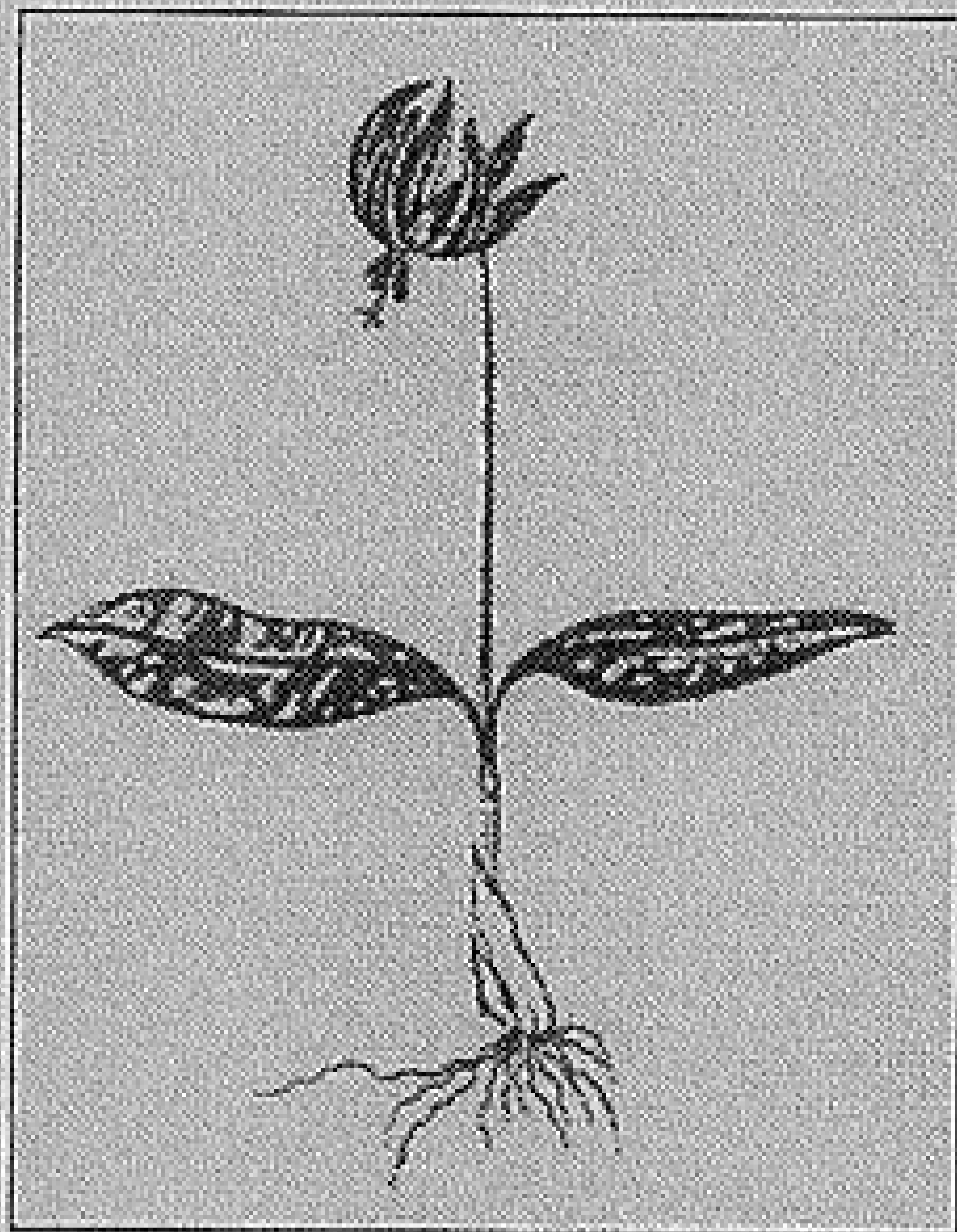


THE BULB
NEWSLETTER



Number3

July-September

1993

At the risk of putting everybody off reading any further I have decided to start this number with a little bit of heavy reading on the subject of the classification of the monocots, prompted by Jeff Irons of Heswall, Wirral who has asked about the use of the terms *Liliaceae*, *Liliiflorae* and *Liliales*. So I think it might be a good idea to start at the beginning and take a very brief look at the overall hierarchy in botanical classification (ie., excluding the horticultural ranks for the moment). In the BN I will normally be using only the ranks of family and below, particularly genus and species, of course. It must be stressed that many different systems of classification have been suggested for the monocots. These are man-made 'divisions', brought about by our desire to classify and understand everything around us, and for communication purposes, so it all comes down to a matter of opinion as to what constitutes a genus, species and so on. This accounts for a lot of the shuffling about of names; one person may consider, for instance, that the c.250 irises constitute one genus whereas another may decide that they belong to several genera, *Iris*, *Juno*, *Xiphion*, and so on. These differences of opinion happen at all levels of the hierarchy, so it is impossible for me to show the true undisputed system of classification of the monocots! I will, however, give an illustration of the categories which exist, using the lilies and their (supposed!) relatives. One point I should make is that although I have said that the groupings are man-made (sorry ladies, no offence intended), some groups are quite clearly natural ones. Take the crocuses, for example: they quite obviously should be placed together in a group, and 'genus' is the name which has been given to such a group. There are, however, plenty of examples where the groupings are not so obvious and this is where opinions may differ markedly.

Very crudely, the hierarchy, with particular regard to our liliaceous monocots, is as follows:

The Bulb Newsletter team: Brian & Margaret Mathew, 90 Foley Road, Claygate, Esher, Surrey, KT10 ONB, England. Annual subscription [4 parts per year]: £10.00 for U.K. & Irish Republic, US \$20.00 elsewhere, including airmail postage.

Rank

Kingdom: *Plants*

Division: *Spermatophyta* (Seed-bearing plants, or Phanerogams, as opposed to the other Divisions containing Fungi, Mosses, Ferns etc.)

Subdivision: *Angiosperms* (as opposed to Gymnosperms, the conifers)

Class: *Monocotyledons* (as opposed to the Dicotyledons)

Subclass: *Liliidae* (Subclass is not often used)

Superorder: *Liliiflorae* (used by Dahlgren in a recent system)

Order: *Liliales* (Suborders are sometimes also used)

Family: *Liliaceae* (Subfam., Tribe, Subtribe sometimes used)

Genus: *Lilium* (Subgen., Section, Series etc. sometimes used)

Species: *martagon*

Subspecies: *caucasicum*

Varietas: *albiflorum*

Forma: *candidum*

Some of the endings are consistent, *-ales*, for example refers to an Order, *-aceae* to a Family.

The Liliaceae

Until recently it was fairly standard practice around the world to recognise the family *Liliaceae* in a very broad sense, encompassing some 2500 species which had in common 6 stamens and a superior ovary (ie., the ovary situated 'inside' the flower as in Tulips, Lilies and so on); the Amaryllids have 6 stamens and an inferior ovary (outside, or behind/below the flower) and the *Iridaceae* have 3 stamens and an inferior ovary. Some botanical researchers have suggested that this concept of the *Liliaceae* is not natural and have attempted to provide an alternative classification, splitting up the 'old' *Liliaceae* into many smaller families; *Iridaceae* and *Amaryllidaceae* are much more convincing as families and remain more or less unchanged. Under the 'new' system (several of the families now recognised were in fact proposed and described in the 19th century!) the *Liliaceae* now includes only the obvious genera: *Lilium*, *Cardiocrinum*, *Notholirion*, *Fritillaria*, *Tulipa*,

Erythronium, *Nomocharis*, and less obviously *Gagea* & *Lloydia*. There is a lot to be said for the 'new' arrangement and it is gaining quite a lot of support in botanical circles. Some of the groups of plants which have been taken out of the old all-embracing *Liliaceae* do make quite convincing families of their own. Although I am referring to this as a new system, it has to be said that many of these groups were already recognised at a lower level within the 'old' *Liliaceae* by botanists such as Bentham & Hooker. The onions & their relatives are, for instance, treated as family *Alliaceae*, *Colchicum* & several other genera, all containing the chemical colchicine, are placed in *Colchicaceae*, all the bulbous genera with racemes of flowers and basal leaves are in the *Hyacinthaceae*, etc. Perhaps in a future Newsletter I could give a breakdown of this proposed system with a table showing where each of the 'liliaceous' genera have been placed. Much of the recent work is published in a meaty tome, 'The Families of the Monocotyledons' by Dahlgren, Clifford & Yeo (Springer-Verlag 1985). Several botanical institutes have largely adopted the system proposed in its pages, some of them with modifications after consultations between monocot specialists, and there is an international conference at Kew in July this year to further discuss the classification of the whole of the monocots. Clearly the published work is not the end of the road and I have no doubt that there is a lot more shuffling of genera yet to come. For the purposes of the Bulb Newsletter I will try to be consistent in future and use the families in their new more restricted sense; it might in fact be useful if I provide both old and new, for example *Muscari* [*Liliaceae*/*Hyacinthaceae*]; this will save readers some of the pain of trying to work out what on earth, for example, the *Melanthiaceae* and *Uvulariaceae* are!

The quest for Triteliopsis palmeri seed

Sally Walker has written from Arizona about an interesting monocot, little-known outside its native region:

'One of the most beautiful flowers of the Sonoran Desert is *Triteliopsis palmeri*. It is native to sand dunes near Yuma in western Arizona where it grows in association with *Hesperocallis undulata* (see note at end of this item*) and *Oenothera deltoides*. Another area where *Triteliopsis* grows is in the sand around Puerto Peñasco, in Sonora, Mexico. There is quite a large colony there about a mile inland from the coast. It is also known from Baja California. This member of the *Liliaceae* [*Alliaceae*, if *Liliaceae* is split--BM] grows from a fibrous-coated corm which has several cormlets around it. The succulent hollow stems average 15" in height. They are topped by an umbel of many flowers of a colour that is a mixture of navy blue and purple. The pedicels are slender and are

subtended by several scarious bracts. The basal leaves are fleshy. The first time I found *Triteliopsis* in flower was in March 1985, in the sand dunes east of Yuma. On my next visit to the area I found that my site had been paved over. In the winter of 1991-1992 the rainfall was perfect for producing the best spring wild flower display for 20 years. Yuma has an average rainfall of 3" per annum and the timing of this precipitation is very important to wildflowers, especially bulbs. The first rains need to come in November to start *Triteliopsis* and its associated plants into growth, then there must be regular rains at intervals to keep the plant growing. I have seen *Hesperocallis* start into growth and produce a basal cluster of its wavy leaves, but fail to produce a flower stalk, because there was not enough continued moisture. In March 1992, *Triteliopsis* bloomed both in the Yuma area and the Puerto Peñasco area, but much to my surprise on return trips to both areas we found the plants had failed to set a single seed. The plants form bulbils [cormils?] in the leaf axils, which detach when the leaves wither. Sand and sand dunes shift dramatically in winds and this could easily disperse the bulbils. The winter of 1992-1993 produced floods and the total precipitation was higher than in 1991-1992, but the rains did not start until December. My first trip to the Yuma site was in mid-February, and I saw that the plant had appeared through the ground and produced a few prostrate sedge-like leaves. My March trip showed that the plant had made its fleshy basal leaves, but spring was late and the buds still had no colour. My April trip showed the plants in full flower. I wondered if there had been no seed last year because of the absence of an insect pollinator so I had brought along a paint brush this year. However, after 'pollinating' a few flowers, I noticed no yellow dust on my paint brush so I assume the stamens are sterile. In 'Arizona Flora' by Kearney & Peebles it states that the seeds are elongate and in 'The Flora of the Sonoran Desert' by Shreve & Wiggins the seeds are said to be flat, black and minutely roughened, so the plant must have produced seed somewhere; however examination of hundreds of plants over a period of about five years has failed to produce a single seed thus far. *Triteliopsis* is a beautiful plant, even though a shorter stem would be an improvement. It is not a plant which could be grown outside in an English garden. It should be tried in a sand bed in a glasshouse, where one can start the 'winter rains' in November and end them in March. But since there are no seeds thus far, it doesn't seem to have a bright future in cultivation, and its beauty will probably have to be observed in the wild sand dune country of southwest Arizona and Mexico.'

Sally also included photocopies of the botanical descriptions of *Triteliopsis* taken from the Arizona Flora by Kearney & Peebles, and Flora of the Sonoran Desert by Shreve & Wiggins. The following is a shortened

description, based on these two:

Corm fibrous-coated, several small cormlets produced around the base of the stem and enclosed within the fibrous coat; corms without an onion-like smell. Stems stout, 6-15 mm thick at base and 30-100 cm tall; leaves up to 8 or more, crowded at base of stem, v-shaped in section, rather fleshy and hairless, up to 2.5 cm wide and up to 50 cm long. Flowers deep purplish-blue, 30-100 together in an umbel 5-10 cm in diameter, each one about 2-2.5 cm long with 6 segments joined into a funnel-shaped tube. There are also 'transverse scale-like appendages between the stamens'. The stamens have slender filaments and their anthers become tightly coiled after they have released their pollen.

[It is well worth getting Sally Walker's seed list, full of interesting items from western N.America and Mexico, including quite a lot of monocots: Southwestern Native Seeds, Box 5053, Tucson, Arizona 85703, USA].

* I have been very unsuccessful over the years in trying to grow *Hesperocallis*, the seeds germinate, and I can sometimes get the seedlings to reappear the following year, but that is as far as they go. If anyone can suggest how to grow this fascinating plant I would be delighted to hear.

Harlequin Flowers

Peter Goldblatt has supplied enthusiasts with another fine review of a genus of South African Irids, this time *Sparaxis*. This is a group of showy cormous plants, few of which are in general cultivation and they are most frequently seen as mixed hybrids in the trade. *Sparaxis* now includes those species formerly known as *Streptanthera* and *Synnotia*, these two genera having been totally absorbed into an enlarged *Sparaxis*. 13 species are recognised, 2 of which are newly described, and they are all natives of the SW Cape, S.Namaqualand & the W.Karoo regions, which means that they occur within the winter rainfall area and are best treated as winter growers when brought into cultivation in other parts of the world. They should be potted or planted in early autumn, kept watered and just frost-free with plenty of light and air circulation through the winter, then dried off for the summer months after flowering. A sandy potting medium seems to suit them very well, with repotting every year in early autumn. Propagation is easy by seeds sown in autumn, but they do increase very readily by the production of offsets so, with the species so far tried here, there is no problem in building up stocks. *Sparaxis* are sometimes offered for sale in spring, having been kept artificially dormant through winter in dry storage. These will grow and flower in summer but it should be remembered that after this initial season they

will try to revert to their natural winter-growing habit unless they are again lifted and stored dry for the winter. On the whole the best results are obtained by allowing them to follow their natural cycle.

Dr. Goldblatt divides the 13 species into 2 groups, section *Sparaxis* (7 species) and section *Synnotia* (6 species):

Section Sparaxis. Flowers regularly-shaped, each having six nearly equal perianth segments and the three stamens arranged equally around the central style. Most of the species in this section occur in seasonally waterlogged clay soils, drying out in summer. They are:

S. bulbifera. Widespread in SW Cape; fls. white. *S. elegans* (= *Streptanthera cuprea*). Bokkeveld Plateau endemic; fls. salmon pink or white. *S. fragrans*. Caledon District; fls. small, yellow to buff, scented; perhaps on verge of extinction through habitat destruction. *S. grandiflora*. Widespread in SW Cape. (4 subspecies: ssp. *grandiflora*, fls. plum-coloured. ssp. *fimbriata*, fls. cream. ssp. *violacea*, fls. purple or white. ssp. *acutiloba*, fls. yellow or rarely violet. *S. maculosa*. Cape Prov., Worcester-Villiersdorp; single known population; fls yellow with heart-shaped maroon mark near centre. *S. pillansii*. Galvinia District endemic; fls. rose & pink, marked yellow and red or purple in centre. *S. tricolor*. N end of Bokkeveld Escarpment; fls. orange-red with yellow & blackish markings: most hybrids are derived from this sp.

Section Synnotia. The species of this section have irregular flowers, almost 2-lipped in appearance, in which the upper segment is the largest and rather hood-like, with the arched stamens and style lying beneath it; the lower 3 segments are much smaller and often coloured differently from the upper. Most of these appear to occur in rather drier habitats, in rocky-sandy places or in rocky/stoney clay. They are:

S. caryophyllacea. Nardouw Mts., N of Clanwilliam; fls. large, scented, yellow striped black in throat, upper seg. violet in apical half. *S. galeata*. Foot of Bokkeveld Escarpment (Nieuwoudtville); fls. large, fragrant, upper per.segs. purplish, lower yellow. *S. parviflora*. Coastal plain, Cape Town-Saldanha; fls. small, cream & pale yellow. *S. roxburghii*. Citrusdal to Clanwilliam, seriously endangered, not seen for 30 years; mauve-lilac with lower part of lower per. segs. yellow. *S. variegata*. W.Cape. 2 subspecies: ssp. *variegata* (= *Sparaxis wattii*); fls. either purple with yellow throat or yellow with upper per. segs. & tips of lower becoming purple. ssp. *metelerkampiae* (= *Synnotia m.*, *Sparaxis orchidiflora*, *Sparaxis luteoviolacea*); fls. violet-purple with cream to yellow marks on lower segs. *S. villosa* (= *Synnotia bicolor*). Cape Peninsula north to Citrusdal; fls. pale yellow, uppermost seg. pale purple, sometimes tips of lower as well.

The above notes are extracted from Dr. Goldblatt's work with additional observations made from the herbarium specimens at Kew. The full account by Peter Goldblatt can be found in *Annals of the Missouri Botanical Garden* 79,1:143-159(1992).

Another stamp

France has produced a very nice 4 franc stamp depicting *Orchis palustris*, the 'Orchis des Marais'.

New Crocus records in the Aegean

Prof. Hans Runemark of Lund, renowned for his detailed studies of the Aegean area, recently asked me to confirm the identities of some crocuses collected on the island of Astipalea. There appear to be no previous records for the island, so these are interesting. He found *C. cartwrightianus* in two localities and *C. tournefortii* in ten places, but all were leafless at flowering time; these two species would normally have quite well-developed leaves. This he puts down to the fact that there were abnormal weather conditions last year, no rain at all between February and November, so it is not really surprising that development was irregular; in fact, he tells me that the soil was completely dry and no roots had developed at all on the corms. In my experience this behaviour is not uncommon in autumn-flowering bulbs; it seems that flowers can be produced at the normal time without the stimulus of moisture, but leaf development does depend on the availability of water. Some experiments involving *Sternbergia lutea*, for example, were carried out many years ago and it was reported that leaf development could be suppressed completely until after flowering time by controlling the water supply.

The sinking of Crinum strictum

Walter C. Holmes (Baylor University, Waco, Texas), who is preparing an account of *Crinum* for the Flora of North America, has used statistical methods of assessing data to show that *Crinum strictum* cannot convincingly be separated from *C. americanum*. Traditionally it was distinguished on the length of the perianth tube relative to the segments: *C. strictum* was the name used for those Texan crinums which had perianth segments longer than the tube, while in the more abundant *C. americanum* it was the reverse situation with the segments much shorter than the tube. However, these have now been merged into one variable species, although one variety is recognised, *C. americanum* var. *traubii*. This differs from var. *americanum* in having more flowers per umbel (6-7, 2-6 in var. *americanum*), and longer foliage of a deeper green

colour; it (var. *traubii*) is known from only one collection from Hardin County, Texas. Walter Holmes points out that even if *C.strictum* had been upheld as a species it would have taken the name *C.texanum* since the epithet *strictum* had been used much earlier for a different species of *Crinum*.

A visit to Glasnevin

During an enjoyable visit to Dublin & Cork in the early spring I was interested to hear from Dr.Charles Nelson of Glasnevin that *Crinum moorei* is still growing there, in fact the very same bulbs which had been sent from South Africa to Glasnevin in 1863 by a Mr.Webb. At that time this was an undescribed species, and flowering material was subsequently sent for identification to Kew where it was named *C.moorei* in 1874 by Joseph Hooker after the Director of Glasnevin, Dr.David Moore. It is beautifully illustrated in Charles Nelson's Irish Florilegium 2, plate 23 (1987). I have this species in a very large container which is moved under cover for the winter, but maybe I should try it planted out since Dublin cannot be much milder than the south-east of England. It is a beautiful plant, flowering in late summer with soft delicate pink flowers fading quickly to white, rather wider-open than those of the commonly grown hybrid *C.x powellii*. Thanks to Joyce Stewart of Kew, who brought this and *C.bulbispermum* with her when she moved to England from Natal, I now have both of the parents of *C.x powellii*, and I must say that I think that the hybrid is not an improvement on either of them.

More news for S.American Amaryllid enthusiasts

Alan Meerow, botanist from the University of Florida, Fort Lauderdale, is a specialist on the South American Amaryllids and has just published a most useful account of the representatives from Ecuador, as part of the Flora of Ecuador. This is a joint project between Sweden and Ecuador and the Flora is being published in parts, family-by-family as they are completed; this is useful since it means that enthusiasts are able to obtain separates of the families they are interested in without the expense of the whole work. Family 202.Amaryllidaceae is part No.41 in the Flora series and is being distributed, at \$31.00, by The Council for Nordic Publications in Botany, Botanical Museum, Gothersgade 130, DK-1123, Copenhagen K, Denmark. The following species are to be found, with keys and descriptions, plus colour photos and drawings of some of them:

Zephyranthes albiella, *Hippeastrum puniceum*, *Crinum erubescens*, *Crinum kunthianum*, *Eucharis x grandiflora*, *Eucharis moorei*, *Eucharis*

astrophiala, Eucharis candida, Eucharis formosa, Hymenocallis pedalis, Lepidochiton quitoensis, Ismene longipetala, Pamianthe parviflora, Stenomesson incarnatum, Stenomesson aurantiacum, Phaedranassa brevifolia, Phaedranassa glauciflora, Phaedranassa dubia, Phaedranassa schizantha (& var. ignea), Phaedranassa viridiflora, Phaedranassa cinerea, Phaedranassa tunguraguae, Eucrosia bicolor, Eucrosia stricklandii (& var. montana), Eucrosia eucrosioides, Eucrosia aurantiaca, Eucrosia dodsonii,

The tropical Amaryllids make very poor herbarium specimens, making the task of studying them particularly tricky if not impossible; it is good to see a thorough account which is based on a knowledge of the living plants.

Oxalis references

Several people have enquired about *Oxalis*, so any interesting tit-bits of information about this genus (even though they are not monocots!) which happen to come our way will be included. Mr.H.Johnson of Skelmersdale, Lancs. has asked about literature references. Unfortunately there are no recent comprehensive works on this large genus, but we will in future make a note of any articles which seem to be of value. For those who do not know of the 'standard works' there are two substantial monographs relating to specific areas:

'The genus *Oxalis* in South Africa, a taxonomic review', by T.M.Salter, is published in The Journal of South African Botany, Supplementary Volume No.1 (1944). This contains descriptions of 208 species with keys to their identification and line drawings. The last one in the book, *O.austro-occidentalis*, was little-known and the author had clearly had enough of the genus by that time. He wrote that it was known from a single dried specimen without bulb or flowers and his final statement in the monograph is 'My patience is exhausted'!

'A monograph of *Oxalis* section *Ionoxalis* in North America' by Melinda F.Denton. Publications of the Museum, Michigan State University, Biological Series Volume 4, Number 10(1973). This encompasses the North American species which have scaly bulbs, over 20 species including *O.tetraphylla* (*deppeii*), *latifolia*, *galeottii*, *drummondii*, *violacea*, *corymbosa*, *caerulea*, *alpina*, *incisa*, *intermedia*, *decaphylla*, *divergens*, *hernandesii*, *nelsonii*, *magnifica*, *lasiandra*, *discolor*, *jacquiniana*, *primavera*, *eggertii*, *lunulata*, and *macrocarpa*. There are distribution maps, keys and line drawings.

To obtain publications such as these, it will probably be necessary to buy photocopies from a botanical library.

Extracts from letters to BN

Graham Simpson from East Grinstead was excited by the thought that a *Sternbergia* he had been growing for some time might turn out to be the new *S.greuteriana*. He writes--'On reflection I think not. The leaves are exceptionally small: 0.20 cm wide and about 3.75 cm long; but in cross-section, they are distinctly channelled, rather than flat. I got this plant as *Sternbergia sicula* 'Dodona Form'. I do not know where Dodona is but I suspect it may be in central or northern Greece'.

As I mentioned in BN2, *S.sicula* is very variable and I have no doubt that this plant is one of the variations of it. I have grown bulbs of *S.sicula* myself, originating from Dodona, and these had rather narrow leaves which were also somewhat curly. Dodona is an ancient site to the south of Ioannina in NW Greece. If it was decided that this variant was worth growing as a distinct clone of *S.sicula*, the name 'Dodona Form' would be discouraged under the code of nomenclature; it is useful to have such practical 'working names', but if, for example, it was submitted for an award, it would need a clonal name which lacked the word 'form' (to avoid confusion with the botanical rank of forma). Something like 'Dodona Gold' would be quite acceptable.

Harry Hay saw the comments about *Paramongaia* (Peruvian Amaryllidaceae) in BN2 and has supplied the following note: 'I grow it in a large pot kept without any water until the leaves show in June/July [ie. mid-summer]. It is of one clone, not self compatible. Perhaps it will get together with yours, in course! It is no good in a cold greenhouse.'

He also notes that *Lycoris* flower very well in a cold greenhouse border, except for 'L.albiflora', and *L.aurea* is covered when frosty. Harry is highly regarded as a cultivator of tricky rarities, and his comments about *L.radiata* bear witness to this--'I have a wonderful form [ie. variant-BM!] of *L.radiata*, with an unusual chromosome count, a clump say 14" square producing 50-70 scapes every year.' I should explain to those growers who have no difficulty with *Lycoris*, and I know that in some parts of the United States, and in Japan, they grow vigorously and flower profusely, that here in Britain they are very seldom cultivated and are generally not very successful; even if they grow well, they seldom flower. Unfortunately my own small collection has proved extremely attractive to Narcissus bulb flies, much more so than Narcissus.

Alec C.Cole of Bournemouth writes 'do you know of any books or literature on erythroniums- culture, types etc. that are available. The Linnaean Society I think has one of its Botanical Volumes with some notes and the other reference is to an American publication of I think 1933.'

Yes, we can help out here with a few references: The American publication you refer to is almost certainly 'The Genus Erythronium: A taxonomic and distributional study of the western North American species', by Elmer I.Applegate, published in the journal *Madroño* Vol.3, part 2:58-113(1935). This is the most complete work on the western species and is still extremely good, although there have been a few new species described since then.

For the yellow-flowered species from the Eastern States the best botanical work is by C.R.Parks & J.W.Hardin, 'Yellow Erythroniums of the Eastern United States', published in *Brittonia* 15:245-259(1963).

There are also two more accessible accounts worth reading: 'Erythroniums' by S.Watson & R.Woodward in the *Quarterly Bulletin of the Alpine Garden Society* 42, part 1:36-53(1974), and 'The genus Erythronium' by E.B.Anderson in the *RHS Lily Year Book* 1958:92-100.

My own book 'The Smaller Bulbs', published by B.T.Batsford in 1987, contains some information and a key to the species known at the time but a few have been added since then. More recently I have written 'A taxonomic and horticultural review of Erythronium' in the *Botanical Journal of the Linnean Society* 109:453-471(1992) and this does include all the presently known species, with a provisional identification key. [This has interested so many people that I have unfortunately run out of reprints].

Style branch colour in Crocus pelistericus

Antoine Hoog visited *Crocus pelistericus* some years ago on Mt.Kaimaktalan (Kajmakalan) in northern Greece and located it in flower on 16th May. He writes: 'I was reading *The Crocus* and looked at the colour of the style branches. Out of a total of 6 or 7 flowers half had orange-yellow style branches while the other half had creamy-white ones.'

For those who do not have access to my book (*The Crocus*, publ. by B.T.Batsford in 1982), on the basis of the one flowering specimen from Kajmakalan which had been seen, I had described the style branches as being orange-yellow in that locality, thus differing from those further north, on the mountains of "S.Yugoslavia", in which the style branches

are reported to be white. So, this is some interesting additional information about this still poorly-known species; what we do not know is whether the northern populations also have a variable style-branch colour. Variants with white style branches do crop up in other species which normally have coloured ones, *C. vernus* and *C. veluchensis* for example, but in the case of *C. pelistericus* it seems to happen rather more frequently.

Roderick White of Farnham, Surrey, writes about two problems he has encountered: 1. 'a few years ago I purchased a few corms of *Crocus baytopiorum* from Wisley. These were potted in the normal way and placed in an unheated alpine house. The problem was that before the flowers opened the flower stem had become so long that the flowers on opening fell over. I assumed that this could have happened because of temperatures being too high. So I planted the corms in a suitable spot in the garden. But the same thing has happened this year. In fact they were in flower when the temperatures were below freezing but the same problem has occurred again.'

This I think is a 'fault' of the species rather than cultivation. It does tend to do this naturally, as does, for example, *C. oreocreticus*, which is perhaps an even worse offender in this respect. In the case of the latter, in the wild it often grows up through other vegetation, small spiny bushes etc., so the long tube is supported. I can only recommend a fairly spartan diet (*C. baytopiorum* grows in rather poor rocky soil in my experience), cool growing conditions in winter/early spring for as long as possible, and plenty of light and air, possibly with artificial lighting if in a greenhouse. Perhaps if any readers have some tips for keeping such plants dwarf they would care to share them with us.

Mr. White's second problem concerns *Paris* and *Trillium* species. He says that 'both of these genera took a year off last year and refused to appear although the rhizomes are perfectly happy. In the case of *Paris polyphylla* this happened in 3 different locations in the garden.'

I am not sure that my comments will be of much help--rather like going to the surgery in pain and the doctor says yes, I get that as well, I wonder what it is! My *Paris* (*Daiswa* & *Kinugasa*) species have certainly done that in the past for no apparent reason, but in the case of the very desirable *P. japonica* (*Kinugasa japonica*) the disappearance was terminal, unfortunately. The double *Trillium grandiflorum* alarmed me by not showing up last year, but this year has reappeared. I have wondered if a particularly dry period at a critical time when new roots are forming for the new season is to blame. Again, suggestions would be welcome .

Saffron crocuses in Iraq

Some years ago, Don Elick gave me some *Crocus* corms which had been collected in NE Iraq; these subsequently flowered and we agree that they represent the Greek *C. hadriaticus*. He says that *C. cartwrightianus* is also there, and the conclusion is they they are ancient introductions, presumably taken by the Greeks as a source of Saffron. This could also account for the records of *C. cartwrightianus* in Lebanon since there it also seems to be associated with archaeological sites.

A new Amaryllid genus from South Africa

Deirdré Snijman is the author of a paper [in *Bothalia* 21,2:125-128(1991)] describing a new genus (containing only one species, ie 'monotypic') from granite outcrops in the Kamiesberg area of the NW Cape; appropriately she has called it *Kamiesbergia*. *K. stenosiphon* has a bulb with a long fleshy neck and when in flower is about 20 cm in height, the leaves absent at flowering time; these are 2-3 in number, very narrow and hairless. Five to nine unscented flowers are produced in an umbel of about 4-8 cm in diameter and they have recurved pale lemon yellow segments with a greenish or reddish-brown perianth tube 8-12 mm long. It is most closely related to the genus *Hessea* and mainly differs from this in the form of its stamens. *Hessea* has six nearly equal stamens but in *Kamiesbergia* the they are in two unequal whorls of three, and the inner filaments are club-shaped; additionally, in *Hessea* the filament is attached to the anther at about the mid-point whereas in *Kamiesbergia* it is attached near the base. Deirdré Snijman reports that *Kamiesbergia* has long-necked bulbs which grow in seasonally moist loam pockets in granite crevices, and is a rare plant. In the wild it flowers in April or May, so in the northern hemisphere this would translate to about September or early autumn, which is when the *hesseas* flower with me; these are charming little plants, not at all difficult, so I hope that one day I will be able to try out *Kamiesbergia* as well.

A new species of Leucocoryne

This small Chilean genus is currently attracting a great deal of attention, particularly for development for the cut flower industry; the attractive fragrant flowers are carried on long bare stems, so they are very suitable for cutting, and they last for an extremely long time in water. However, I hope that before there is too much hybridising the taxonomy of the wild species is worked out, although this does seem to be rather tricky. There is a monograph, published by Otto Zöllner some years ago*, but there has been much collecting since then and it is clear that the species vary

considerably more than the descriptions allow for; some plants which I have seen, even some of the ones which I received direct from Otto a long time ago, 'do not quite fit', so at the present time it is quite difficult to attach names to them with any degree of confidence.

In addition to those included in the monograph, another has been described, *L.reflexa*, by J.Grau in Mitt. Bot. Staatssamml. Munchen 30:431-437(1991). This is from Chile, Cerros de Angol in Malleco Province, and is about 30 cm in height with 3-4 flowers per umbel; these are white with a green central vein on each of the six perianth segment which are reflexed back leaving three very long-protruding staminodes (sterile stamens). The perianth tube is 8-9 mm long and has six brownish veins. The author notes that, unlike other species, the capsule has a beak at the apex.

* *An.Mus.Hist.Nat.Valparaiso* 5:48(1972).

A new Iris from China

The author of the account of Iris for the Flora of the People's Republic of China, Prof. Y.T.Zhao, has added another species to the 60 included in the Flora*. The new one is *I.psammodola* (=sand-dwelling) and is compared with *I.flavissima* and *I.potaninii*, so is one of the small bearded irises. It was found in Ningxia Province and is described as having one yellow flower per stem, 4-5 cm in diameter with a tube 4-4.5 cm long; the falls are obovate, about 4 cm long, and the standards are slightly smaller at about 3.5 cm long. Unlike *I.flavissima* its rhizome is non-stoloniferous, and it does not have the tuft of curled fibrous leaf-remains surrounding the base of the stem as in *I.potaninii*.

* Flora Reipublicae Popularis Sinicae Vol.16, part 1(1985), repeated in English in 'Iris of China' by Waddick & Zhao, Timber Press (1992).

Sewerzow's Fritillary

Differing spellings occur in literature for this Central Asiatic species, caused by the varying transliteration of the Russian alphabet. I understand that the only course of action is to adopt the original spelling which was used when the species was first described. In this particular case Regel, in 1868, used the spelling *F.sewerzowii*, so that is the form that we should follow, not *severtzovii*. Or is it *Korolkowia sewerzowii*? That is purely a matter of opinion.

And Delavay's Fritillary

In *Herbertia* Vol.43, Ron McBeath of the RBG Edinburgh describes how he nearly trod on *F.delavayi* in China since it is very well camouflaged against the grey limestone screes where it lives in Yunnan Province. This was not introduced into cultivation for, as he explains, 'collecting bulbs of this and other rare species from China is prohibited by the Chinese authorities'. *F.delavayi* is about 10-15 cm in height with 4-7 almost fleshy elliptical to ovate-lanceolate leaves 5-6 cm long and 2-3 cm wide, of a dull grey-green tinged with purple-brown; the lower ones are alternate and the upper, nearly opposite. The large solitary flowers are semi-nodding and 4-5 cm long, also fleshy in appearance and coloured purplish-brown or greyish-brown, sometimes faintly tessellated, and paler inside. In 'The Smaller Bulbs', I noted that an unusual feature of this species is that in the fruiting stage the perianth segments appear to remain attached, whereas in most fritillaries they fall off quite soon after flowering and before the capsules swell up. My observations were based on herbarium specimens only, but Ron McBeath has now confirmed that this is true of the living plant as well.

Two Scillas from Iran

Seeing a plant in the alpine house at Edinburgh labelled *Scilla hohenackeri* in the spring reminded me to prepare a note about this and a similar-looking species, *S.greilhuberi*, both of which occur in the northern mountain ranges of Iran. The similarities are that they flower at about the same time in mid-spring, and have racemes carrying several pendent blue flowers which, on sunny days, have reflexed perianth segments. They were both brought into cultivation in Britain, as *S.hohenackeri*, back in the 1960s and are still around under their collectors' numbers, P.Furse 5028 and BSBE 559 (Bowles Scholarship Botanical Expedition: Mathew, Barter, Pycraft & Baker); there may well have been other collections but these are the only ones I have kept track of, and still grow. It is clear that these represent two different species and the matter was resolved some years ago when Dr.Franz Speta, a *Scilla* specialist from Graz, Austria, described one of them as a new species, *S.greilhuberi*. PF 5028 belongs to this species. It is from the central Elburz Mts in the Caspian woods and is now not uncommon in cultivation, although it is often seen as '*S.hohenackeri*'. This one begins to put out new leaves in early autumn and by flowering time they are very long and trailing on the ground, usually fairly untidy since the tips are beginning to die back by then. Nevertheless, it is quite an attractive plant, seemingly quite hardy and increasing well. The other, the true *S.hohenackeri*, is to my mind a neater, less coarse plant. The collection

which I grow, BSBE 559, was collected in 1963 in the Talysh Mts of NW Iran on the border with the former USSR. Probably this does not extend southwards into the Elburz, but it does occur across the border in the mountains adjacent to the Caspian. Its narrower darker green leaves do not appear above ground until spring, so it is much tidier at flowering time, and the flowers are rather smaller than those of *S.greilhuberi* so the two are quite distinct when seen side-by-side. It is reliably hardy, staying below ground until spring, and it seeds very freely in a semi-shaded spot; it is also compact enough to look good in a pot in the alpine house.

Seen in the catalogues

[Including two more BSBEs!]

Paul Christian's summer catalogue contains quite a number of unusual items and the main problem is picking out which attract my attention the most, but my eye always picks out a 'BSBE collection', especially this year since it is just 30 years since I and my three Wisley-student colleagues set out to drive to Iran in search of bulbs. Two of those which we brought back appear in the catalogue, *Muscari chalusicum* BSBE 749 and *Scilla persica* BSBE 1054. The first of these has a dense spike of bell-shaped flowers of the most lovely shade of clear turquoise blue and seems to be perfectly hardy in spite of being a native of the fairly mild Caspian woodlands. Per Wendelbo has pointed that this should have a name change to *M.pseudomuscari* since it was first described in 1859, as *Bellevalia pseudomuscari*, over 100 years before Stuart named it *M.chalusicum* in the Lily Year Book of 1967. *Scilla persica* is perhaps more of a collectors' item, but its loose spikes of blue flowers are by no means unattractive. We collected it in the wettest soggiest clay imaginable, in fact our Landrover sank up to its axles in it and was extracted only with great difficulty, but the *Scilla* does not seem to require quite so much moisture in cultivation.

There are many other excitements to be found, especially in the long list of fritillaries, *F.stribrynii* for instance!, and for those with rather off-beat tastes there are strange new aroids, *Biarum ditschianum* and *Eminium koenenianum*. I might even buy a *Narcissus viridiflorus* if it comes with a guarantee to flower! [Paul Christian, P.O.Box 468, Wrexham, Clwyd. LL13 9XR, UK]

Broadleigh Gardens are listing the wonderful (at least it is, if it the same as mine!) white version of *Ipheion uniflorum* which was sent to the UK some years ago from Argentina by J.A.Castillo. This was awarded a Preliminary Commendation in 1992 when exhibited by Broadleigh and bears the cultivar name 'Alberto Castillo'. It is a much better plant than the standard white form which is around in cultivation, larger, possibly whiter, longer-stemmed flowers, and is extremely vigorous. In our garden 'ordinary' *I.uniflorum* does not thrive, but this one has increased over a period of about five years into large clumps and has a good crop of capsules this year. It has been suggested that *I.uniflorum* should be transferred into the genus *Tristagma*, but I have not looked into this myself; the merry-go-round must stop somewhere, this poor little plant has been regarded by different botanists as belonging to no less than eight different genera, including *Beauverdia*, *Ipheion*, *Brodiaea*, *Milla*, *Triteleia* and *Tristagma*! Broadleigh are also offering *Narcissus* 'Cedric Morris', that mid-winter flowering little trumpet daffodil which I find is very slow to increase; they recommend re-planting every two years, so I will give it a try. This was originally a wild-collected plant, many years ago, but is not easy to pin down to a species; I have tried it on three 'Narcissus people' so far and have three different answers. Never mind, it is a very useful plant! [Broadleigh Gardens, Bishops Hull, Taunton, Somerset TA4 1AE, UK]

Hoog & Dix Export is a new company, but continuing the 'activities of the late Michael H.Hoog'. Antoine Hoog, who is an ex-Kew student has teamed up with Jan Dix, who managed the van Tubergen company in recent years, to offer a wide range of 'botanical specialities'. They offer a free price list and a full catalogue with descriptions and origins of their stock; this is £10, but is deductible if an order follows. The list is an exciting one with many *Crocus* species, including *C.baytopiorum*, *C.karduchorum*, *C.kosaninii*, *C.scardicus*, *C.cvijicii*, and *C.laevigatus* 'Fontenayi' (where has that been during the last decade or so, it used to be very common in the trade; Broadleigh also have it this year). The gorgeous *Corydalis schanginii* ssp. *ainii* is listed (Paul Christian has it as well), and there is *Fritillaria ussuriensis*, seldom offered before I imagine. Ornithogalums do not excite many people, but *O.magnum* I can recommend trying, like a big *O.narbonense*, and very like *O.arcuratum* from Iran. I am glad to see the name *O.balansae* being retained: I am convinced that the Flora of Turkey is quite wrong in sinking that into *O.oligophyllum*. There seem to be more *Tulipa* species available nowadays than ever before, and for me none could exceed *T.ferganica* in attractiveness, as it grows in the wild, that is: grey wavy leaves at ground level and yellow, red-backed flowers on short stems. [Hoog & Dix Export, Heemsteedse Dreef 175, 2101 KD Heemstede, Holland].

Bulb requests and offers

Subscribers may find that BN is a useful place to advertise for any particular species which they have been unable to acquire in the trade, or any surplus which they can offer, free or otherwise, to other enthusiasts. However, the BN team has a plea: once the initial request has been sent in & published would you please deal with each other direct, as this will be much more efficient than writing via us.

Crocus banaticus 'Albus' is keenly sought by Julian Roberts, 19 Clonmel road, London SW6 5BL

Watsonia ? borbonica. Richard Gorer has written to say that his greenhouse is 'full of *Watsonia borbonica* or something very similar, which is very handsome with spikes over 4 ft high.' Anyone interested in this would have to collect them from Richard as the plant is always in leaf and would be too cumbersome to post. He suggests that August-September would be a good time. They are planted in a border, so it sounds like an excavation job with a garden fork. Anyone in striking distance who is interested should contact R.Gorer, 1 Pine Tree Rd, Heathfield, East Sussex. TN21 8AU.

Bookends

Important monocot publications

It is good to see that parts of the Flora Iranica are still appearing, under the guiding hand of Prof. Karl Heinz Rechinger. The latest one, of interest to bulb enthusiasts, is No.170, Liliaceae Part 3, which deals with the subfamily *Wurmbaeoideae* and has been prepared by Dr Karin Persson of Goteborg Botanical Garden in Sweden. This subfamily may be unfamiliar to many, so a word of explanation might be of assistance: It is becoming increasingly popular to 'split up' the family *Liliaceae* into many smaller families, mainly following on from the work of the late Rolf Dahlgren [The Families of the Monocotyledons-Structure, Evolution & Taxonomy, by Dahlgren, Clifford & Yeo (Springer-Verlag, 1985)]. In Britain, the Botanic Gardens at Kew and Edinburgh, and the Natural History Museum, have all adopted the system with minor alterations, and around the world the new classification has a considerable following (more of this on page 1-BM). Flora Iranica has been in production for a long time and for this purpose the *Liliaceae* was not split up, although the account of the alliums was in fact published in 1971 under the family name *Alliaceae*, largely I think because Per Wendelbo, the author,

wanted to see his work published rather than having to delay for some years until the rest of the *Liliaceae* was ready for publication. With the appearance of the latest volume all of the genera in the lily family have now been dealt with, grouped together in subfamilies: *Liliaceae* 1, part 151(1982) contained the subfam. *Asphodeloideae* (mainly *Eremurus*). *Liliaceae* 2, part 165(1990) covered subfam. *Lilioideae* (*Gagea*, *Lloydia*, *Lilium*, *Notholirion*, *Fritillaria*, *Tulipa* & *Erythronium*), subfam. *Scilloideae* (*Urginea*, *Dipcadi*, *Scilla*, *Ornithogalum*, *Puschkinia*, *Hyacinthus*, *Hyacinthella*, *Alrawia*, *Muscari* and *Bellevalia*), subfam. *Asparagoideae* (*Asparagus*, *Danae*, *Ruscus*, *Polygonatum* and *Trillium*), and subfam. *Smilacoideae* (*Smilax*). *Liliaceae* 3, part 170(1992) contains subfam. *Wurmbaeoideae*, as mentioned above. If this subfamily was recognised as a family it would be called *Colchicaceae*, which gives a much clearer idea of its content. In fact, Karin Persson does not recognise *Merendera*, *Bulbocodium* and *Synsiphon* as being separate genera, so in her concept there is only one genus in the Flora Iranica area, *Colchicum*, with 17 species. This is a most useful treatment of the more easterly-occurring colchicums, with identification keys to flowering and leafing\fruiting specimens, very detailed descriptions (in English), localities of specimens seen, 19 colour plates and some line drawings. The sad thing is that hardly any of the areas covered by the Flora are easy or safe to visit at the present time. The species included are:

C. (Merendera) robustum [Syn. *M. persica*, *M. aitchisonii*, *M. hissarica*, *M. jolantae*], *C. kesselringii* [Syn. *C. regelii*, *Synsiphon crociflorus*], *C. luteum* [Syn. *C. albertii*], *C. crocifolium* [Syn. *C. stenanthum*], *C. schimperi* [Syn. *C. cornigerum*, *C. jesdianum*, *C. deserti-syriaci*], *C. (Merendera) trigynum* [Syn. *Merendera trigyna*, *M. caucasica*, *M. candidissima*, *M. trigyna* var. *ketzkhovellii*, *M. ghalghana*], *C. wendelboi* [a 'Merendera' species newly described by Karin Persson, based on Grey-Wilson & Hower 35, collected in 1971 in southern Iran between Shiraz & Kazerun], *C. (Merendera) soboliferum* [Syn. *Bulbocodium hastulatum*], *C. (Merendera) raddeanum* [Syn. *M. navis-noae*], *C. (Merendera) kurdicum* [Syn. *Merendera kurdica*], *C. szovitsii* [Syn. *C. bifolium*, *Merendera nivalis*, *C. hydrophilum*, *C. armenum*, *C. davidovii*, *C. nivale*, *C. ninae*, *C. diampolis*] *C. varians*, *C. freynii* [Syn. *C. zangezorum*], *C. triphyllum* [Syn. *C. clementii*, *C. catacuzenium*, *C. ancyrense*], *C. kotschyi* [Syn. *Merendera quadrifolia*, *C. obtusifolium*], *C. speciosum* [*C. bornmuelleri*, *C. lenkoranicum*], *C. persicum* [Syn. *C. haussknechtii*, *C. halophilum*]. I love Per Wendelbo's photo of *C. persicum* with the columns of Persepolis towering in the background!

Flora Iranica parts are obtainable from Akademische Druck- u. Verlagsanstalt, A-8010 Graz, Schönaugasse 6, Austria.

A weighty tome from California

The Jepson Manual has just been published, subtitled Higher Plants of California. This replaces the original Jepson Manual of 1925 and up-dates information given in more recent works such as Philip Munz's *A California Flora* (1959) and the *Illustrated Flora of the Pacific States* by Abrams & Ferris, both of which have been invaluable over the last few decades. The new version of 'Jepson' has been prepared by a team of nearly 200 workers under the editorship of James C. Hickman, and is dedicated to Lawrence (Larry) R. Heckard, the Curator of the Jepson Herbarium at Berkeley, who died in 1991 after devoting much time and energy to the project. The monocots, of course, occupy less than a quarter of this impressive 1400-page work, but there is much to interest bulb-lovers who enjoy delving into keys, descriptions and distributions of treasures such as *Fritillaria*, *Calochortus* and *Erythronium*. Most genera are illustrated by line drawings of at least one species and in some cases there are very useful diagnostic sketches of parts of flowers, bulbs, capsules, seeds, styles, etc. The Jepson Manual is published by The University of California Press, Berkeley, Los Angeles and London.

The Genus Arum

Aroid enthusiast Peter Boyce, who works in the very active aroid section of the Herbarium at the Royal Botanic Gardens, Kew, has written a revision of *Arum*, which is published in the Kew Magazine Monograph series by HMSO. The publicity leaflet describes it as 'the most complete revision yet published of this interesting genus of 25 species'. There are keys to the species, full descriptions, illustrations and distribution maps, and 16 gorgeous colour plates by Pandora Sellars. For those who like more 'meat' in their books, in addition to the taxonomic treatment of the genus there are details about the cytology, chemistry, anatomy, and pollination mechanisms, as well as cultivation notes for the horticultural enthusiast. The Genus *Arum* can be obtained direct from HMSO Books, 49 High Holborn, London WC1V 6HB, although it will also be available through bookshops. It costs £30, including postage.