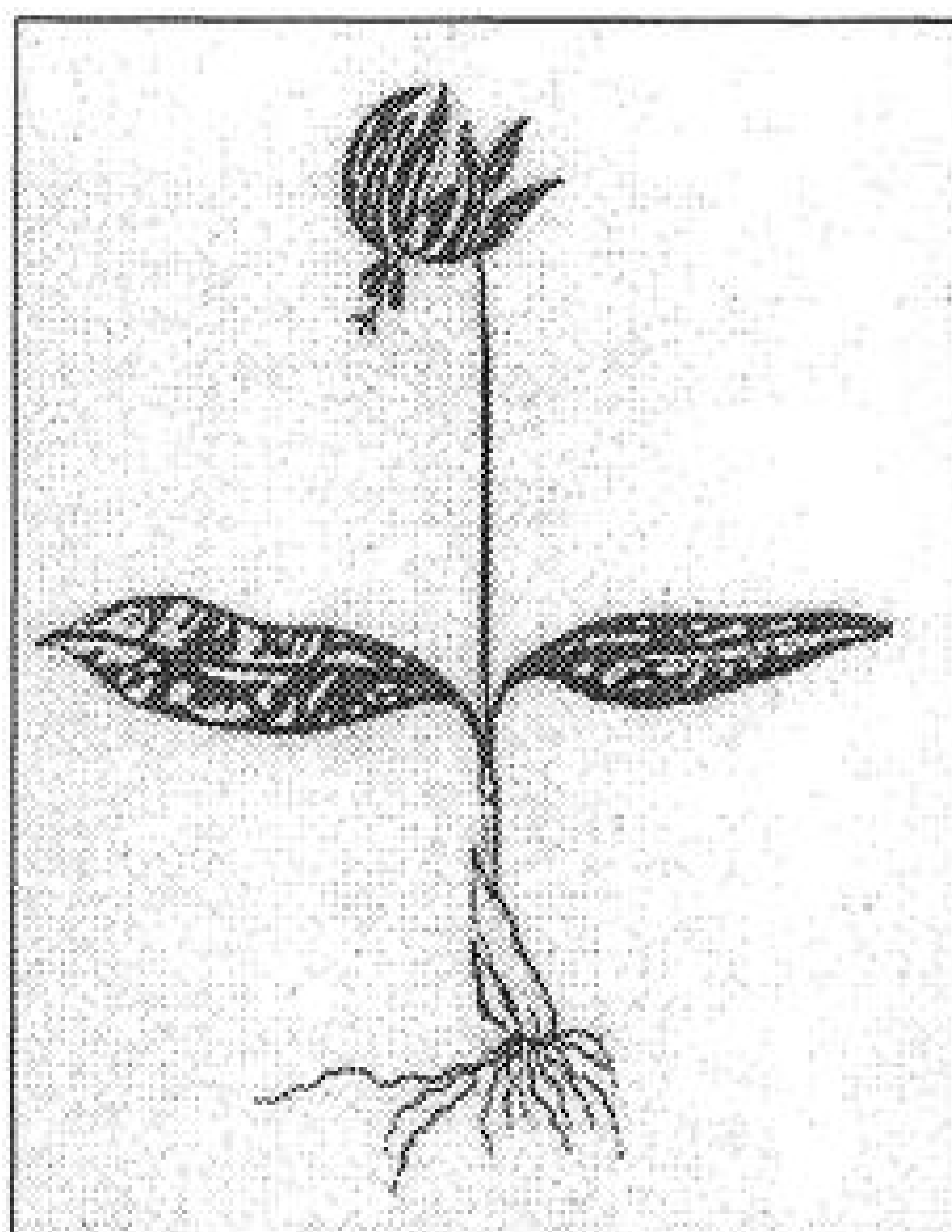


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Yet Another Greek Fritillaria

A small yellow-green fritillary from the eastern Aegean island of Chios has been named *F. pelinaea* by Prof. Georgia Kamari. This newly recognised species occurs in only three small populations and is considered to be vulnerable because of overgrazing by sheep and goats and the recent fires which have swept the area, destroying the woods in which it grows. To date I have been unable to trace a copy of the journal in which it is (or will be) formally described and I suspect that the reason for this is that the volume involved, No. 5 of *Bocconeia*, although in press, has not yet appeared. I can give some details, however.

F. pelinaea is up to 25 cm in height with from 7 to 12 glaucous leaves, the lower two of which are broadly elliptical or ovate-lanceolate and opposite, or nearly so; the upper ones are much narrower and alternate. The conical/bells-shaped flowers are 1.7-2.2 cm long, deep yellow flushed green on the outside and the slender style is undivided, either smooth or with minute papillae. From the colour photograph I have seen, in overall appearance it is very similar to *F. carica* but usually has more leaves per plant. Using the characters given so far, trying to key it out in *Flora of Turkey* results (with a bit of extrapolation) in *F. carica*, although the exact combination of number of leaves with flower colour, details of the style (slender v stout, smooth v papillose) mean that it falls somewhere between *F. carica* and *F. bithynica* and is clearly related to these, *F. forbesii* and *F. sibthorpiana*; all of these occur in the general area of western Turkey and the Aegean Islands. More detailed comments will have to wait until the paper where *F. pelinaea* is described is published, since this will, it seems, include a statement about the distinguishing features of the yellow and green fritillaries of Greece.

Blue-throated crocuses

Walter Milota of Krems-Rehberg sent in a photograph earlier this year of an autumn crocus from Honaz Dag in western Turkey which had a lilac-

blue flower and a deep blue throat. Although crocuses are difficult to identify with any degree of certainty from photographs alone, this one was quite easy. The photo shows long, coarse stiff bristles of a deep brown corm tunic sticking up out of the ground, the tips of some narrow leaves in which the white stripe in the centre is quite wide in relation to the whole width, a silvery-papery bract and bracteole, deep yellow stamens and an orange-red stigma divided into more than three branches. Rarely is one fortunate enough to see all these features in a photograph! This is undoubtedly a variant of *Crocus cancellatus**, that interesting and complex species (which should possibly be split into several related species) which is so widespread from the Balkans through Turkey to Iraq and Iran and southwards through Syria, Jordan and Lebanon to Israel. This blue-throated variant seems to be restricted to south-western Turkey. I made a brief comment about it in *The Crocus* (1982): 'a white or pale lilac form from Denizli province of W. Turkey in which there is a bluish-violet zone in the throat----'. The photograph sent by Walter Milota shows a rather darker blue form than I have seen previously. In the classification which I proposed for the species in *The Crocus*, this falls within the circumscription of *C.cancellatus* subsp. *mazziaricus*. The situation is, however, far from satisfactory and I do not regard my work as anything like the final word - in fact, more of a beginning, something upon which others can base much more detailed genetical studies in the future.

In the case of *C.cancellatus*, just at the basic level of chromosome number, there is an interesting pattern. Those representatives from the western end of the distribution, subsp. *mazziaricus* from Macedonia, Greece and western Turkey, have the highest number ($2n=18, 16$), moving eastwards to subsp. *lycius* in south-western Turkey ($2n=16, 14$) and then subsp. *pamphylicus* ($2n=12$) to subsp. *cancellatus* from central-southern Turkey south to Lebanon and Israel ($2n=12, 10$) and finally subsp. *damascenus* from eastern Turkey, Iraq, Iran, Syria, Jordan, Lebanon and Israel ($2n=12, 10, 8$). The five subspecies have distinguishing features which tie in with this pattern, and to some extent there are correlations with the various floristic zones in the region, but in designating these five subspecies I hope that I did not give the impression that each is uniform in its appearance for there is a lot of variation, especially in the case of the most widespread, *mazziaricus* and *damascenus*.

So, the message is that there is a very nice project awaiting someone!

* Note: Although *C.cancellatus* is usually leafless at flowering time, occasionally the tips of the leaves are visible.

Flora of Tropical East Africa

The latest two monocot parts of FTEA (covering Kenya, Uganda & Tanzania) to be produced deal with the Hyacinthaceae and the Eriospermaceae, both of which were formerly included in Liliaceae. The latter family, written up by Christopher Whitehouse, contains only the genus *Eriospermum* (see BN 11:18-20); the East African representatives are: *E.mackenii*, *E.triphyllum*, *E.abbyssinicum* and *E.kiboense*. These are tuberous-rooted plants with racemes of small starry or bell-shaped flowers. In *E.kiboense* and *E.abbyssinicum* the flesh of the tuber is white (pink or red in the other two) and they flower while still leafless; they both have solitary leaves (up to 7 in the other two species) but differ from each other in that *E.kiboense* has white or greenish flowers and *E.abbyssinicum* yellow. The other two species, *E.triphyllum* and *E.mackenii*, both have yellow flowers but differ in their leaves, linear or lanceolate in the former and ovate in the latter.

The Hyacinthaceae (author: Brita Stedje of the University of Oslo) is well-represented in East Africa, with 9 genera comprising 31 species. These are:

Albuca:	<i>A.abbyssinica</i> , <i>A.kirkii</i> , <i>A.tenuis</i>
Bowiea:	<i>B.volubilis</i>
Dipcadi:	<i>D.gracillimum</i> , <i>D.longifolium</i> , <i>D.marlothii</i> , <i>D.vaginatum</i> , <i>D.viride</i> .
Drimia:	<i>D.altissima</i> , <i>D.brachystachys</i> , <i>D.calcarata</i> , <i>D.congesta</i> , <i>D.elata</i> , <i>D.indica</i> , <i>D. macrocarpa</i> , <i>D.porphyrantha</i> .
Drimiopsis:	<i>D.barteri</i> , <i>D.botryoides</i> , <i>D.fischeri</i> , <i>D.maculata</i> .
Ledebouria:	<i>L.cordifolia</i> , <i>L.edulis</i> , <i>L.kirkii</i> , <i>L.revoluta</i> , <i>L.somalensis</i> .
Ornithogalum:	<i>O.donaldsonii</i> , <i>O.gracillimum</i> , <i>O.tenuifolium</i>
Schizobasis:	<i>S.intricata</i> .
Scilla:	<i>S.nervosa</i> .

The absence of any *Urginea* species - formerly quite a well-known part of the Tropical African monocot flora, particularly *U. altissimum* - is explained by the fact that the whole genus was merged some years ago into *Drimia*, including of course the very familiar Mediterranean sea squill, *U.maritima*.

Most of these tropical bulbs on the above list leave rather a lot to be desired as garden plants since they mostly have small fairly dull flowers and, in temperate climate areas, they require precious glasshouse space. However, this does not deter the real enthusiast and some of them could well find an appreciative home in certain bulb collections. Some *Drimiopsis*, for example, are interesting foliage plants with broad ovate leaves covered with dark blotches; the flowers are small, white or greenish

and almost spherical, carried in spikes or racemes so they might be regarded as the grape hyacinths of Africa. *Ledebouria* species can be quite attractive and some of the South African species are widely cultivated, notably the very spotted-leaved *L.socialis* ("Scilla violacea"). Of those included in the FTEA account I would like to try *L.cordata* which is a compact plant up to 12 cm tall with broad, purple-spotted leaves pressed to the ground and short racemes of pink or purple flowers. *Dipcadi* species are not without interest either, their small green, brownish or pinkish flowers often having slender, recurving appendages on the outer three perianth segments. The Mediterranean *D. serotinum* is occasionally cultivated but few of the others are seen, even in specialist collections. I grow *D. viride*, one of the most widespread of the tropical species, in a variant from Malawi with pale, whitish-green flowers, but it will never take the show bench by storm!

These two parts of the *Flora of Tropical East Africa* are obtainable from The Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB, U.K.

The Hyacinthaceae

Having mentioned the Hyacinthaceae, and so many of its Tropical African representatives, it might be of interest, and useful, to list all those genera formerly in the Liliaceae which have been assigned to this family.

The basic set of characteristics defining Hyacinthaceae are: a true bulb of concentric scales; basal leaves (borne on the stem in true Liliaceae - *Lilium*, *Tulipa*, *Erythronium*, *Fritillaria* etc.); a leafless flower stem (= a scape); a spike or raceme, often with many smallish flowers (as opposed to often solitary or few large flowers in Liliaceae); flowers with six stamens and a superior ovary (i.e. the six perianth segments arising beneath the ovary); fruit a 3-valved capsule splitting lengthways; seeds usually rounded, with a black testa (often flattened and always brown in Liliaceae).

Incidentally, in case anyone is under the impression that the idea of a separate family Hyacinthaceae is a new one, I must point out that the family was described in 1797 by Batsch and Borkhausen!

Genera which have been assigned to Hyacinthaceae are shown in the following table, but please bear in mind that research is going on all the time and things will undoubtedly change from time to time. Probably not drastically but certain genera will, I am fairly confident in saying, be removed from this family as the results of more detailed molecular studies become available. However, I can predict, with greater confidence, that *Hyacinthus* will remain in the Hyacinthaceae! - unless the family is merged back into Liliaceae, of course! I have included a few of the salient features but I am not very familiar with some of the more obscure genera which are not, or barely, in cultivation.

Albuca	Africa, Arabia. Flowers yellow or white with green or yellow stripe on each segment; 3 inner segments hooded at apex, held together forming a tube, outer 3 spreading.
Alrawia	Iraq, Iran. Bluish, bell-shaped flowers, not crimped at mouth; related to Bellevalia and Muscari.
Amphisiphon	S. Africa. 2 leaves, nearly flat on ground with a stemless 'head' of yellow flowers with conspicuous stamens.
Androsiphon	S.Africa, rather like Massonia; 2 broad, green, dark-spotted leaves, and a stemless 'head' of yellow flowers with conspicuous stamens.
Bellevalia	Mediterranean region, W & C Asia. Strap-shaped leaves; white, greenish or blue flowers becoming brown with age.
Bowiea	Tropical & S.Africa. Large spherical bulb and long, much-branched twining leafless stems with green fleshy flowers.
Brimeura	Pyrenees, W.Mediterranean islands. Flowers blue, pink or white, pendent & tubular or starry, short-tubed & facing upwards.
Camassia	N.America. Long narrow leaves and racemes of white, pale to deep blue or violet starry flowers, fairly large for Hyacinthaceae.
Chionodoxa	W.Turkey, Crete, Cyprus. 2 leaves and short racemes of flattish blue, lavender, pink or white flowers with a short tube.
Chlorogalum	Mainly California. Fibrous-coated bulbs with long tough basal leaves, often greyish and wavy at the edges; tall, loosely-branched flowers stems with many flattish starry white, pinkish, blue or purple flowers.
Daubenya	S.Africa. 2 broad leaves flat on the ground with a stemless 'head' of red, yellow or orange flowers; outer flowers with three larger segments on the outside, giving the head a showy rim.
Dipcadi	Canary Islands, S-W.Europe, N.Africa, tropical & S.Africa, Saudi Arabia, India. Narrow basal leaves and racemes of bell-shaped, semi-pendent green, brown or pinkish flowers; inner 3 segments form a tube and the 3 narrow outer ones curve outwards.
Drimia	Tropical & S.Africa, Mediterranean Region. Includes Urginea. Lance-shaped leaves, sometimes undulate, often produced after the flowers; fls starry with 6 spreading segments, usually white with a darker vein.
Drimiopsis	Tropical & S.Africa. Leaves oval with conspicuous dark blotches; dense muscari-like spikes of small rounded white or greenish flowers.
Eucomis	S.Africa, Natal & Lesotho. Rosettes of fleshy leaves and stout dense spikes of green, white or purple starry, flat or cup-shaped flowers, top of the spike bears a tuft of leaf-like bracts.
Fortunatia	S.America. Long narrow basal leaves and starry white flowers in racemes, looking very like some ornithogalums.
Galtonia	S.Africa. Several long fleshy channelled basal leaves and a raceme of white or green pendent funnel-shaped or bell-shaped flowers.
Hastingsia	California, Oregon. Long narrow leaves & dense racemes of many small starry green, white or yellow fls.
Hesperocallis	California, W.Arizona. Rosette of blue-green wavy-edged leaves & raceme of white funnel-shaped flowers.
Hyacinthella	S.E.Europe and W.Asia. 2 or 3 short leaves and compact racemes of small bell-shaped purple or blue flowers.
Hyacinthoides	Britain, W.Europe. Narrow, strap-like leaves; pendent blue, pink or white bells
Hyacinthus	Turkey to C.Asia. Strap-like or narrowly lance-shaped leaves and tubular flowers with reflexed tips to the six segments.

Lachenalia	S.Africa. Leaves 1-several, flat on ground or erect, narrow to broad, plain green or dark-blotched, smooth or with warts or blister-like protuberances; flowers pendent to horizontal or erect, long & tubular to short & bell-shaped, almost all colours & often 2-, 3- or 4-coloured.
Ledebouria	S.Africa, tropical Africa, Socotra, ?India. Basal lance-shaped to oval leaves, usually with conspicuous blotches or stripes; small bell-shaped flowers, brownish, green, purplish or pink.
Leopoldia	W.Asia, N.Africa. Like Muscari but with generally looser racemes of brown, greenish or yellowish tubular flowers and a crown of showier purple, blue or pink sterile flowers.
Litanthus	S.Africa. Minute, with thread-like leaves and tiny white tubular flowers.
Massonia	South Africa. 2 broad leaves lying on the ground, smooth or covered in pointed pustules or bristles; flowers white, green, yellowish, brownish or pink flowers in a tight head stemless between the leaves, with long-protruding stamens.
Muscari	Europe, W.Asia. Narrowly linear leaves; dense racemes of small near-spherical or tubular blue (also albino) flowers, crimped at mouth.
Muscarimia	Aegean Is., W.Turkey. Dense spikes of scented tubular whitish-brown, pale blue or yellow flowers with angular projections at the mouth.
Neopatersonia	S.Africa.
Ornithogalum	Europe, N.Africa, W.Asia, tropical Africa, S.Africa. Leaves thread-like to strap-shaped or narrowly lance-shaped; flowers cup-shaped, saucer-shaped or flattish in racemes or corymbs, often white & green-striped on each segment, but may be green, yellow and orange.
Polyxena	South Africa. Leaves short, narrow & cylindrical leaves to lance-shaped & flat; flowers upward-facing pink, purplish or white.
Pseudogaltonia	Namibia, Angola, Botswana. Basal tuft of erect grey-green leaves and a dense, almost head-like raceme of tubular white flowers.
Pseudomuscari	W.Asia. Like Muscari but flowers bell-shaped & non-constricted.
Puschkinia	W.Asia. Pale blue or white flowers with a darker stripe along the centre of each segment.
Rhadamanthus	S.Africa. ?similar to Drimia
Rhodocodon	Madagascar. No information.
Schizobasis	Tropical & S.Africa. No leaves on flowering plants; small yellow flowers in loose, much-branched leafless head. Related to Bowiea.
Schoenolirion	S.E.United States; similar to Hastingsia, above
Scilla	Europe, North Africa, W & C.Asia. 2-several narrow to lance-shaped leaves; flowers with 6 free segments, starry to bell-shaped, in various shades of blue or violet, rarely pink or white.
Tenicroa	S.Africa. Many thread-like leaves; raceme of flattish white or pinkish fls, lemon-scented
Thuranthos	S.Africa. ?Similar to Drimia
Urginea	See Drimia
Veltheimia	S.Africa. Tufts of green or grey lance-shaped leaves, often undulate; flowers downward-curving, tubular, pink or red flowers, usually tipped green or cream (yellow forms also known).
Whiteheadia	S.Africa. Rather like Massonia with 2 succulent green leaves, nearly flat on the ground; flowers green, fleshy in a short dense spike with many green prominent leaf-like bracts.

Tulbaghia

At a recent Royal Horticultural Society flower show in London, Brian & Heather Hiley* were showing several *Tulbaghia* (Liliaceae/Alliaceae) species and hybrids. This is a genus which has recently become 'collectable', as antique dealers and car-boot sale aficionados seem to say quite frequently. From relative obscurity in the 1960s - there were only three or four around in my nursery days - these became much known following the taxonomic work of Brinsley Burbidge** at Edinburgh Botanic Garden and the cytological studies of Canio Vosa at Oxford. Various species have been introduced into cultivation since then, perhaps the most noticeable being *T.comminsii*, a delicate-looking little plant but one which seems to be fairly hardy and seldom stops flowering. The much more robust *T.violacea* and *T.cephacea* have been around some time in cultivation and the former is a good garden plant, although I have lost it during cold winters here in Surrey. The Hileys were exhibiting both of these purple-flowered species, and the variegated 'Silver Lace' sport of *T.violacea* as well as three hybrids: *T. comminsii* x *T.violacea* was about 45 cm in height with grey leaves and umbels of 12 or so very pale pink flowers; *T.coddii* x *T.violacea* had slightly shorter stems - 30 cm - with small greyish-purple flowers and narrow green leaves, while *T.cephacea* x *natalensis* had flowers of a curious subdued mid lavender-purple shade.

Last year a friend in our village gave me a seedling of *T.comminsii* which appears to have hybridised with the *T.violacea* 'Silver Lace' alongside to produce a smallish plant with very slender green leaves and long-tubed flowers of the palest pinkish-lavender. Clearly there is some scope for further hybridisation in this genus since the presence of a small corona in the centre of the flower, often orange or yellowish, will allow for selection for a conspicuous eye.

* The Hileys' nursery is noted for its range of unusual [mostly non-bulbous] plants. Address: 25 Little Woodcote Estate, Telegraph Track, Woodmansterne Lane, Wallington, Surrey SM5 4AU. Catalogue: 50p or three 1st class stamps.

** A Revision of the genus *Tulbaghia* in *Notes from the Royal Botanic Garden, Edinburgh* 36(1):77-103 (1978).

Detailed Studies on the Avalanche Lily

A group of Canadian botanists working on *Erythronium montanum*, the avalanche lily, have published the results of a very detailed survey involving both morphology - the physical structure - and genetic variation of the species. The authors identify four main areas of distribution, separated from each other: the Coast Range of British Columbia, southern Vancouver Island, the Olympic Peninsula and the cascade Mountains of Washington & Oregon. A total of 12 populations were sampled. The aim of

the study was 'to determine the pattern of morphological and genetic differentiation among populations and regions of this species and to use this information to infer migration patterns and the possible origins of the disjunct northern populations. These questions are of particular interest in view of the occurrence of several known or suspected refugia in coastal British Columbia and Alaska during late Pleistocene glaciations.' The summary of the paper states that: 'Floral traits exhibited significant differences among regions and among populations within regions, but these differences showed no clear geographic pattern, and for all traits there was substantial overlap among populations.' Although this may sound disappointing, the genetic variation did reveal marked differences with a north-south pattern, the most northerly populations having low levels of genetic variability while the southern populations had a much higher level. The authors then use this information to attempt to explain the current distribution pattern of *E. montanum* in relation to the glacial history of the region. Their conclusion is 'that disjunct populations of *E. montanum* in B.C. [British Columbia] probably arose through long-distance dispersal from more southern populations following deglaciation.'

This is, of course, a crude summary of a very detailed paper of 10 pages long and anyone interested in the more botanical aspects of *Erythronium* should obtain and read it thoroughly (several times!) for themselves. It is published in the *Canadian Journal of Botany* 74: 403-412 (1996); the authors are Geraldine A. Allen, Joseph A. Antos, Anne C. Worley, Terri A. Suttill and Richard J. Hebda.

Ornithogalum tenuifolium

Bulb enthusiasts reading through the list of ornithogalums in the *Flora of Tropical East Africa* (see page 3) may well be puzzled by the presence of *Ornithogalum tenuifolium* since this name is much-used in reference to a European/Mediterranean species and one would not expect it to occur also in Tropical Africa. The answer is that this is a different *O. tenuifolium*! The earliest use of the name appears to have been that of F. Delaroché in Redouté's *Les Liliacées* 6: tab. 312(1811); the plant depicted by Redouté is a tall, slender species with erect leaves and a long narrow raceme of small flowers on short pedicels, quite unlike the "O.tenuifolium" of the Mediterranean which is short, with a rather wide, flat-topped flower head (a corymb) having comparatively large flowers on long pedicels. Another point of interest is that the bulb in the Redouté plate is shown to have stalked bulblets arising from its base. Unfortunately the name *O.tenuifolium* has been used by various authors, including Gussone, to refer also to a Mediterranean species; checking the European floras, it

appears that it has been attached to at least two species other than the East African one, *O. collinum* and *O. orthophyllum*. So, we must get used to the idea that *O. tenuifolium* F. Delaroché is a large plant, with a raceme up to two metres in height when in flower.

Allium zap.

A recent enquiry from Richard Hancock about *Allium zaprjagajevii* led to a bit of library-delving (or to use the modern terminology, research) and the eventual acquisition of a photocopy of the journal where it was first described. If my understanding of the Russian characters is roughly correct, the title translates as *Doklady Akademii Nauk Tadzhiksk. S.S.R.* which gives an idea of where this species occurs in the wild, in Central Asia in the Republic of Tadjikistan. The species was described in 1973 by A.E. Kassacz from the western Pamir mountains at 2400-2800 metres in the valley of the Schach Dara near Bodom and Siob, and in the Bizhun Dara valley. It is named after the botanist M. Zaprjagajev who was with Kassacz when one of the specimens was collected. For *Allium* enthusiasts the essential details are as follows:

Bulb solitary or in clumps, attached to a short rhizome, subcylindrical or elongate-conical, 0.5-1 cm in diameter, covered with brown, thinly leathery tunics. Height 10-50 cm; leaves 3-5, sheathing the lower quarter of the stem, only 0.5-2 mm wide and thread-like to semi-cylindrical with a channelled upper surface and rough (scabrid) margins. The umbel is densely-flowered, 1.2-2.7 cm in diameter and subglobose or globose; the bell-shaped flowers are 3-5 mm long, white with a green or brownish-green vein on each of the perianth segments which have acute tips. The author says that *A. zaprjagajevii* is related to *A. filifolium*, *A. caricoides* and *A. kokanicum*, none of which is known to any extent in cultivation; these belong to the subgenus *Rhizirideum*, the group of summer-flowering alliums to which the well-known *A. senescens* and *A. schoenoprasum* (chives) belong, so presumably *A. zaprjagajevii* does as well.

Unfortunately, horticulturally speaking, this one appears to be a real enthusiast's plant and the name is probably the most exciting thing about it!

Iris fanciers will know that there is a choice 'Juno' named after the same botanist, *I. zaprjagajevii*, a very special plant related to *I. nicolai* but with pure white flowers. This is also from the Pamir range.

A New Somali Gladiolus

The finding of a previously unknown *Cyclamen* species in Somalia a few years ago created quite a stir since this is a primarily Mediterranean genus

and the new discovery represented a considerable extension of the range for the genus. A new *Gladiolus* species from the same country is rather more predictable since this genus is very widespread from South Africa and Madagascar, north through Tropical Africa into North Africa, Arabia, western Asia and Europe. However, unlike most of the other countries of the eastern side of Tropical Africa, Somalia is not rich in *Gladiolus*, only three other species having been recorded there, according to the authors of the paper where this new species is described. The figures quoted for the genus as a whole are interesting: there are about 150 species in southern Africa, 8 in Madagascar, 83 in tropical Africa (south of the Sahara) and approximately 10 in Europe, North Africa and western Asia. The many large-flowered cultivars available in commerce have been developed from just a handful of species and, whether one approves of hybridisation or not, it must be said that the potential for development of new 'garden gladiolus' is enormous.

Gladiolus somalensis is a small species, described by Peter Goldblatt and Mats Thulin in *Novon* 5: 325-328(1995). It was collected by the latter during an expedition in 1995 to the Sanaag Region on a limestone formation at about 1350 metres. The plant is about 12-30 cm in height with 4-5 narrow leaves only 2-4 mm wide; the flower spike has 2-10 orange flowers which are small for a *Gladiolus*, roughly 2-2.5 cm long including the short, curved tube; the six segments form an irregular shape: the upper central one is arched over the stamens and is longer than the lower three, as are the two upper laterals; the two lower laterals, and sometimes also the lower central one are marked with bright yellow in the bottom half, presumably the signal patch for pollinators.

Although, within the 83 tropical African species there is a great amount of variation in colour and markings, orange is unusual so this must be a very distinctive little plant. In fact the authors liken it to species of *Tritonia* which are often orange and fairly small-flowered.

Request

Richard Hancock writes from Birley, Herefordshire to say that, on a tour in Central Asia he saw *Bellevalia atrovioacea*, 'a splendid bulb in a rather dismal genus. Is it in cultivation? If not, it most certainly would be worth trying, a panful on a show bench would cause a lot of interest I'm sure, although I feel it may not be easy - on a very steep slope, but in thick 'gooey' terra rossa'. His final comment is one that all we bulb freaks understand only too well: 'This is a bulb I covet very much.'

If anyone has spares of this, or seeds, please let us know. I have grown it in the past, from a Paul Furse collection in Afghanistan during his 1960s or 1970s expeditions. The fact that I no longer have it suggests that it

was not particularly easy to cultivate, although I do remember that it flowered for a year or two. My notes say that it was about 15 cm tall with a dense raceme of dark blue flowers which were tubular/bell-shaped and nearly 1 cm long, and the leaves were strap-like but quite short and neat.

Cultivation Notes - *Ipheion*

Ipheion (Liliaceae/Alliaceae) is a well-known South American genus, mainly because of the long-cultivated *I.uniflorum*, an innocent little bulb which has been the subject of a ridiculous amount of shuffling by botanists. It has oscillated from one genus to another and the wrangling continues, with some suggesting that it should be merged with *Tristagma*, and that the lovely yellow-flowered species should be moved out of *Ipheion* into *Nothoscordum*. But let us set all this aside and concentrate on their garden value.

Ipheions are winter growers so should be planted in autumn just before they are due to start producing new growth. In areas where they are hardy they require only an open or slightly shaded site in well-drained soil which becomes drier (though not hot and dusty-dry) in summer when the bulbs are dormant. In our area, where the winter temperature may go to -7°C, rarely -12°C, *I.uniflorum* can be damaged. The 'ordinary' form, a mid-blue, does not do very well and I find that the hardiest and by far the most satisfactory is the lovely large white 'Alberto Castillo' which makes large clumps, flowers profusely and sets a lot of seed, which the ordinary one does not. 'Rolf Fiedler' (perhaps a different species) is the least satisfactory and dwindles away outdoors; it is much better in pots in the unheated glasshouse. With outdoor plantings of *I.uniflorum* I find that, if the summer is cool and damp when they are at rest, the bulbs sometimes fail to come into growth in the autumn and stay dormant right through until the next growing season a year later.

The very dwarf *I.sessile*, which looks like a near-stemless *I.uniflorum* with solitary white, purplish-backed flowers grows very well in the frost-free house, as do the yellow, one-flowered species, *I.sellowianum*, *I.hirtellum* and *I.dialystemon*, which are all very similar in outward appearance. I have also tried a few of the slightly taller yellow species with small umbels of flowers, *I.ostenii*, *I.minarum* and *I.montevidense*, and these have also proved very easy in pots.

The only yellow ones tried outside so far, *I.ostenii* and *I.sellowianum*, have survived one winter unscathed. For those gardening in colder areas where they are unlikely to survive, ipheions make great early-flowering subjects for a frost-free glasshouse.

More *Scilla bithynica*

Gordon Hanson, in the BSBI News (Botanical Society of the British Isles) No. 70: 36 (1995) has noted a huge colony of *S. bithynica* (see BN 11:15 and 14:1) at Ware in Hertfordshire in some old garden plots which 'have been abandoned for about 60-80 years and have now reverted to woodland.' He estimated the population to consist of up to 10 million; Mr Hanson describes his first glimpse of the wood, in March 1994, as apparently 'an impossibly early bluebell wood' and goes on to suggest that a woodland planted with both *S. bithynica* and *Hyacinthoides non-scripta* would provide a beautiful sight for months. Quite an idea for those with a piece of spare woodland in which to experiment; adding the earlier-flowering *S. bifolia* and *Chionodoxa sardensis* would lengthen the blue season even more.

News from The Cyclamen Society's Journal

The latest issue of *Cyclamen*, Volume 20 No. 1 June 1996, leads off with the splendid news of the distribution of *C.coum* forma *albissimum* 'Golan Heights'. The original was a single plant, collected under licence by The Cyclamen Society* on its expedition to Israel in 1990 and brought into cultivation under the expert care of Peter Moore at Tile Barn Nursery**. It is a pure white-flowered variant, without any trace of the purple stain around the 'mouth' which is a feature of the old and well-known white *C.coum* 'Album' of commerce; the leaves are a deep green with almost no markings, contrasting well with the purity of the flowers. To encompass any all-white forms, the botanical epithet forma *albissimum* had already been published but this plant is particularly desirable, in vigour as well as appearance so it has been distinguished by the addition of the cultivar name 'Golan Heights'. Seeds obtained from it gave rise to plants with very uniform characteristics, so cultivar status is fully justified. The excellent news, and a model for others who introduce new and exciting plants, is that the batch of plants raised from this plant by Peter Moore (which had all flowered and were therefore known to be true) have been distributed; two plants were given to each of 12 nurseries that have *Cyclamen* as one of their specialities, the idea being to get this new plant dispersed as widely as possible. The remaining plants were sold to members of the Society with the request that some of any resulting seeds would be donated to the Seed Exchange scheme. The Journal has many items of interest, including colour paintings of *C.trochopteranthum* by Pauline Dean and *C.repandum* var. *peloponnesiacum* forma *vividum* by Valerie Price, together with associated articles about these two cyclamen. There is also a comprehensive article by Chris Clennett of Kew on that awful pest,

the vine weevil, or evil weevil as it became known to me and some fellow students long ago. The survey covers the biology of the pest and chemical, biological and cultural methods of control. John Grimshaw provides a detailed biography of the man after whom *C.rohlfsianum* is named, and there are items on early accounts of cyclamen in literature (Brian Halliwell), *C. purpurascens* in the French Jura mountains (Martyn Denney) and *C.persicum* in Syria by Lynn & Michael Almond.

*The Cyclamen Society's Membership Secretary is: Dr D.V.Bent, Little Pilgrims, 2 Pilgrims Way East, Otford, Sevenoaks, Kent TN14 5QN. A list of the available back numbers of the journals, which are full of interesting items about *Cyclamen* species, is available from Richard Bailey, 5 Dower Avenue, Wallington, Surrey SM6 0RG.

** Tile Barn Nursery, Standen Street, Iden Green, Benenden, Kent TN17 4LB, U.K. has a wide range of Cyclamen species and their variants.

Paukensschläger-Lauche

In a well-illustrated article (in German) in *Der Palmengarten* 59(2): 152-163 (1995), Reinhard Fritsch describes the 'Paukensschläger-Lauche' or 'drumstick-leeks', the *Allium* species of subgenus *Melanocrommyum* section *Megaloprason* which are the subject of a long-term study by him in Gatersleben, Germany. The 9 species of sect. *Megaloprason* are divided into three subsections: *Megaloprason*, *Costatae* and *Elatae*, as follows:

Subsect. *Megaloprason*-----*A.sarawschanicum*, *A.rosenbachianum* ssp. *rosenbachianum* & ssp. *kwakense*.

Subsect. *Costatae*-----*A.rosenorum*, *A.hollandicum* ("A.aflatunense of gardens"), *A.bakhtiaricum*, *A.jesdianum* ssp. *jesdianum* & ssp. *angustitepalum*

Subsect. *Elatae*-----*A.stipitatum* (*A.hirtifolium*), *A.altissimum*, *A.aflatunense*

A key to the species is provided and there are colour photographs of seven of these showing them in their natural habitats in Central Asia and in close-up (*A.sarawschanicum* and *A.bakhtiaricum* are not illustrated). The initial division in the key, into subsections, is based upon whether the flower stem has distinct longitudinal ribs, at least in the lower part (subsect *Costatae*), or is smooth. The two subsections with unribbed stems are distinguished on the basis of the number (per bulb) and width of the leaves, the density of the flower heads (umbels) and flower colour. Subsect. *Elatae* has (3-)4-8(-10) leaves, (2-)3-8(-12) cm wide, the lowest of which are only slightly smaller; the umbels are quite densely-flowered and the perianth segments are shiny pink to purple (rarely white). Subsect. *Megaloprason* has (1-)2-4(-6) leaves, (1-)1.5-5(-6.5) cm wide, the lowest

usually distinctly smaller, the umbels are fairly loose by comparison and the perianth segments silvery-rose.

Allium enthusiasts may wonder why *A.giganteum* and *A.macleanii* are not included here, in section *Megaloprason*. The answer is that Fritsch has recognised a separate section for these, sect. *Compactoprason*, partly on the basis of the thin, spoon-shaped perianth segments; those of section *Megaloprason* are narrow, linear-lanceolate to more or less 3-cornered, and they become twisted or markedly spiralled in the late flowering stage. The very dense, many-flowered umbels of sect. *Compactoprason* are also distinctive - Reinhard Fritsch, in an earlier work* commented that he had counted an umbel of *A.giganteum* with 3,300 flowers! Another distinguishing feature is that the capsules do not open out fully to release the seeds but break off as a whole unit and fall to the ground.

It is a great step forward to have the classification and nomenclature of these very ornamental alliums sorted out for us. Hopefully we will now be able to get the various 'drumsticks' which are in cultivation correctly identified according to Fritsch's work, for there are plenty of muddles.

*This is a definitive article on these sections: 'The infra-subgeneric grouping in subgenus *Melanocrommyum*', published in a 359 page botanical work containing the papers read at an international *Allium* symposium in Gatersleben in 1991. The book is called *The Genus Allium - Taxonomic Problems and Genetic Resources* and is (or was) available from the Institut für Pflanzengenetik und Kulturpflanzenforschung, Corrensstr. 3, D-0-4325, Gatersleben, Germany. [DM30.00]

Slipper Orchid Propagation

On the whole we do not cover orchids in the Newsletter since they are so well catered for by the many orchid societies, although the hardy terrestrials do not receive much attention. However, they are monocots and a lot of bulb enthusiasts go weak at the knees at the sight of well-grown cyripediums, so it seems appropriate to include a little good news on the propagation of these fascinating plants. The American Orchid Society recently reported that some high school students from Lincoln, New Hampshire have been successful in the tissue culture of *C.reginae*. In order to obtain enough tissue to work with they first had to find a way of germinating seeds under artificial conditions, so they have succeeded in two methods of propagation. A good effort - I never did anything as interesting as that in my A-levels.

The Royal Botanic Gardens, Kew, has had considerable success with these hardy slipper orchids from seed and I hope that we can give a report on this in a future BN.

This is also an appropriate place to mention that one of the Curtis's Botanical Magazine Monographs, *Cypripedium* by Phillip Cribb has gone to press but the exact publication date has not yet been announced by Timber Press. It is a full account of the genus with colour paintings of many of the species and a liberal amount of colour photographs of the species in the wild.

The Istanbul Tulip

Imagine *Tulipa acuminata* and you have a fair idea as to what the Istanbul Tulip looked like: long, very narrow segments, tapering gradually to the slender pointed tips which often curved outwards slightly, a sort of extreme version of the modern lily-flowered tulips. Tulips of this type were very sought-after in the days of the Ottoman Empire and reached a peak of popularity towards the end of the reign of Sultan Ahmed III (1673-1736) to the extent that this has become known as The Tulip Period. Plant breeders raised new varieties and these were selected and named. Information about these would have been lost were it not for the existence of a manuscript containing coloured illustrations, thought to have been prepared in about 1725. Prof. Turhan Baytop, in his book *The Istanbul Tulip*, traces the history of these tulips, and of the book which was in the collection of Ekrem Hakki Ayverdi in Turkey but is now in Belgium. Fifty colour plates are beautifully reproduced in full colour, mostly showing individual blooms labelled with their original cultivar names in Arabic, Persian or Turkish and the direct English translation of these names. There is an interesting text accompanying the paintings, especially the description of the Council for Screening Flowers, a judging committee very like those we have today for evaluating the garden value of plants. To quote, 'Under the orders of Sultan Ibrahim (1615-1648), a man named Sari Abdullah Efendi was named the chief palace gardener. In the days of Sultan Mehmed IV (1641-1692) a research laboratory for the screening council was built. Newly created varieties of tulips were checked at special conferences by the council for screening flowers chaired by the chief palace gardener. Once it was evaluated as "a perfect tulip with no blemishes" it was given a name. Its name and characteristics, and the name of the cultivator were put on record.' Nothing new, is there?

The cultivar names vary from descriptive, such as *Tulipa* 'Rose Coloured Spear' and *T.*'The Tip of the Spear', to romantic - *T.*'One That Spreads Light' and *T.*'Spring Morning'; then there are commemorative names - *T.*'Huseyni' and *T.*'Turuncu Ushakizade Efendi', while some are just curious, like *T.*'The Vizier's Finger' [unless he had **extremely** long finger nails]. *Tulipa* 'One That Increases The Value Of Ismail' was, I imagine, the tulip breeder's equivalent of a win on the lottery, while the best I can get

to translating *T.* 'One That Confuses Reason' into colloquial English is 'Blows The Mind'! The colours range from plain yellow and plain red to white and purple, often 'broken' with the ground colour streaked with red, creams or yellow. There is one non-tulip plate showing a yellow *Narcissus tazetta* form and a deep maroon *Cyclamen* flower with long, narrow, twisted petals, presumably a form of *C. persicum*.

This is the English and Japanese version of *The Istanbul Tulip* by Turhan Baytop, published by The Ministry of Culture, Ankara, Turkey and The Orion Literary Agency, Tokyo in 1996. ISBN 975-17-1020-0.

A New Species Of *Tigridia*

Ana Rosa López-Ferrari and Adolfo Espejo-Serna have described in *Novon* 4,4:386-390 (1994) a newly discovered *Tigridia* which they have called *T. estelae*. The name is in honour of María Estela Ferrari de Lopéz, mother of the senior author. This is an attractive species, judging from the colour photo provided, with pale lilac flowers with a darker violet ring around the centre caused by dark signal patches on all six perianth segments. It is described as being about 40 cm l height with one, pleated, basal leaf 35 cm long and 5 cm wide. The spathes enclose several flowers (as is usual in *Tigridia*) which are erect, 5.5-6.5 cm in diameter with horizontally-spreading segments and forming a cup in the centre. It is said to belong 'to the *T. multiflora* complex and is closely related to *T. matudae*, from which it differs in the length of the style branches, the position and blotching of the tepals, and in its habitat.' The *T. multiflora* complex, which is a part of *Tigridia* section *Hydrotaenia*, consists of *T. multiflora*, *T. pulchella*, *T. purpusii*, *T. matudae*, *T. huajuapense*, *T. illecebrosa* and *T. catarinensis*, as well as the new species. A comparative table is provided to show how these species differ from each other, using characters such as stature, number of stem leaves, number of basal leaves, flower orientation (erect or pendent), the flower colour, the form of the seed pods (capsules), and the distribution. There is also a dot map showing where these eight species occur in Mexico.

Tigridia estelae was collected in flower in late July in the Province Durango at El Madroño, at about 2350 metres. The authors comment that 'This beautiful species is known only from the type locality and occurs on exposed rocky slopes in forests of *Quercus* and *Pinus*.'

From the Postbag

John Grimshaw writes from Maidenhead about his work in Tanzania where he encountered *Gloriosa*: 'After reading the latest Bulb Newsletter I thought you might be interested in my comments on *Gloriosa* in northern

Tanzania, where it is quite common around Kilimanjaro and very variable. They generally grow in bushland below the forest. Although it is unquantified and merely an impression, I would say that flower colour varied with altitude. At 1700-1800 m the flowers are the classic bright red and yellow; at about 1650 m they are brilliant bright yellow, with red markings only in the centre, although they fade reddish. This is nothing like the pale yellow one offered by nurserymen here (do they call it 'Carsonii'?) and is really a stunning form. At about 1000m near Moshi they are also predominantly yellow but with a mahogany blotch on the segments. Flower shape (i.e. crinkliness of the segments, their breadth and the degree to which they are reflexed) is also variable but (especially the latter) apparently dependent upon age.

The habit of all these Kilimanjaro plants is similar; they are not very committed scramblers and usually merely haul themselves through a bush and stand erect on the other side, seldom if ever exceeding about 1.5 m from the ground. If unsupported they sprawl. This may be genetic or it may merely be the result of a combination of low bushes and rather dry conditions. Certainly they can flower at a very low height if unsupported or the season is particularly dry. My specimen [JMG 931125] at Kew is an example of this; it was collected at the very start of the rains and may have been triggered into action by an earlier, isolated thunderstorm. I have heard of tall climbing ones in disturbed forest at Ngorongoro, but have not seen them personally; on Kilimanjaro it is certainly not a forest plant.

I would not therefore attempt to use flower colour or climbing/non-climbing characters to distinguish taxa in East Africa without cultivating them *all* in uniform conditions!

John goes on to enquire if it is known what happens in the Asian part of the range of *Gloriosa*, so if anyone has any first-hand observations of the glory lily in India, please let us know. A comparative trial of all the 'forms' of *Gloriosa* could be a really fascinating project, given the space.

Catalogues

Earlier this year we reported on a new bulb nursery (BN14:17), **Buried Treasure**, and the eagerly-anticipated list has now arrived. Now, any list which starts with a *Bellevalia* is likely to be interesting, for no ordinary commercially-minded nurseryman would contemplate such a thing! However, I should just mention that this is no ordinary *Bellevalia*, this is the amazing *B. forniculata* which has left many a traveller in eastern Turkey breathless with its intense sky blue flowers forming lakes of colour in the water meadows. There are many choice items here: the lovely *Crocus corsicus* 'Albus', white inside and creamy-yellow outside,

Fritillaria argolica (see BN 14:6), *F. oranensis* from North Africa, *F. whittallii*, the new autumn snowdrop *Galanthus peshmenii* (see BN 8:9) and a *Gagea*, a genus very seldom (if ever) seen in catalogues; the one offered here is *G. fibrosa*, larger-flowered than most but very dwarf.

The tiny yellow *Iris minutoaurea* bears the comment 'are we the only people growing this gem?' The answer is no, but it is quite rare; it is recommended that 'it grows and flowers well in an unprotected ericaceous trough but attempts to persuade it to flower in a pot for shows have failed' and I agree with the latter; however, outdoors here in Surrey it has done very well in a gritty/sandy bed in full sun, getting hot and quite dry in summer but watered in prolonged periods of drought (yes, we do get them in Britain!) The *Narcissus* list is mouth-watering: an interesting hybrid raised by Rannveig Wallis, a *N. bulbocodium tenuifolius* x *triandrus* cross called 'Solveig's Song', *N. cordubensis*, *N. gaditanus* and a whole range of *N. bulbocodium*, *N. romieuxii* and *N. cantabricus* types. The only yellow-flowered northern hemisphere *Romulea* is offered, most probably for the first time; this very striking little plant, *R. crocea* or *R. bulbocodium* var. *crocea* rivals some of the splendid South African species in showiness. The South African *Oxalis speciosa* is listed, with the observation that this looks identical to *O. purpurea* 'Ken Aslet' and that there must also be a purple form. The answer is that the two are considered synonymous with *O. purpurea* the accepted name and that, in the wild, there is much variation, with at least purple, yellow and white forms known. Buried Treasure, Llwyn Ifan, Porthyrhyd, Carmarthen, Dyfed SA32 8BP.

Bookends

Rare and Precious Wild Flowers of China by Feng Kuomei, published by the China Forestry Publishing House, 7 Liu Hai Hu Tong, Beijing 100009. Although a general book, this has a good section on monocots. There are lots of colour photographs including 17 species of *Lilium*, the more interesting of which are *L. souliei*, *L. rosthornii* (a yellow Turkscap), *L. papilliferum*, *L. lophophorum* and *L. fargesii* (which looks very like *L. pyrenaicum*). Several *Nomocharis* are shown, and *Iris grijsii* which, although poor, is the first illustration I have seen, and there are photos of the curious *Rohdea japonica*, *Tupistra chinensis* and *Paris fargesii*. One should perhaps be cautious over the identifications: the illustration of *Iris chrysographes* undoubtedly shows *I. tectorum*. Many interesting dicots are shown, of course. At \$60 this will probably attract enthusiasts of the Chinese flora in general rather than bulb specialists.

The Red Data Book of Rare and Threatened Plants of Greece by D. Phitos, A. Strid, S. Snogerup and W. Greuter (eds). Published by the World Wide Fund for Nature (WWF). This is a meaty tome of 527 pages containing 263 species and subspecies which are considered to belong to one or other of the IUCN categories: Ex (Extinct), E (Endangered), V (Vulnerable) or R (Rare). Before questioning the inclusion of any of the plants listed, one should bear in mind that a species might have been included because it is very rare in Greece, although widespread and common elsewhere; also, rarity may mean that a species is very restricted in its distribution, for instance to just to one or two mountains or islands, so that on a world scale it is extremely rare, although in its few known localities it may be very plentiful.

The book begins with an explanation about the selection of plants included, followed by a chapter on 'The Protection of the Flora and Biotypes of Greece' which lists the National Parks and other protected areas and mentions the laws which exist to help protect the natural environment. The next chapter, by Arne Strid, is a fascinating one, providing an overview of the flora and vegetation types of Greece, including the various island groups. The main body of the text is devoted to the species, arranged in A-Z order. Each species has a double page spread with, in most cases, a colour photograph and dot map showing the known distribution at time of publication; the text provides information on conservation status, a botanical description, distribution, habitat and ecology, conservation measures taken (if any), biological notes and potential value (for any purpose), and literature references.

Monocots (and 'bulbs' in their widest sense) included are:

Allium calamarophilum, *A. chamaemoly*, *Androcymbium rechingeri*, *Arum purpureospathum*, *Bellevalia brevipedicellata*, *Biarum davisii*, *B. fraasianum*, *Bongardia chrysogonum*, *Crocus biflorus* subsp. *stridii*, *C. goulimyi*, *C. pelistericus**, *C. robertianus*, *Cyclamen persicum*, *Erythronium dens-canis*, *Fritillaria conica*, *F. epirotica*, *F. euboica*, *F. obliqua* subsp. *obliqua*, *F. pelinaea* (see page 1), *F. rhodia*, *F. rhodokanakis*, *F. spetsiotica*, *F. sporadum*, *F. thessala* subsp. *reiseri*, *Galanthus ikariae*, *G. nivalis*, *G. reginae-olgae*, *Gymnospermium altaicum* subsp. *odessanum*, *Hyacinthella atchleyi*, *Lilium rhodopeum*, *Muscari kerkis*, *Tulipa goulimyi* and *T. undulatifolia*. Orchids: *Cephalanthera cucullata*, *C. epipactoides*, *Comperia comperiana*, *Dactylorhiza graeca*, *D. kalopissii*, *Epipactis cretica*, *E. greuteri*, *Ophrys argolica*, *O. helenae*, *O. umbilicata* subsp. *rhodia*, *Orchis militaris*, *O. prisca*, *O. punctulata*, *Pseudorchis frivaldii* and *Serapias ionica*.

* Alan Edwards has recently seen *C. pelistericus* in northern Greece and his photos confirm that this beautiful dark purple crocus grows in enormous quantities; it is, however, restricted to a few mountains in the border regions of northern Greece and southern Macedonia.

For those who enjoy tramping the hills of Greece there is *The Flora of Mount Timfristos* which is a sizeable mountain in the north-west of Sterea Ellas province. This has been prepared by Georgios Dimitrellos and Dimitrios Christodoulakis and is published in Part 5 of *Flora Mediterranea*. The authors state that 'the vascular flora consists of 1139 taxa, 411 of which are reported here for the first time. The endemic element is, in particular, analysed. 111 Balkan endemics (25 are new records) and 89 Greek endemics (11 are also new records) are present on Mt Timfristos, two of the Greek endemics are so far known only from Timfristos. 14 taxa are characterized as Rare and 1 taxon as Vulnerable. A species list is provided with notes on localities and voucher material.'

This is a useful checklist for anyone botanising in the area since, although there are no descriptions, it helps to reduce the number of possibilities when trying to identify the plants seen. The monocot flora is quite rich - I counted 46 'bulbs', excluding the terrestrial orchids which number over 25 taxa.

And finally-----

In *Bot. Zhurnal* 80(9): 35-52 (1995), there is a paper by V.V.Kricsfalusy, V.S.Shushman and O.E.Saroz on *Erythronium dens-canis* in the Carpathian Mountains. There is an English summary:

As a result of the complex bioecological studies of *E.dens-canis* in the East Carpathians, the present day area of the species, its dynamic features have been defined, ecological and coenotic arrangement has been determined; life cycles (morphogenesis, ontogenesis) and seasonal rhythm of development, age and space structure, as well as density and phytomass of the populations, the most important aspects of reproduction biology (seed and vegetative reproduction), intraspecific variability have been studied. The optimal conditions of *E.dens-canis*' existence and the plant resistance to the effect of unfavourable factors were defined. Intraspecific taxonomic structure of *E.dens-canis* has been established and a new subspecies (*E.dens-canis* subsp. *albiflorum* Kricsfalusy) has been described-----.' Got that? The rest is in Russian-----.

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