste her *tectorum alba* to the roof with swallow droppings mixed with mud, for it does not flower in her ground! Her *japonica* was barren of blossom until she gave it a "dollop of ancient manure", and she speaks of Britain's native *foetidissima* as "the best wage-earner in the iris world".

Bob Raabe (Australia) writes from experience on flowering irises in containers, Evansias, Laevigatae and Hexagonae, citing the resultant tidiness in the garden as one reason for his doing so, although of course considering the tenderness of some of them as sufficient reason. He likes to plant *Primula malacoides* for the very early spring flowers which covers the barrenness of plants yet in earliest growth. (sounds most attractive, but the gardener should be certain to seek out some of the improved colour strains unless he likes radish-blossom pink, the usual).

THE BIG JUNE SHOW

The Early Summer Fortnightly show is the main one for irises, held in the big R.H.S. New Hall, and it is reported to have come off rather well in spite of a dry, early season and the show date, far later than most irises. It is noted again that bearded winners are in the main old-timers by U.S.A. standards, and we wistfully recall that the British grow best what flourishes and show the results admirably. However, Dr. and Mrs. Tamberg had brought stalks from Germany, both of their own seedlings and for Dr. Eva Heimann, with a good many ribbons and other awards garnered for the effort.

Mr. Back took the Christie-Miller Challenge Trophy awarded the winner in Class 29, a collection of beardless species and hybrids. Sadly, his obituary is also part of the Yearbook contents. Mr. Worth's second-place exhibit included an entry recorded as Louisiana X *orientalis* hybrid. (In view of the uncertainty with which the one known as 'Gerald Darby' is being regarded, we ought perhaps to know more of this too). A good stalk of *brevicaulis* (photo) won for Mrs. Goodwin the Angela Marchant Trophy for outstanding specimen in the species classes, and *I. crocea (aurea)** placed first for Mr. Mason in spurias, while Mr. Linegar showed a nice variety of the colour forms of *xiphium*, winning a second.

For the vagaries of the season, as well as that of economics, the vast commercial displays of prior years, those magnificent constructions of rainbow-hued tall bearded irises mainly, were absent for the most part, and surely missed in the vast vaulted building. Humphreys' exhibit made the most of spurias and siberian cultivars and must have attracted considerable interest in the absence of competition. Grpington's relied on the spires of eremurus used with much other material, dutch, spuria and siberian irises included.

"For the Species Group, one might say it was really their year" so wrote the reporter, and their educational exhibit featuring all sorts of iris information along with living specimens was assembled in a carefully planned way that was of "absorbing interest", and it again won both the Lindley Medal and Hamburg Plate for the group. The Species Group this year instigated a new cup in memory of the late Donald Patton.

PCI IN BRITAIN

Of course any time the Dykes Memorial is awarded it is an event, but when it goes to one of the lesser iris rather than a tall bearded, it is a monumental occasion. Mrs. Brummitt took it this year for her Californiaeae hybrid called quite extraordinarily by the name 'No Name', and with a long history of preliminary awards, including the AM in 1969, FCC in 1970, and both the Hugh Miller Trophy and AGC in 1973. 'Banbury Gem' (Brummitt) and 'Blue Ballerina' (Knowles) were given Awards of Merit by the Joint (RHS-BIS) Iris Committee after Wisley Trials.

Several American-raised PCI were shown at Chelsea and selected by the Joint Iris Committee for Trials: Hager's 'Pacific Moon', Phillips' 'Native Warrior', Ghio's 'San Lorenzo', and Stambach's 'Pacific Charmer', along with two from Mrs. Brummitt, coffee-coloured #192 and mauve./pink #193, and one from Lady Drewe, the cream/purple #616. Several of the commercial exhibits included the very popular PCI in their stands as has been usual of late years.

Other recognition included the Award of Garden Commendation to three of the Brummitt family: 'Banbury Gem', 'Banbury Magic', and 'Banbury Welcome', as well as Knowles' 'Blue Ballerina' and to Lady Drewe's 'Broadleigh Ann'. Some of these are now appearing in American lists, and it will prove interesting to observe how they grow once brought back to native soil. British registrations include yet two more of the Banbury family, orange-buff 'Banbury Candy' and Banbury Pagent', which sounds to be in effect a purple reverse bitone.

OTHERS OF INTEREST

Mr. Luscombe presents another of his in-depth species treatments, this time of iris *aphylla*, the mid-to-east-central European bearded complex; his principal reference is stated to be the MIS "Eupogon Iris Species in Cultivation", from which he makes one major departure, the recognition of the subspecies *hungarica*, based on the morphology of the ovary and capsule.

Tom Nonman speculates on the phenomenon of the tuberous roots of Junos, and compares them to the biennial roots of rhizomatous species, not unfairly. The escaped *versicolor* in Epping Forest, Essex, is traced by Mr. Goodwin as probably dating back at least fifty years to Paul's Nursery (famous still for Paul's Scarlet Climber Rose) having been located in the vicinity from ca. 1875 to 1920. Mr. Service has been observing what Dykes called the "water marks" of iris leaves, and writes that he will continue to do so and to report his conclusions.

Dr. McEwen records his ten-year breeding experience with tetraploid siberians, while the lady who reported on those she saw at Wisley was of the opinion that a good thing could be too much....."Though very handsome, they seemed....on the margin of the danger zone....size and solidarity tending to destroy the delicate and graceful simplicity...". (We might speculate as to the anticipated tetraploid forms of Louisiana, Japanese and *pseudacorus* as well, all now realities: certainly we do not need more vigor in any of these, at least in favorable places, although tolerance to adversities might be selected for. Do we need bigger blossoms? Well maybe in the last. Better substance we would applaud, and we would welcome a fuller range of colour expression. But were the first tetraploid tall bearded irises heralded by one and all? Or were only enthusiastic reactions recorded for posterity? Perhaps we will all need much more exposure to such "giant fairies" as they've been referred to.

* Note that certain nomenclature has been altered from the original to conform to today's taxonomy on the Iris registry.

EXCERPTS OF LETTERS FROM OUR MEMBERS

George E. Bryant, 1909 Calle de Suenos, Las Cruces N.M. 88001

It appears I won't have much garden this year. Due to the hottest and wettest summer on record, the root-knot nematodes spread through my beds like wildfire. Since I was unable to find a commercial outfit who would fumigate my little garden, I'm trying to control them with Nemagon. The tedious work of cutting off all roots, transplanting and treating is far from finished, so little spring bloom is to be expected.

Luckily, I found no sign of the pests in the aril species and hybrids bed, but just to be on the safe side, I dug those iris and put them in a new location after treating the soil. At the present time, the regelias and hybrids show little growth, while the oncocylus are shooting up like weeds. ED: Jan. 16th.

This is a very open winter here. No snow, minimum temperature hasn't gone below 20° and this morning it was above 40°. Good growing weather for iris, although the garden doesn't look so well because of the nematode damage. Nothing in bloom now except the lavender unguicularis and Edith Cleaves' WINTER MYSTERY.....

Hattie Hubbard, Seattle, Wash. 98155.

.....reminded...for at my age of 82 I have the best "forgetter" in the universe... don't want to be left out of the SIGNA program...I do grow quite a number of the native iris here....and did go on one collecting trip last year...my daughter and son-in-law took Orpha Salsman and I to the "Cormani" tenax area at Vernonia and we found quite a few creamy, pink and white iris. Also found out that the owners of that hill area had "clear cut", but did not burn that area, so the iris will thrive, for at least another ten years. They replanted to 1' fir trees.

Clifford Berger Jr., R.R. 6, Plymouth, Ind. 46563.

.....find species to be of more interest than the multitude of hybrids, especially the I. germanica gang. They are beautiful and I'm guilty of growing a few, but the species take me to places I will never be, or in some cases, want to be. They have a mystery about them that is hard to explain. I guess they conjure up the wild in my background. I also collect roses, but again not the hybrid teas but species and old hybrids....also I am a prairie nut and have gathered many prairie species once found in Indiana, but now rare or extinct. I hope to establish a large area in tall grass in a few years....I really enjoy reading about the species and especially the seed distribution. I have many fine seedlings from last years selection.....

Jean Ireland, Sebastopol, Calif. 95472.

After struggling with a year of drouth I'm finding it hard to care for the irisI have been trying to find an orange innominata. So far no luck. I have a lot of seedlings from last year and we'll see what they bring. Also we are experiencing some real rain storms.....

Kathryn M. Heilman, 1615 Russell Rd., Lebanon, Penn. 17042.

....I have quit hybridizing and my seedling patch is in weeds. However, this year I expect to spend more time in cleaning the weeds out of my garden, and spend less time with the vegetables. I am ordering a few seeds from the seed exchange, as I have not lost my interest in iris, and just maybe, things might pick up, but this has been a sad year for us.

ED: Mrs. Heilman has an ailing husband and has lost relatives as well this year.

Mrs. F.F. Bourne, 1363 Swigart Rd., Barberton, Ohio, 44203

I read everything I find on Evansias, but I don't know enough yet. I bought "Bourne Graceful" from Linegar, thinking if I grew tectorum and cristata I could successfully grow it. It came Nov. 3, 1976, too late to plant out in this area, so I bought a 10 gallon aquarium, put in a deep layer of gravel, then 3 or more inches of soil, planted and grew under neon light in a cool room. However, I noted the vast difference in its root system from Tectorum and Cristata.....Guess I'll have to write Dr. Ellis to know where I can get more.....If you can give me any information on how I should handle it, if I'm able to secure it again., or if you know a U.S. source I'd appreciate it....Also if you know a source for the "Walking Iris" (neomarica) in the blue, yellow or white. Many years ago I had the white one. Lost my Cristata. I got trampled out. Another question: Where can I get seed of the Passion Vine? I want the one that grows wild in Tennessee. It is not coerula. I believe it could be incarnata. A friend in our area has it but it never sets seeds and we have been unsuccessful in transplanting some of it.....

John Holden, Route 1, Box 3770, Ridgecrest, Calif. 93555.

.....Under the lights, I use cool white fluorescent, at this time of year (Jan 27th) the daily temperatures run from around 55-58°F. early in the morning to around 76-78°F. at 4 pm where it stays until the lights go off at 10 pm. The embryo culture seedlings do quite well under this regime, so I have assumed it would be OK for the tissue cultures. I do have a refrigerator at around 36-38°F. that I could use, but cold has not been a requirement for germination of onco seed - it is for Regelia - as apparently the inhibitor in onco seed is all in the endosperm. Of course with EC this is removed and the usual after ripening period - two years for most - is done away with.

.....Also I have a question about virus elimination.....I contend from my own experiences that the embryo does not carry the virus and that therefore EC will eliminate it. Most of the CGWs....show streaking, splashing, spotting and flecking in the flowers; which I believe is virus caused. Not everyone agrees. Anyway, with all the seedlings I have raised from such parents, I've gotten 100% clean flowers.

Helen Tarr, 820 Riedy Rd., Lisle, Ill. 60532.

.....Have a number of seedlings, quite tiny, still in pots and I hope making it through our -15°F. nights under straw. Also have a number of tender ones that I kept indoors, plus some others I kept indoors because still quite small and some still germinating, and didn't know if freezing would kill the rest of the seeds since they were still germinating.. But most of them are not doing very well, especially the versicolors, and think perhaps should have left them out to freeze....

I had a pretty good year in species. Lost all my Californians, plants and seedlings, from the previous year.....But after digging up....saw one tiny green shoot starting up from one rhizome....repotted it..covered with a glass jar, as I had done for the Cal-Sibes the year before (and they lived and bloomed) with straw to the tops. Jean Witt thought perhaps since evergreen they needed some light.... My other species mostly did well. Cal-Sibes bloomed fine. I. forrestii lived through the winter and then collapsed....Delavayi started dying the minute planted. Also lost Setosa Kirigami and another, but my dwarf setosa bloomed its head off and multiplied. I. prismatica and I. prismatica 'Austrina' both bloomed well...My chryso-graphes all died... My spuria, new Siberians, new Japs and some 30 Louisianas all lived and most bloomed, though many shorter than normal (mostly planted early Nov., days before it went to -5°F for that awful winter). My cristata, lacustris and tectorum bloomed and seemed thriving. My Japonica is multiplying...but missed the bloom. Wintered it indoors but not under good light. My Wattii still hasn't put up a stalk. ...and have Nada and Darjeeling new, all in the basement.

Have a Louisiana iris about to open now (Jan. 10th) Was given Holleyblu, a collected *I. giganticaerulea*, the year before by a friend who says she digs it and pots it in a bucket over winter in the basement, barely damp. I potted it for last winter under lights, but not strong ones, and it did nothing all summer on the patio but multiply.....so divided it and put one piece under straw and rose cones in my Louisiana bed and one back in the tub in the basement. It has a bud about to open. Basement is 50° F. or so....

.....my Red Dazzler bloomed fantastically when moved to my new Louisiana bed with better soil and a foot of straw protection. Four branches plus terminal, each with two buds, and all blooming at once....Missed one piece when dividing it and that also bloomed; smaller and fewer flowers as in other years....that piece had no protection or just a touch of straw drifted from the other plants. So it is hardy to -20° F. with virtually no protection on the coldest north side of the house....Worry about bud production on my new fancy ones, as the flowers I enjoyed last year had their buds formed on the west coast the year before. Trying to find out when the buds form in the north, since no dormont period as in the south. Also don't know how to feed for bud production...I'll see this coming year how they did with my improvising.

Robyn Gully, 3 Louis Ave, Hawthorndene, South Australia, Australia.

The iris season is drawing to a close (Dec. 13/77), but the last weeks have hearded at least one wondrous sight, which is right now, a bloom of *I. samarae*, yellow form. This gem bloomed after spending three months in quarantine at the Adelaide Botanical Gardens! It was among a batch of species oncos from David Thahak Tirah Nursery in Israel; 14 to be exact....I feel chances of success with them in this part of the world is probably as good as in many other areas of Australia.The Japanese irises (hybrids) have been almost a total failure this year due to the very dry winter we experienced. No amount of watering can make up for good soaking rains. Species that did bloom well were *I. cristata*, *I. graminea* and *I. laevigata album*. The disappointments were due mainly to lifting at inconvenient (for the iris) moments as we were laying drainage pipes right through September. Non-bloomers were *I. fulva*, *I. tectorum*, *I. japonica* and *I. variegata* (none for five years) and *I. watti* to name but a few.

FIELD GUIDES TO REGIONAL OR SPECIALIZED FLORAS

H.M. Metcalf

SIGNA members may appreciate knowing of field guides to regional or specialized floras, whether illustrated or not. Such field guides should be useful to those who study natural vegetation as they travel about the country.

Iris missouriensis and *Sisyrinchium angustifolium* are included in DeSpain, Dom G. 1975. Field Key to the Flora of Yellowstone National Park. Yellowstone Library & Museum Association, Yellowstone Park, WY 82190. There are no illustrations in this 257 p. guide to the flora of our first National Park.

Iris pseudacorus (an escape from cultivation), *I. prismatica* and *I. virginica* are keyed out in: Beal, Ernest G. 1977. A Manual of Marsh and Aquatic Vascular

Plants of North Carolina, with Habitat Data. North Carolina Agricultural Experimental Station Tech. Bul. No. 247. 298 pp. There is a line drawing of *I. pseudacorus*, but no illustration of the other two species, As the title indicates, there is a fund of habitat information in addition to descriptions of the species and the key.

IRISES OF THE DUTCH BULB TRADE

Ernst Heinrich Krelage

*Translated from the Dutch by William T. Stearn
Reprinted from the British Iris Society Year Book 1949*

The irises of the Dutch bulb trade are not restricted to bulbous kinds, for the rhizomatous irises are also grown in some nurseries, which have taken them up as a side-line among bulbous plants and herbaceous perennials. However, rhizomatous irises play no prominent part in the bulb trade; they are cultivated in greater quantity nurseries for herbaceous plants, and the following account, apart from a few exceptions, deals exclusively with the irises of the *Xiphium*, *Oncocyclus*, *Regelia* and *Juno* sections. These exceptions concern the oldest *Iris Kaempferi* varieties, which came into commerce from Haarlem, and a number of bearded iris seedlings raised by Dutch bulb firms, although the great development of the bearded iris took place outside the bulb trade.

The Spanish Iris

Of the three big groups of cultivated bulbous irises (the Spanish, English and Dutch), the "Spanish" are derivatives of *Iris xiphium* Linne, but this does not wholly explain their origin. Although this blue-flowered species, a native of Spain and Portugal, is one of their parents, it is not certain whence they obtained the yellow colours which occur so abundantly in the varieties. These have been attributed to the influence of *I. lusitanica*, but this flowers two weeks before *I. xiphium* while the habit of growth and shape of the flower distinguish it from the latter. The firm of C.G. van Tubergen, Jr., tried to solve this problem about 1891 by crossing various species which are native to Spain, Portugal and Algiers, by name *I. xiphium praecox* (misscalled *I. filifolia*), *I. tingitana* Boiss. & Reuter and *I. lusitanica* Ker-Gawler. This attempt did not, however, provide the solution, because the resultant seedlings flowered much earlier than the Spanish irises and kept this habit under continual cultivation. A new race was in fact created by these crossings, which later received the name of "Dutch iris".

Both the blue *I. xiphium* and the yellow *I. lusitanica* were first made known by Carolus Clusius, who became acquainted with them during his Spanish journey of 1564. He did not see *I. xiphium* growing wild, but found it in the garden of Jean Joigny, a French architect living at Valladolid, who has collected it in the hills of Castille. Clusius found wild many forms of the species later named *I. lusitanica* and *I. juncea* Poiret, and sent them, together with the above-mentioned, to his Belgian friends. In this way, apparently, they came into the possession of the painter Raphael van Coxie (1540-1616), who, in his turn, gave them to the apothecary, Willem Driesch, of Antwerp; l'Obel related in 1581 that both men, like many other flower-lovers, had planted these irises in their gardens.

In 1594, at Leyden, Clusius came to know a related kind which was then called the Portuguese iris by Dutch gardeners. Both the iris from Valladolid and that from Leyden seem to have been colour forms of *I. xiphium*. From this beginning the number of variants of this species was remarkably great. Indeed Clusius gave lengthy descriptions of eighteen seedlings obtained in Belgium, partly from Jean Boisor, amongst them being several yellow forms with broad or narrow petals. After Clusius had himself raised yet further variants in colour and form out of seed received from Boisor, he exclaimed "Nam in tana varietate, quis singularum discrimina commode verbis exprimere queat?" It is then hardly surprising that the Belgian flower-lovers, who in their turn sowed the seeds, quickly acquired a great number of varieties in all

of blue, yellow, white, purple, bronze, etc. Van Ravelingen, the publisher of Dodoens' herbal, when he issued a new edition of this in 1608 with additions of his own, left out the descriptions of these iris varieties, because "every day distinct kinds of these flowers will appear".

So variable a new bulbous plant was a welcome enrichment of the bulb collections of both amateurs and nurserymen. However, Spanish irises never attained so outstanding a place in public esteem as did the tulip and later the hyacinth. They were offered according to colour or in mixed lots, but there is no evidence whatever of named varieties before the end of the seventeenth century.

The French florist, Morin, who published a list of named bulbous irises, which included 68 kinds of Spanish and English irises, was the first to offer them in this way. Only by means of the colour descriptions given can one decide approximately which kinds belong to each group. John Rea adopted the whole list in a translation by Sir Thomas Hanmer. These names do not appear in later works; thus they seem to have been quickly displaced by other varieties and have no special historical importance.

During the seventeenth and eighteenth centuries the Spanish irises remained in the background. These graceful and charming flowers, with their pastel shades, did not fit into the scheme of stiff regular flowers, later termed "florist flowers", such as the hyacinth, ranunculus and auricula, for which precise rules of beauty could be formulated.

In the nineteenth century the Spanish irises gradually received more attention. Frans van Velsen, Jr., of Overveen, put on the market a collection of named varieties, probably composed mostly of his own seedlings, which laid the foundation for the development of the bulbous plant in the bulb-growing area. Later, these were augmented by the seedling collection of Gebr. Veen & Co. of Haarlem, which was offered on the 18th of June, 1857, at an agricultural sale as "new from seed". .EH. Krelage & Zoon bought a number of the new and unnamed varieties which they named and put into commerce. Most of these varieties, which were originally divided into three groups according to the height of the stem, were planted by the firm in 1894 in the trial grounds of the Algemeene Vereeniging voor Bloembollencultuur for the trial of Spanish irises, which next year put an end to the confusion in the naming of these plants.

The remarkable growth of interest in these bulbous plants is evident from a further revision of nomenclature made in 1898, this time based on cut flowers, at which only those varieties were considered which could be offered in thousands. There were 36 exhibitors and 664 kinds. A third revision of nomenclature took place in 1912. The firm H. Homan & Zonen, of Noordwijk, showed a number of their own improved varieties with broad flowers and A.v.d. Eng Hz of Uitgrst also put up a big collection of seedlings. In the course of time the number of varieties was gradually reduced; the inferior and less showy kinds disappeared, and in the long run only the long-stemmed varieties with large or very beautiful formed flowers in pure and lively colours survived.

The English Iris

The parent form of the "English" irises is *I. xiphioides* Ehrhart. Although this species is native to Spain, these irises were named "English" because de l'Obel first came across them in England and sent them from here to his Belgian friends, so that Dodoens, who described them in 1568, stated " ex Britanniae insulae occidentale regione hic

bulbus ad Belgium pervenit." When Clusius visited England in 1571 he nowhere found this species growing wild and he learned from l'Obel, whom he met in Bristol, that l'Obel himself had only seen them planted in gardens. Evidently the bulbs had been brought to Bristol in ship's cargos from Spain and thus obtained this misleading name which they have retained ever since.

Although the English irises proved to be very variable, they have a more limited colour-range than the Spanish. The yellow colour is wanting in these except for an inconspicuous yellow streak on the falls. All attempts to create yellow varieties by crossing have failed up to now.

By contrast with the Spanish irises, which for two centuries were offered in price lists and horticultural works exclusively as groups, named individual kinds of English irises were being listed in the second half of the eighteenth century. Only a few varieties were kept for any length of time. Comparison of Voorhelm & Schneevogt's catalogue of 1788 with Gebr. Veen & Co.'s catalogue of 1808 shows that of the 37 varieties offered by the former only nine are to be found among the 47 varieties offered by the latter, namely BLSUW CAMELOT, BRUYN BLAUW GEVLEKT, CLEOPATRA, GRAAF MUNICH, NESTOR, PALLADIUM, SULTAN OSMAN and WITTE. The name "camelot" or "chamolat" had earlier been employed by Van der Broen, Morin and Rea; it was given to varieties with speckled or spotted flowers. When a seedling of an English iris blooms for the first time, the flowers are pure in colour without flecks or spots. Alas! the seedling need not be long in cultivation before it produces completely variegated flowers with greater or smaller, lighter or darker spots and flecks on a background of the original pure colour. By vegetative reproduction these spots are maintained; the original colour does not return. This phenomenon, which also occurs among Spanish irises, but to a lesser extent, strongly reminds one of the change in tulips known as "breaking" and undoubtedly is the result of mosaic or virus diseases although it has not harmed the cultivation of these irises during three centuries. In the eighteenth century bulb growers already knew that the surviving forms of English irises were variegated in colour; wherever they were offered in catalogues by colour-groups, they were always described as striped or speckled on particular ground-colours without pure self-coloured forms being mentioned.

These speckled flowers, emanating from different nurserymen, were often difficult to distinguish. Each firm has its own assortment of English irises, which it improved by adding new forms of its own raising, and gave these varieties its own names. The result was a general confusion of nomenclature. In vain the Algemeene Vereeniging voor Bloembollencultuur tried to bring order into this chaos by holding a trial of English irises on 29th June 1908. Eleven firms between them sent 420 varieties for comparison, so there was no lack of the necessary material. The Commission of experts, entrusted by the Council with the revision of nomenclature, nevertheless "after painstaking consideration and to their regret came to the conclusion that a correct system of naming could not be reached owing to the great similarity of many varieties. Moreover, it appeared that several varieties, derived from one exhibitor but grown in different gardens, had shown such divergence that a revision of the naming of *Iris anglic* was hardly possible" (*Weekl. v. Bloemb.*, 3 July, 1908).

In spite of this the attempt to obtain greater uniformity in the naming of English irises by the trade was repeated five years later. Again the nomenclature of individual kinds was abandoned; the Commission restricted its task to naming the colours. On the 17th June, 1913, nine exhibitors sent 234 varieties for this purpose; these the Commission divided into 26 colour-groups, with the purpose of achieving "the aim of the trial, being to bring if possible greater uniformity into the colour-

description of the numerous varieties of English Irises. As a result of this arrangement a single variety in each colour was chosen as the standard type from which the colour-description was made and formulated. As far as possible the varieties of the same colour from different exhibitors were afterwards referred to the same colour-group. Furthermore, the Commission decided that, contrary to the usual procedure, this time the varietal names sent by the various exhibitors should continue to be employed" (*Weekbl. v. Bloemb.*, 20 June, 1913). Among the 26 colour-groups there is only one pure unspotted colour, namely, white, in which presumably the flecks though present are hardly or not at all noticeable.

The Dutch Iris

Third group of bulbous irises, that of "Dutch" irises, is of later date. Their origin has been mentioned above under the Spanish irises. They are distinguished from these by their earlier flowering and their larger broader flowers, of which the falls are generally very large and have a well-marked large yellow blotch. The colours are mainly blue, lilac, yellow and white and all intermediate shades. The numerous varieties put on the market were named for preference after Dutch painters. This example was followed by Gebroeders De Graaff, of Leyden, who had made similar crossings with approximately the same results. Unlike, however, the firm of Van Tubergen, which had deliberately avoided using the Spanish irises in its crosses, the firm of De Graaff has used these varieties. Originally both stocks had their distinctive features, those of Van Tubergen possessing broader flowers with horizontally poised falls, while the other stock possessed looser flowers with larger and narrower standards. In the course of time these characters have gradually been lost by later seedlings, so that all may now appropriately be designated as Dutch irises.

Originally those raised by Messrs. De Graaff were offered under the group name *filifolia*, a completely incorrect proceeding, since one of the parents of the new breed was not *I. filifolia* Boissier but *I. xiphium praecox*, which had erroneously been called *filifolia*. From one of the first sowings there originated a variety which was later grown on a large scale owing to its remarkable capacity for forcing. Curiously enough the same property distinguished a plant found in England by the well-known growers Lowe, Shawyer and van Waveren among a trial consignment of unnamed seedlings received from Messrs De Graaff. This variety, which was noted on account of its special aptitude for early forcing, was named WEDGEWOOD and cultivated apart, being later re-imported into Holland. Early in February, 1927, this novelty received an Award of Merit from the Royal Horticultural Society of London and in March the same year a similar distinction was conferred upon blooms which the English firm had sent to Detroit, U.S.A., while a like consignment received a silver medal at New York in April.

The second sensational new variety was IMPERATOR, with an equally sensational career. It originated from a sowing by Messrs. Van Tubergen, who sold some of the resulting bulbs to N.F. Roozen & Co., of Overveen. Amongst these was a deep violet-blue form, which, after a considerable stock had been raised, received a first-class certificate under the name HOLLANDIA at the Haarlem weekly floral meeting; it had already received in 1915 an award of merit at the show, as well as a certificate of the experimental station in the same year. In 1918 Arn. W. Byvoet acquired half the stock. To obviate confusion with the group name of the Dutch irises, its name was changed to IMPERATOR. Extensive experiments, notably in Denmark proved its suitability for forcing and it became one of the most important kinds for export.

These selected varieties were in the course of time regularly enriched with new and meritorious acquisitions. Among the newest are GERRIT VAN HEES (Vereenigde Culturen), clear blue, PRINES BEATRIX (J. de Goede Sz.), white standards, deep orange falls, ORANGE KING (J. de Goede Sz.), deep orange-yellow, SUBLIEM, bright blue with yellow blotch, WHITE SAIL, very large pure white, and GOLDEN EMPEROR, very large clear yellow, the last three being raised by Gebr. van Buggenum and Ch. de Goede Sz.

The Dutch irises have won an important place among bulbous plants as cut flowers as well as for forcing. Experiments made over a period of years by Blaauw and his coworkers, mostly with IMPERATOR and WEDGEWOOD, to ascertain their periodic development and the right temperatures and treatment for forcing, have shown growers how to obtain the earliest possible flowering.

In 1931 and 1932 the Royal Horticultural Society held a trial of Dutch irises in its garden at Wisley. For this, 106 rows were planted, each row containing six bulbs. The 81 varieties represented were almost all contributed by Dutch firms. Fourteen received Awards of Merit, three were "Highly Commended" and two "Commended".

Iris Reticulata

Closely related to the Xiphium section are the dwarf very early-flowering species grouped around *Iris reticulata*. What is commonly regarded as typical *I. reticulata* is a charming plant with deliciously scented, deep violet flowers. The species was described in 1808 by F.A. Marschall von Bieberstein in his *Flora Taurico-Caucasica*. Large numbers of a reddish-violet scentless kind have always been found among bulbs of this iris imported from its native country, the Caucasus. J.H. Krelage, of Haarlem, first drew attention to this in a letter to E. Regel, of St. Petersburg, who afterwards, in 1873, described and figured both irises in his periodical *Gartenflors* (22. 354, t. 779), the red-violet kind being here named *I. reticulata Krelagei*. In a letter to Krelage on 26th March, 1873, Regel wrote "It is your honour to have been the first to distinguish these two plants which are described as *I. reticulata* in botanical works, and the second, which we yearly import in great quantities from the Caucasus (and of which I expect another consignment shortly), shall accordingly bear your name.

The violet form is generally considered the type, because it first became known, but Foster was of the opinion that *Krelagei*, on account of its wider distribution in the Caucasus and around Tiflis, is really the typical species and that the other much rarer form should be considered a sport or variety of this.

Of the violet form an improved race, known in the trade as J.S. Dijt, has been raised in Texel. The small-flowered *I. Danfordiae* Boissier has also been successfully cultivated there.

Oncocyclus and Regelia Irises

The Oncocyclus and Regelia sections constitute no monopoly of the Dutch bulb trade, but on account of the important share that the Netherlands have had in the improvement and distribution of these irises, they must not pass unmentioned here.

The oldest representative of this group, *I. susiana* Linne, became known in western Europe in 1573 as one of the many plants brought from the east by Busbeeq. Clusius described it as *I. latifolia major*, M. de l'Obel as "Groot Ireos van Constantinople met plecken" from a bloom which he had received from the "noblewoman van Inghevelt who had preserved this beautiful flower very assiduously in the garden

of mijn-heer Tisnae". For two and a half centuries this species, which came from Asia Minor but which is still unknown in a wild state, remained the only known member of the Oncocyclus group. It was long ago portrayed by E. Sweerts and is still regularly offered in the bulb trade. It is cultivated as a market flower in the south of France and in North Italy.

G.P. Baker is of the opinion that it was first brought to western Europe from Lebanon by the Crusaders many centuries earlier but was later lost. Its name, which has led to the incorrect deduction that this iris originated in Persia (where the town of Susa is situated), Baker connects with the Turkish word *susiani*, which means "iris". *Iris sofarana* and *I. basaltica*, both discovered in the twentieth century, are closely akin to *I. susiana*.

Apart from *I. iberica* Hoffmann (1808) and *I. paradoxa* Steven (1817), no new Oncocyclus irises were discovered before the second half of the nineteenth century, notably the later years, during which period the firm of C.G. van Tubergen, Jr., in particular imported various beautiful new species, sent by their collectors from Armenia and Turkestan. The firm's traveller, A. Kronenburg, who from 1899 to 1909 made a series of expeditions to the Caucasus and some of the most remote parts of Asia Minor and Central Asia, has above all earned praise for having discovered various new and beautiful species of iris, which the firm of van Tubergen has since introduced into European gardens, such as the sulphur-yellow *I. urmiensis* Hoog, which is a colour variant of the purple-red *I. Barmunae* Eaker, the delicately coloured *I. paradoxa* Steven var. *Choschab* Hoog and the older *I. sari* Schott, syn. *I. lupina* Foster, of which *I. Manissadjiani* is a form; the last is named after the Armenian, J.J. Manissadjian, who collected this and many other plants for the firm in Asia Minor. The fantastically-marked and quaintly-shaped *I. iberica* Hoffmann var. *ochracea* and the very large-flowered *sofarana* Foster var. *magnifica* came from a district of Lebanon difficult to reach. Mention must also be made of *I. Ewnankiana* Foster which is closely related to, but not identical, with *I. acutiloba* C.A. Meyer. Unfortunately, many of these species and forms have now disappeared from cultivation.

The Regelia group, to which belong *I. korolkowii* Regel and *I. stolonifera* Maximowicz, with a number of varieties, was enriched by the same firm with a new species discovered by its traveller, P.L. Graeber, in Turkestan, and possessing flowers of a remarkably beautiful uniform blue, which Dykes named *I. Hoogiana* as a tribute to John M.C. Hoog, the member of the firm who had especially busied himself with the introduction of new plants from their native countries.

Under the leadership of his partner, Thomas M. Hoog, the firm of van Tubergen made crosses on a large scale between species of both groups. We have to thank them for the production of about thirty remarkably beautiful varieties, which have been put into commerce under the collective name of Regelio-cyclus irises. The firm has published particulars of the crosses by which these were made.

P.W. Voet, of Overveen, also worked on the same lines and obtained a series of very meritorious Regelio-cyclus hybrids, which he put into commerce.

Juno Irises

The group of Juno irises was for a long time represented in cultivation by the now lost *Iris persica*, which was mentioned for the first time by Parkinson in 1629, and by *I. alata* Poiret which is native to southern Europe and was known to Cluavius. *I. caucasica* Hoffmann was not discovered until 1808 but in the second half of the nineteenth century various new species of the group were added. Again, the firm

of C.G. van Tubergen, Jr., had the credit of introducing some valuable previously unknown species, namely *I. bucharica* Foster, *I. warleyensis* Foster, *I. Willmottiana* Foster and *I. Tubergeniana* Foster.

The same firm raised very beautiful hybrids between the irises of this group, such as Sind-pers, Sind-pur and Ter-sind. As is evident from their names the parent-species were *I. sindjarensis* and *I. persica purpurea*. Most of these acquisitions have disappeared from cultivation.

Rhizomatous Irises

To complete this survey of what Dutch bulb firms have done for the cultivation of irises, some acquisitions belonging to the rhizomatous irises must be mentioned.

I. Kaempferi (*I. ensata* now. ed.) was imported by P.F. von Siebold into Europe from Japan in 1856. A few years later he introduced into Holland the first six varieties of this species; Messrs. E.P. Krelage & Zoon purchased the whole stock and offered them for the first time in their *Hortus Krelagenus* of January, 1863. The collection consisted of three single and three double varieties.

Although the credit for the sensational development of the bearded irises formerly known as *Iris germanica* belongs principally to French, English and American growers, people "in our fatherland have not stood still but have raised varieties, of which more will be heard in the future", as J.F. Ch. Dix wrote in 1923.

The Algemeene Vereeniging voor Bloembollencultuur has awarded certificates to Zwanenburg (van Tubergen, 1917), Insulinde (Krelage, 1917) Phyllis (Krelage, 1919), Queen of the Blues (Krelage, 1919) and Empress of India (Lubbe, 1920).

The firm of van Tubergen also succeeded in crossing *Oncocyclus* irises with bearded irises in the hope of obtaining a race less sensitive to our climate than the *Oncocyclus* group. These crosses resulted in various forms of *Pogo-cyclus* iris, which were, however, unable to obtain a permanent place for themselves in cultivation.

THE CHROMOSOMES OF IRIS VERNA

R.B. Channell, Vanderbilt University

Iris verna L. consists of two morphologic-taxonomic varieties: Var. *verna* occurs on the Atlantic and Gulf Coastal Plain, being represented to some extent also in adjacent provinces: var. *Smalliana* Fernald occurs in the uplands of the Appalachian system. Comparisons were made of mitotic chromosome number and morphology as a possible source of evidence for the evolutionary relationship and derivation of these two taxa.

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WHERE TO BUY SPECIES

List prepared by Joan Cooper

Where can I get it? Seems this question must occur more often for the species buff than for most iris fanciers. We submit, herewith the most up-to-date and complete list we have been able to assemble for 1978 of growers who offer species iris. We know of several growers who specialize in modern iris, wild flowers, rock garden plants or bulbs, who list a few iris species, but the following list at least ten varieties, while a few of them list many more than that. We are sure that others should have been included and will gladly publish information on those that are brought to our attention. Just let us know.

- | | |
|---|---|
| Alpenflora Gardens
17985 - 40th Ave.
Surrey (Cloverdale) B.C. V3S 4N8
Canada | Container grown natives & PCNs. |
| Aril Iris Farm
Route 1, Box 3770
Ridgecrest, Calif. 93555 | Rare oncocyclus species & hybrids. |
| ^{J.C.}
Cook's Garden
6924 Pacific Highway E.
Tacoma, Wash. 98424 | Siberian species & others, new. |
| Cooper's Garden
212 W. County Road C
St. Paul Minn. 55113 | New grower--bearded & beardless species. |
| Cordon Bleu Farms
418 Buena Creek Road
San Marcos, Calif. 92069 | Several apogon species. |
| Foster Iris
850 Oro Avo Ave.
Vista, Calif. 92083 | Regelia & oncocyclus hybrids. |
| Hanashobu
Box 253
Sandy Hook, Conn. 06482 | Siberian species, cristata & others. |
| Mr. Akira Horinaka
Manchidani 8-7
Japan | Fine colour catalogue (in Japanese)
Siberian & Japanese species .
Japanese hybrids. |
| Imperial Flower Gardens
Cornell, Ill. 61319 | Varied assortment of apogon species. |
| Edgar L. Kline
17495 S.W. Bryant Rd.
Lake Grove, Geo. 97034 | Several American species. |
| Laurie's Garden
41886 McKenzie Hwy.
Springfield, Oregon 97477 | Large selection of beardless species. |

J.A. Mars
Haslemere, Surrey
GU27 3 W D, England

Miniature bulbous species & others.

Melrose Gardens
309 Best Road South
Stockton, Calif. 95206

Several "Water Iris" and bearded.

NORTHWEST HYBRIDIZERS - joint list

Jean W. Witt
16516 - 25th St. N.E.
Seattle, Wash. 98155

Many beardless species & MTB species.

John J. Taylor
3329 Darrell Lane
Missoula, Montana 59801

Many beardless & bearded species.

Orpington Nurseries
Reigate, Surrey RH2 OTA
England

Many bulbous species & others.

Riverdale Gardens
7124 Riverdale Rd.
Minneapolis, Minn. 55430

Many bearded species, including
those from the garden of the late
Earl Roberts.

David B. Sindt Irises
1331 W. Cornelia
Chicago, Ill 60657

Pumila and other species

Besides the commercial growers, many species buffs are avid traders, only waiting to be asked. Join a robin--write a letter--make a friend! And who knows what you might find in your new friend's surplus!

Let's all try to keep this new list up to date. Notify us of any additions, corrections or other information. Additional listings will be printed in future issues of SIGNA as soon as they are known as a continuing feature. We would also appreciate receiving price lists or catalogues of all species dealers as a sort of clearing house to help our members find a particular iris and its source.

As a companion feature to this listing in SIGNA 21, we would like to print a list of all members who have irises to trade or surplus to share. These would be the hobby type growers who don't want to be bothered growing them for sale, with all the hassle of trying to have a supply on hand at all times, printing catalogues, and as well the job of shipping a lot of special orders.

So if you are interested in trades in a small way, or just want to dispose of surplus to a good home; send us your name and a brief listing of what you have. It is to be considered that putting your name on this list does not in any way oblige you to supply any particular iris unless you want to and have a surplus of it. When the surplus is gone--that's it--keep a good stock for yourself and don't run yourself so short your only clump winter kills. That's no help to anyone!

Address all enquires regarding this list and the hobby list to Joan Cooper, (also known as Cooper's Garden in this listing).

Address is 212 W. County Road C, St. Paul, Minn. 55113