THE ROCK GARDEN 133

July 2014

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The Rock Garden

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July 2014

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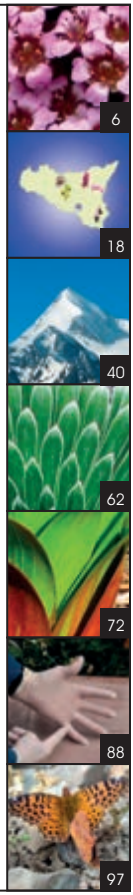

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The Editor welcomes articles, photographs and illustrations on any aspects of alpine and rock garden plants and their cultivation. Authors are encouraged to submit material electronically but articles may also be submitted in manuscript. Digital images are particularly welcome; high quality prints or drawings may also be submitted.

The normal deadlines for contributions are 1 November for the January issue and 1 April for the July issue. These dates also apply for material for the Yearbook and Show Schedules.

Journals usually arrive in February or August. Please contact the Subscriptions Secretary in case of non-arrival (see inside front cover).

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Discussion Weekend 2014

It's full steam ahead for the Discussion Weekend in Grantown-on-Spey. At the time of writing there were still a few rooms left at the Garth Hotel; however, this could change so please email findhorncarol@icloud.com to check. The event will follow on from last year's weekend with plenty of Highland hospitality and the odd surprise or two. In fact, you all seem to love Grantown and the Grant Arms so much that we are going to break with tradition and hold a third weekend there in 2015. Rest assured that the organizing team are already looking at speakers and ways to bring you even more delights than last year.

Delegates arriving by car should leave the A9 at Aviemore and follow the A95 to and through Grantown. The hotel is on the right of the Square. If you are coming by public transport we recommend the scenic train journey through the Grampian Mountains to Aviemore and then onwards via the frequent bus service to Grantown. The nearest airport is Inverness, approximately 45 minutes from Grantown, although delegates from the South may well find it easier to fly to Edinburgh and make the rest of the journey by train.

Saturday morning will, as usual, be free time for the delegates to visit some of the local scenic spots. One option is to take one of the Bird Watchers and Wildlife Club (BWWC) guided walks through Anagach Woods and down by the River Spey. An alternative would be to drive out to Revack Estate for a wander around, along with a visit to their rather good coffee shop! To absorb more of the scenic beauty of the area take a drive out to Lochindorb, admiring the views on the way, bird watching and plant spotting.

There is so much to do in the area around Grantown-on-Spey from bird watching to botanizing, golfing to fishing, that you may want to consider extending your stay and going on a Red Deer Rut Safari or driving over the Dava to Burghead to do some bird or cetacean watching; this is one of Carol & David Shaw's favourite spots for bird watching and, as always, the extremely helpful BWWC folk will be happy to give you advice on where else to go to see the local wildlife.

We look forward to welcoming you back for another great weekend, one we know you will thoroughly enjoy.

Nuts in May?

The Seed Exchange 2014-2015

Ian and Carole Bainbridge

It's May as we write and already seed time. Strange to relate, but this month we have collected both the last and the first seeds of the year. The first were from *Corydalis malkensis* and *C. cava* (ripe and shedding already), *Galanthus nivalis* (collected green after the foliage has turned to goo) and *Scilla bifolia* (collected green before the SFAs, that is small furry animals, eat them all). The last were from our *Libertia peregrina*, which has small but fleshy seed pods the shape of a rugby ball and which will hold its seeds for almost twelve months before releasing them.

So, how do we collect seed? Generally, we tour the alpine house and gardens sort-of weekly, and collect what's ripe and ready. Armed with yogurt pots and labels, we'll pull or clip off seed heads and put them in the pots in rows in the cool and dry conditions of the garage. If you're concerned about losing seed or specially want to save seed from a seedpod that you hand-pollinated, as Stuart Pawley has evidently done with his *Primula tangutica* x *maximowiczii* hybrid, you could try saving teabags. Dry them out if you have used them, remove the tea, cut one edge off, and fix them gently over the pod with a paperclip. For bigger seed heads, use a paper or muslin bag to prevent missing seed, or put a pot ready to shed seed on a large cloth or newspaper; at least move it somewhere where it won't shed seed into other

Libertia peregrina

pots nearby. If you have large seed heads, put them in a carrier bag and hang them on a hook in a dry place.

We leave most seed for a few days or weeks in the pot to ripen off. However, with fleshy seed such as berries or even trilliums, we prefer to squash the pod or berry as soon as possible and get rid of the pulp. You can put the seed in a fine metal sieve, press the pulp through the sieve with your fingers (rubber gloves are a good idea), and wash the seed under a cold tap. It may then be dried briefly on paper towel and put back into its yogurt pot to dry properly.

When we have accumulated a reasonable number of pots, we have a seed cleaning session. Sieves of varying mesh sizes are very useful. For small seed a tea strainer size is good; tip the heads into the strainer, rub the debris around gently and the seed will fall through, leaving the stalks and pods behind. With bigger seed, it's the dust that falls through and the seed that is retained. A paper or plastic plate is a good tool; if seed is mixed with dust, tip it onto the plate and blow softly while you shake the plate gently. Seed is generally heavier than dust and plant chaff and in many cases the dust magically disappears to leave clean seed; try it a few times; start very gently and, when nothing moves, blow a little harder and you'll soon gain confidence. This method also works for flaky bulb seed such as fritillaries and lilies because the viable seed is heavier than the unviable and so unfertilized flakes fly away, leaving the good seed to sow or send to the exchange. If you have large volumes of seed falling from the heads in a carrier bag, just cut the bottom corner off the bag and let the seed fall out, leaving most of the unwanted plant material inside. If you have large volumes of *Clematis* or *Pulsatilla* seed, you may give it a haircut to make it easier to pack in envelopes. It really is important to clean the seed you send to the exchange; plant debris left in packets is the main source of fungal infection and the seed we send to members, especially those overseas, really must be clean.

Primula tangutica x *maximowiczii*

The 68th SRGC Seed Exchange 2014-15

The Seed Exchange will operate in its usual way in 2014-2015 and we hope you'll participate. Full details are in the secretary's pages, but here are a few key points and requests: please remember we now charge all members for seed requests. Everyone should pay £5 or equivalent for their main seed request. Please send Seed Donations, before 31st of October, to the Seed Reception Manager, Prof. Stuart Pawley (gsp.srgc@btinternet.com), Acres of Keillour, Methven, Perth, PH1 3RA, Scotland.

The seed list is prepared on 1st November so, if your donation might be late, please post a separate list early, or send an e-mail with the list in the text (no attachments please to reduce the risk of viruses). Seed should be cleaned, as explained above, dry and in paper envelopes, with the seed name and yours clearly on the packet.

All donors and overseas postal members will automatically receive a seed list by post. UK non-donors should send a stamped addressed C5 envelope to Stuart Pawley before 14th December if they wish to receive a seed list. The seed list will go online at the same time as members receive

Primula tangutica x *maximowiczii*

their paper lists; you may browse and order on line as well as by post, by January 15th. **The password for 2014/15 is: swscot15**. You need to enter your membership number (from the envelope that *The Rock Garden* arrived in).

Seed Packeting: Ian Pryde will organise the seed packing between early November and December, continuing to use his faithful band of packeters. He would welcome a few more volunteers so, if you're willing to packet seed, Ian can post you a modest box of seed with all necessary instructions to anywhere in the UK. If you're willing to help, please contact Ian on 01875 615185 or 07746 298334, or by e-mail to ipryde@btinternet.com

From 2014-15, we have a new Seed Distribution Team. After twelve years of superb service to our Club, the Edinburgh Group is taking a well-earned break. Our very grateful thanks and congratulations go to them for managing the distribution so well for so long; they have done a fantastic job. In 2014-15, the South-West Scotland Group will be taking on the distribution role, and the SRGC is very grateful to them for picking up the baton. Full details of the arrangements for ordering seed will be included in the seed list and on the website. As usual, requests should be sent before 15th January.

Finally, to our American members, please remember to send us your APHIS 'small lots of seed' permits, and labels, and **check they are still valid**, as many of the first permits have expired. You may send your permits to Stuart Pawley with your seed donations if you wish, rather than waiting for the order form to arrive. For US, Australian and New Zealand members, we still need you to **send a named and numbered list of seeds requested**, unless you order online, when the computer will do that job for you and us. Other overseas members are asked to check with their authorities whether any import requirements exist; we do wish to comply with any laws relating to seed imports.

Full details of ordering information will be issued in the Seed List, so please donate some of the seed you have collected and cleaned, order some gems, and share the benefits of the Seed Exchange!

For further information and updates, do have a look at the Seed Exchange part of the website: www.srgc.net/site/index.php/extensions/seed-exchange

Libertia peregrina seed pods

Please Write about your Plants

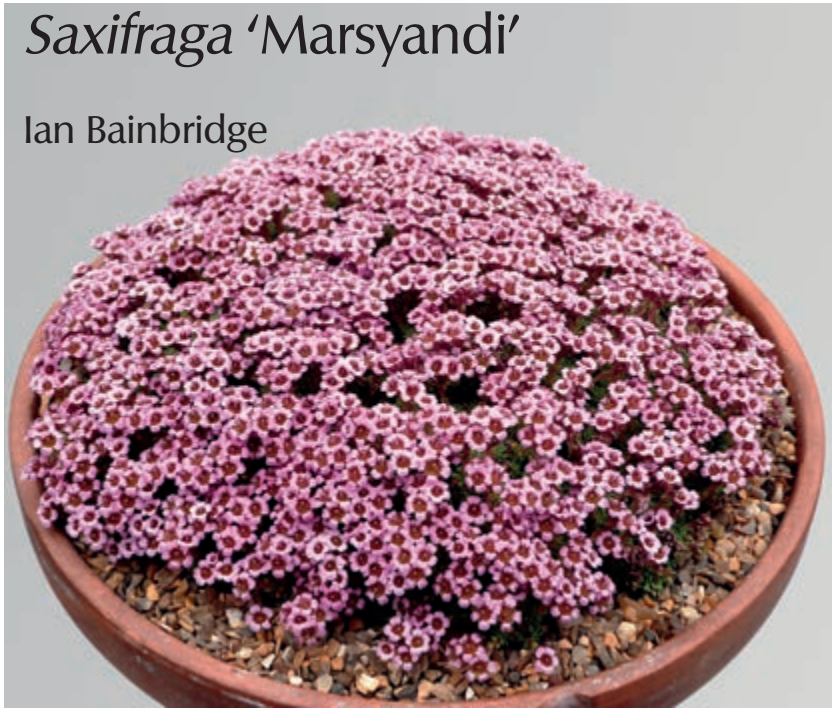
Many members clearly enjoy reading about practical rock gardening and about the dirty-fingered cultivation of plants, and have expressed to me their wish for more articles on these themes. The following articles by Ian Bainbridge and Jean Patrick Agier share with us the history and charms of two especially beautiful plants: a saxifrage and a tropaeolum. But beauty resides in our own eyes and there are many belles (or beaux) at the ball to vie for our attention.

We all love plants, keep plants and grow plants. We work with Nature, against Nature and for Nature by tending, nursing and multiplying our favourites. That said, do you have a particular plant that you can share with other members? Are there features we should know about? Can you advise us how to grow it? If you can answer yes to any of these, why not send a picture and a short account so that it may appear in the journal for the delight and education of your fellow members? Please do it now, for - like weeding the cyclamen bed - tomorrow may be too late!

The Editor

Saxifraga 'Marsyandi'

Ian Bainbridge



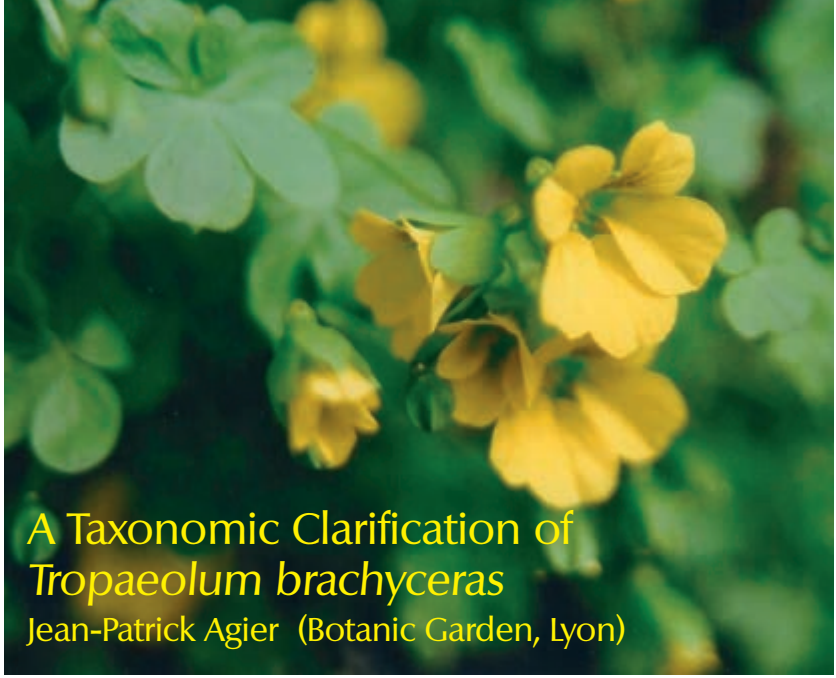
In 1983 Ron McBeath embarked on one of his many expeditions to the Himalayas, this time to the Annapurna Region and the Marsyandi Valley in central Nepal. Among the seed collections that Ron made was McB1377, a Kabschia saxifrage. This was collected and distributed as *Saxifraga andersonii,* and the seed was shared around and germinated quite well. Carole and I were given a pinch of seed in 1984 and germinated around four or five seedlings. When these flowered, some were various shades of pink, and some whitish with dark red anthers. Over time, we lost all but one of the seedlings of a mid-pink colour, which responded well to cultivation, and continued to grow on into the 35 cm cushion we have today.

The naming of this seed collection has been the subject of debate for many years. The Saxifrage Society's 'Saxbase' website (www.saxifraga.org/plants/saxbase/taxon.asp?Taxon=1531) says this collection has been incorrectly named as *S. andersonii, S. rhodopetala* and *S. decora,* and that it may be *S. cinerea* x *poluniniana*. The photos there show several individual plants, whose flowers are varying shades of pink. *S. cinerea* x *poluniniana* has now been given the epithet of *S.* x *bhratangensis.*

Ron, however, recalls that he made the seed collection of McB1377 several thousand feet higher up the valley where *S. poluniniana* was found, in an area that hosted *SS. andersonii, lowndesii, rhodopetala* and *cinerea,* among other species. It may well be that the true identity will never be known, or that the collected seed was part species and part hybrid as a result of the rather indiscriminate behaviour of wild pollinating insects!

Having grown the plant for almost thirty years, it decided to flower particularly well and Carole & I exhibited it at the SRGC Perth Show in 2013. The plant won the Forrest Medal for the best plant in the show, and we also entered it for consideration by the RHS Joint Rock Garden Plant Committee. They gave it an Award of Merit, subject to verification or a cultivar name. Given its uncertain parentage, we proposed the name *Saxifraga* 'Marsyandi', which is now registered with the Saxifrage Society, the International Cultivar Registration Authority for Saxifraga (Young, A. 2013. *Saxifrages. Porophyllum cultivars complete checklist*. Edition 2). Whatever its parentage, it is a handsome plant and we will try to spread it in cultivation. Cuttings have been sent to Adrian Young and Karel Lang, so we hope it will be kept safe in cultivation for the future.

The formal description for the Award of Merit is reproduced here: *Saxifraga 'Marsyandi', (exhibited as S. andersonii McB1377) AM, 20 April 2013 as a hardy flowering plant for exhibition, exhibited by Drs Carole & Ian Bainbridge. Cushion-forming perennial with many rosettes to 30 cm across, 15 cm tall. Rosettes rosulate with many oblong blunt leaves, 4 x 2.5 mm, with 3 to 7 marginal lime pores, 1 at tip. Flower stems to 20 mm; stems and calyx are glandular hairy, hairs red-tipped. Calyx simple, blunt, five-part, 4 x 2 mm. Flowers 2 to 4 per stem, 10 mm across, petals are broad oval, pink 65A; flat part of petal 2.6 mm long x 3.8 mm wide. Anthers 10, excerted, red-brown, pollen orange. Style bifid, split to the ovary, pinkish-white.*



A Taxonomic Clarification of *Tropaeolum brachyceras*

Jean-Patrick Agier (Botanic Garden, Lyon)

Tropaeolum brachyceras is a Chilean species. A delicate climber, it occurs in the wild in the Valparaiso region and has also been described around Santiago and in the area of southern Coquimbo. The plant has an inverted growing cycle in Europe: it begins to sprout in autumn, often with rainfall, falling temperatures and perhaps shortening day length; it then flowers in spring and withers by early summer with the rising temperatures, dying back to a tuber that stays dormant until September. Flowers are often produced in profusion provided that the plant can find good growing conditions such as good light and cool temperatures. As with most Chilean tropaeolums its tuber needs to be kept in cool conditions during the growing season. It cannot stand frosts but copes with temperatures as low as 0°C if well protected. It is ideally grown in deep large pots with sharp-draining compost and dislikes too much humidity in winter.

Flowers are relatively small if compared to those of *Tropaeolum beuthii* and *Tropaeolum sessilifolium* but are quite as wide as those of *Tropaeolum azureum*. But in fact flower size may vary. Petals are yellow and fully opened. The two upper ones are slightly veined with violet-purple, while the calyx is green. The spur is the most important taxonomic detail: it is short and often slightly angled upwards, sometimes inflated, and with a dark short appendage at the apex. Leaf size varies, depending on growing conditions. Leaves are divided into five to seven leaflets.

Many growers think they have the real *Tropaeolum brachyceras*. They are often wrong. Most tubers and seeds offered through seed exchanges or by nurseries and seed companies are of hybrid plants. In the wild, *Tropaeolum brachyceras* easily hybridizes in areas where *Tropaeolum tricolor* also grows. There may be an array of flower forms but one of the best known hybrid

plants is *Tropaeolum* x *tenuirostre*, which looks a lot like a *Tropaeolum tricolor* with different coloured calyx and slightly more prominent petals. Plants named as *Tropaeolum brachyceras* which have a long or thin spur, or both, are all hybrids. Owing to the fact that this species hybridizes easily it seems important when we grow the true one to consider hand-pollinating the flowers in order to harvest true seeds. This is of most importance when *Tropaeolum brachyceras* is grown in a collection along with other Chilean species such as *Tropaeolum tricolor* and *Tropaeolum beuthii* - a situation which is quite commonly found.

This short article is partially based on my own experience and researches in various publications and on the internet but it has no other intention but to emphasize the fact that we *Tropaeolum* growers and enthusiasts must know what we are really growing. Taxonomic facts are a complicated matter demanding careful attention but we should try to stick to them. Many pictures published on the internet are of hybrids although some true plants have been displayed in UK shows and may be seen on specialized websites. Of course there are also valuable publications on this species with some extremely interesting pictures. The basic description can be found in Sparre and Andersson's 1991 taxonomic revision (*A taxonomic revision of the Tropaeolaceae, Opera Botanica* 108: 1-139).

Further Reading

Watson, J M & A R Flores (2010) A Synopsis of perennial tuberous *Tropaeolum* L. Section *Chilensia* Sparre (Tropaeolaceae), including validation of three subsections and a new, reclassified natural hybrid. Herbertia 64: 150281

Wilford, R (2010) *Tropaeolum brachyceras*, Curtis's Botanical Magazine, 250-255

Clifton, R (2007) Tropaeolum, newsletter number 6 of the Geraniaceae Group

Why Not Cultivate Lilies?

Margaret and Henry Taylor

Our rock gardens are at their best from March to May, the time of our club flower shows. After this main period, alpines flower rather spasmodically. Why not spread interest in the garden with lilies, which come in a marvellous range of colours and different species that flower from early June to September? By using the SRGC Seed Exchange and raising plants from seed your lilies should be free of any virus disease, a valuable feature that we explain later.

Most lilies have quite long-lasting flowers and blend well with meconopsis and dwarf shrubs, enjoying similar fertile soil conditions. In this article we describe a selection of those that do well in our garden in eastern Scotland. Lilies, depending on the species, have either epigeal germination – quick, with a green shoot pushing the seed capsule out of the ground, or delayed hypogeal – with a tiny bulb eventually emerging from the seed and staying underground until the following winter's cold allows a shoot to emerge in spring, thus taking two years before greenery appears. We will show you an easy way to speed up this process.

Starting at the end of May or in early June

Lilium mackliniae (45 cm, epigeal) has white flowers with a flush of pale pink and a wide cup shape. It was originally collected in Burma by Frank Kingdon-Ward.

Lilium mackliniae **'Naga Pink'** (35 cm, epigeal) has more tubular and deep-rose flowers and is broader leaved. It comes from Nagaland in north-eastern India and was introduced recently by Sasha Dayal. In 2003

Lilium oxypetalum (left). Many other sources and seed exchanges mistakenly supply the purple narrow-leaved *Lilium oxypetalum* var. *insigne* (right) under this name, although the two are quite different

we cross-pollinated the two above forms of *L. mackliniae* to produce our 'Tantallon' strain, 45 to 80 cm tall, with white to deep-pink flushed cup-shaped flowers.

All strains of *L. mackliniae* are very susceptible to virus disease spread by aphis. If you see any aphis on your plant, it is too late - the beasts will have injected virus into your susceptible plant. Garden centre bulbs mostly come from Holland where virus diseases are widespread and the Dutch grow virus-tolerant hybrids that grow and flower well but act as carriers to susceptible wild lily species. Our advice is to keep seed-raised plants well away from garden centre ones. An aphis virus injection can cause a susceptible variety to have yellow striped leaves and twisted flowers – dustbin fodder.

Lilium mackliniae 'Naga Pink'

Lilium oxypetalum (25 cm, epigeal) has a yellow cup and is quite rare, being found in the wild around the headwaters of the Ganges. Seed may be obtained from Gothenburg Botanic Garden. Many other seed exchanges mistakenly supply the purple narrow leaved var. *insigne* under this name, although the two are quite different.

Lilium oxypetalum* var. *insigne (25 cm, epigeal) has a pale rosy-purple cup shape, suitable for rock or peat garden. We have seen it growing on grassy slopes in the north-western Himalaya. Watch carefully for seedpods: in wet weather when the seed is almost ripe, seedlings may even sprout from the wet pod.

Lilium pomponium (60 cm, epigeal) has small red Turk's Cap flowers and comes from sunny limestone slopes in the Maritime Alps; it thrives on a sunny slope in our acidic Tayside garden. The large bulbs are very long-lived. Sow in autumn for spring germination.

Flowering mid to late June

Lilium akkusianum (90 cm, delayed hypogeal) is a superb white trumpet lily that was introduced in 1996 from Turkey by a Belgian botanist, René Gämperle. With delayed hypogeal germination, it may take two years before you see a green leaf, unless you use the technique we describe later.

Lilium martagon (80 cm, delayed hypogeal) has small Turk's Cap flowers in various shades of pink and white. It is well known both in gardens and holiday memories from the Alps.

***Lilium martagon* 'Daugava'** (90 cm, delayed hypogeal) is special. Our own seed came from the Daugava river in Latvia. It has flowers larger and glossier than the norm, in a rich burgundy colour.
Lilium hansonii (120 cm, delayed hypogeal) comes from Korea. It stands stiffly with Turk's Cap thick, waxy and long-lasting orange petals.
***Lilium* x *dalhansonii* 'Marhan'** (90 cm, delayed hypogeal) is an easily made hybrid between *L. martagon* and *L. hansonii*, producing flowers in various shades of peach and orange. We are currently growing hybrids between *hansonii* and white *martagon*, at present only imagining what the colour may be like.
Lilium ledebourii (70 cm, delayed hypogeal) has white Turk's Cap flowers and comes from a small area in the Caucasus and Iran.
Lilium lijiangense (80 cm, epigeal) has a mass of orange, small and dangling Turk's Cap flowers. In the wild the stems grow horizontally out from cliffs in China, so our garden plants require a vertical cane to lift the flowers above the ground! Our first plant came from our friend Susan Band of Pitcairn Alpines, but we also have a second seed-raised plant and now get plentiful seed by hand pollinating one clone with the other.
Lilium monadelphum (90 cm, delayed hypogeal) offers large yellow Turk's Cap flowers on stout stems. The bulbs are very long lived, and some of ours were raised from seed forty years ago.
Lilium rubellum (60 cm, delayed hypogeal) shows a beautiful deep pink trumpet. It comes from Japan and is suited to well-drained acidic soil. It is susceptible to virus.

Flowering July

Lilium nepalense (45 cm, epigeal), with its open trumpet-shaped dangling purple-centred flowers with upturned pale green petals looks quite exotic. A

Lilium akkusianum

Lilium martagon 'Daugava'

problem with this lily is its propensity to form long underground stolons, so that in the following season the plant may emerge fifty cm from the original site. In a very hard winter, frost may kill the bulb. To ensure survival, we cover the site with autumn leaves as a barrier to the cold. As with *L. lijiangense*, it needs two separate clones to ensure a good seed set.

Lilium pardalinum (100 cm, delayed hypogeal) has large orange Turk's Cap flowers. It is one of the easiest American lilies to grow in a garden. The bulb produces short rhizomes, so that it rapidly forms a dense clump that subsequently needs lifting and dividing every few years before replanting into fresh well-manured soil.

Lilium polyphyllum (90 cm, delayed hypogeal) has pinkish-white Turk's Cap flowers. We brought seed from the north-western Himalaya where it grows in deep leaf litter in open woodland. The seed is round and flat, with the embryo quite visible in the centre. In Indian herbal medicine the bulb is said to cure many ailments, ensuring long life and the questionable ability to spit a long distance!

Lilium regale (90 cm, epigeal) shows pink buds that open to splendid large white scented trumpets tinged at the base with yellow. It was originally collected in China by E H Wilson, who in 1910 employed local villagers to dig up six thousand bulbs that he sent back to America. It is quick and easy to grow from seed and, if you collect plenty, it may be sown like carrots in a shallow drill in March.

Flowering August to Mid-September

Lilium auratum (130 cm, delayed hypogeal) has huge fifteen cm wide flowers, sometimes with yellow rays or speckled with pink, and nicely scented. It is found in the wild on volcanic slopes in Japan. Unfortunately, the species

Lilium lijiangense

Lilium polyphyllum

is susceptible to virus so should be well isolated from any multi-coloured showy *auratum* hybrids from garden centres.

Lilium henryi (180 cm, epigeal germination) has large orange Turk's Cap flowers on tall floppy stems requiring support. The surface of each petal has raised papillae. We have been told that this lily is resistant to Lily Beetle, a pest that fortunately has not been seen in our part of Scotland.

Lilium 'White Henryi' (160 cm) is a hybrid (*henryi* x *centifolium*) raised by Leslie Woodriff in 1945 with large flat-faced white and orange flowers. It is gorgeous but is not possible from seed unless you try crossing the two parent species.

Lilium lankongense (90 cm) is the pale pink Turk's Cap from China. It is easy to grow and multiplies with stolons. The late Christopher North of the Scottish Crop Research Institute at Invergowrie used this and other species in his Greek and North hybrids, some of which are occasionally available from nurseries. The wild species has epigeal germination.

Lilium speciosum* var. *clivorum (45 cm, delayed hypogeal) has beautiful white Turk's Cap flowers with pink spots. From Japan, it is so late flowering with us that we rarely get set seed.

Hybrids

When raising lilies from seed, it adds interest to produce your own new hybrids. Not all lilies will cross successfully but it is worth a try. Gently open a fat flower bud before the pollen dehisces. Take a stamen from a differently coloured open flower where you see loose pollen and rub this on the stigma of the freshly-opened bud. Then gently cover the stigma with soft sweetie foil to prevent bees from interfering with your pollination. Label the pollinated flower with the date, then the female name followed by the name of the pollen parent – this is standard procedure in hybridization.

Sowing Seed

First get your seed from a seed exchange or from existing lilies in your garden. Watch for pods that are beginning to dry, and that open slightly when squeezed. Cut the stem and invert the pods into a paper bag or envelope. When all has dried enough to shed the seed without crushing the pod, spread the seeds on a sheet of paper to dry thoroughly. Next, sort the fertile seeds from the unfertilized papery bits. You should be able to see or feel the embryo in fat fertile seeds. To sort the good from the bad, hold the sheet of paper horizontally over the kitchen sink and *very gently* blow the chaff away. We suggest you first cover the sink plughole with paper!

Now check whether your seeds have epigeal or delayed hypogeal germination by consulting our list. Epigeal seed may be sown any time in winter or early spring and leaves should appear when the weather warms up. With epigeal seedlings, when the plants are growing, a small potful may be transferred safely into a bigger pot of rich compost until the bulbs are big enough to be planted outdoors. A problem may arise in continuous moist and muggy weather. If water droplets sit on seedling leaves for several hours, *Botrytis* (grey mould) spores can enter a leaf via the droplet and kill the small

plant unless you spray with a dilute solution of a fungicide like Bordeaux Mixture.

Delayed hypogeal lilies may take two years to appear but are easily speeded up if you follow our treatment. Sow these seeds in autumn as soon as they are available. Put gritty compost into a pot up to a centimetre below the rim, sow the seed and cover with five mm of gritty sand. Then water the pot and leave it to drain for a few hours before enclosing it in a thin polythene bag; seal this tightly and place it near your hot water tank, giving it around 20°C for three months. Do not dig up your seed-pot! We only did this for our photo to show that there should be tiny bulbs underground.

Remove the polythene bag and place the pot outdoors in a cold moist place. When the weather warms up, little green shoots should appear and you will have saved a year. Give the growing plants an occasional liquid feed. Do not prick out individual seedlings because breaking the first root accidentally may kill the plant. It is better to leave until the following winter when the bulbs may be easily separated and placed in rich fertile compost. Have a go with this method – you may be well rewarded!

Bulb Scaling

If you have a particularly attractive lily and wish to increase it, make sure the plant is healthy with no sign of the mottling or twisting associated with the presence of a virus; mark your specimen and, when the stem dies down in autumn, dig up the bulb. Brush off the soil and clean the

Lilium speciosum var. *clivorum*

Rubbing a stigma with a stamen of pollen before encasing in sweetie foil

Lilium pomponium, when scaled: tiny bulbs are apparent on the old scales

Fat fertile lily seeds with embryo (left) and papery infertile lily seeds (right)

bulb with a kitchen towel. Peel off a few scales from the outside of the bulb and replant it right away. Do not let the main bulb dry out as there is no protective skin on the outside of a lily bulb. Place the scales in a small polythene bag and dust them with Flowers of Sulphur. Give the bag a good shake and put in some peat or flaky vermiculite - not the very fine powder type. Be careful to avoid breathing in any vermiculite dust as the particles have harmful sharp edges. Dampen the bagful slightly and give it a further shake before sealing it. Then place it in a warm cupboard for three months. After this, tiny bulbs with roots should be seen on the old scales. There is no need to remove the old scales when you put the scales with tiny bulbs into compost in a seed tray. This is a very easy way to increase a special form. All the new bulbs will be identical to the mother one. Have a go!

We end by noting that *Cardiocrinum giganteum* is closely related to lilies, but its dried seed generally takes several years to germinate. From a plant that flowered in early summer, we prised opened a fat green seedpod in late autumn. We sowed the seed immediately and kept the seed tray in a cold moist spot outdoors over winter, producing excellent germination in spring.

Further Reading

Lilies, A Guide for Growers by the late Edward Austin McRae. This is a very good book by a Scot who went to America to work on lilies for The Oregon Bulb Farm

Germination of Western American Lilium Species by Gene Miro (*The Rock Garden*, Volume 131) gives an excellent description of his growing technique

Hypogeal germination

Lily Germination Table This table comes from several sources, including our experience of recent introductions.	Epigeal Delayed germination Sow in Autumn
	chalcedonicum
	pomponium
	pyrenaicum
Hypogeal; Delayed Germination Sow in Autumn Then 3 months warm & 3 months cold	Epigeal Immediate Germination Sow in Spring
akkusianum	*amabile*
auratum	*callosum*
bolanderi	*candidum*
bulbiferum	*catesbaei*
canadense	*cernuum*
ciliatum	*concolor*
columbianum	*dauricum*
x dalhansonii	*davidii*
distichum	*duchartrei*
grayi	*formosanum*
hansonii	*henrici*
humboldtii	*henryi*
japonicum	*lancifolium*
kelleyanum	*lankongense*
kelloggii	*leichtlinii*
kesselringianum	*leucanthum*
ledebourii	*lijiangense*
maritimum	*longi1orum*
martagon	*lophophorum*
medeoloides	*mackliniae*
michauxii	*maculatum*
michiganense	*nanum*
monadelphum	*nepalense*
nobilissimum	*oxypetalum*
occidentale	*papilliferum*
pardalinum	*philadelphicum*
parryi	*philippinense*
parvum	*pumilum*
pitkinense	*regale*
polyphyllum	*sargentiae*
rubellum	*sherriffiae*
rubescens	*sulphureum*
speciosum	*taliense*
superbum	*wallichianum*
tsingtauense	*wardii*
vollmeri	*wilsonii*
washingtonianum	
wigginsii	
Cardiocrinum giganteum dry seed	*Cardiocrinum giganteum* (unripe seed)

Sicily in the Spring

Michael J B Almond

"*Nobody should make Sicily his first choice for plant-hunting in the (Mediterranean) area; equally it should not be overlooked*". Thus F F H Charlton damns Sicily with faint praise in his contribution to Bacon's *Mountain Flower Holidays in Europe*. Christopher North, in his *Botanical Tour Round the Mediterranean* is more enthusiastic, saying that Sicily "*merits several visits to study its interesting flora of some 3000 taxons, about 10% of which are endemics.*" After a trip to Sicily at the end of April and the beginning of May 2009, I can agree with both of them, in a way. Sicily is too big, and its roads too bad and poorly signposted, to allow comfortable exploration of the various different areas in just one visit. Because of this, although there are many reasons to visit Sicily – and its spring flowers are just one – it is not really best suited as an introduction to plant hunting in the Mediterranean area.

East of us, visible from our accommodation, loomed the distant cone of Etna. We spent two days on its southern and eastern flanks, both of considerable interest, although on our second visit we were driven away from the Sapienza Hut by a blizzard and, lower down, torrential rain. In the scrub beside the main road up to the Sapienza Hut from the east we found lots of the endemic *Viola aetnensis*, quite large flowers right down on the ground, varying between dark violet and white; it was also scattered around the areas of the Piano Provenzana covered in coarse grass and low, spiny scrub. Lower down, above Fornazzo, we had seen *Anchusa arvensis* growing on the margins of the lava field dating from the eruption of 1971, which (like that of 1979) narrowly missed the village.

Desolation at Piano Provenzana, with *Viola aetnensis* blooms

Growing in jet-black volcanic sand there we also found *Cyclamen repandum*, together with the first emerging spikes of the saprophytic orchid *Limodorum abortivum*. In the small valleys beside the road from Milo to Linguaglossa, on the eastern flanks of the mountain, we came across this cyclamen in prodigious quantities – including a few white flowers instead of the usual carmine red. We frequently found orchids: *Orchis longicornu*, occasional *Neotinea maculata* and, above all, *Dactylorhiza romana* (or *D. markusii* – I haven't found anyone who can tell the difference!) in both red and white forms These are often referred to as red and yellow although, at

Orchis *longicornu* at Piana degli Albanesi

Dactylorhiza romana west of Portella Mandarini

Orchis papilionacea near Sortino

Orchis lactea north of Nicosia

least in Sicily, the "yellow" varies between a true white and a very pale cream. Above Linguaglossa, in addition to a mass of the orchids in beech woods, we found clumps of *Doronicum orientale* and, in the pine woods higher up, *Daphne laureola*. Taormina, which sits on the coast below Etna, is famous for the view of the mountain from its ancient theatre; in, or rather

on, the theatre we found the white *Antirrhinum siculum*, the red *A. tortuosum*, *Cerinthe major*, *Ornithogalum arabicum*, *Scabiosa cretica* and *Teucrium fruticans*.

Our trips to the limestone tablelands towards the south coast aimed at finding orchids and we were reasonably successful, although a little late in the season. Before travelling further south,

we visited the famous Roman mosaics at the Villa Casale and the excavations at Morgantina. There we found *Muscari comosum*, *Linaria triphylla*, *Gynandriris sisyrinchium* and a mass of *Arum italicum*. In the Monti Iblei, in open woodland and by the road above Buccheri, was a carpet of an Echium species while the verge was awash with a superabundance

of *Orchis papilionacea*, together with *O. lactea*, *O. longicornu*, *Neotinea maculata* and *Ophrys fusca*. Near Pantalica we found *Ophrys bertolonii*, a very distinctive bee orchid that we had never seen before; it is rare and probably endemic to Sicily but we were to encounter it quite frequently on the island. Around Pantalica we also encountered *Ophrys oxyrrhynchos*

Ophrys bertolonii above Polizzi Generosa

Ophrys fusca above Polizzi Generosa

Ophrys speculum near Sortino

(found mainly in Sicily), *O. biancae* (endemic to Sicily), *O. lutea, O. speculum, O. lunulata, Orchis italica, O. papilionacea, Serapias bergonii, Orobanche amethystea, Gynandriris sisyrinchium* and an Ornithogalum species. Further on, west of Sortino, we came across *Ophrys apifera, O. atrata, O. fusca, O. lutea, O. speculum, O. tenthredinifera, Parentucellia viscosa* and *Allium roseum*. Nearer

Sortino, among the *Cistus creticus* scrub, were *Silene colorata, Orchis papilionacea, Ophrys lutea, O. oxyrrhynchos, O. speculum* and a *Serapias* species. Nearer still to Sortino we found *Ophrys atrata, O. bertolonii, O. lutea, O. speculum, Orchis papilionacea,*

Above: *Ophrys lunulata* at Pantalica
Centre: *Ophrys lutea* near Sortino
Below: *Ophrys atrata* near Cesarò

Serapias species and *Bellardia trixago*. By the road down to the coast, below Sortino, there was a mass of pink *Centranthus ruber*. Among the famous temples of Agrigento, down on the coast, we saw *Convolvulus cantabricus*, *Linaria triphylla* and *Silene colorata*.

We visited the Palermo area to see the mosaics of the Capella

Orchis brancifortii, Altofonte

Palatina and Monreale Cathedral but only spent part of one day plant-hunting to the south of the city. Above Altofonte was a mass of *Sedum caeruleum*, with its bright red stems and pale blue flowers, *Cerinthe major* and some seed heads probably of a *Colchicum*.

Ophrys tenthredinifera, Cesarò

Ophrys pallida, Piana degli Albanesi

We were lucky to come across the rare *Orchis brancifortii* scrambling over a rocky outcrop – from a distance we had mistaken it for a small *Silene*; it is known only from northern Sicily, eastern Sardinia and one location in Calabria. At the road junction before Piana degli Albanesi, among a mass of *Orchis provincialis* and *Ophrys fusca* we were pleased to find *Serapias lingua* and the endemic and very rare *Ophrys pallida*, with its very distinctively shaped flowers. East of the lake at Piana degli Albanesi we found a Helianthemum species with large, bright yellow flowers, together with more *Ophrys bertolonii* and *O. speculum*.

North of our base near Enna lay the Nebrodi and Madonie Mountains, a massif largely of limestone in complete contrast to

the igneous geology round Etna, and rising much higher than the tablelands to the south. It was here that we found most interest. *En route* to the mountains, along the Leonforte to Nicosia road, we saw *Bellevalia dubia*, *Cerinthe major*, *Ferula communis*, *Ophrys bertolonii*, *Orchis papilionacea* and *Serapias bergonii*. In the area of Nicosia were *Ferula communis*, *Gladiolus byzantinus*, Ornithogalum species, *Dactylorhiza romana/markusii*, *Ophrys atrata*,

Orchis provincialis north of Petralia Sottana

O. fusca, *O. lutea*, *Orchis italica*, *O. longicornu* and a Serapias species. The orchids grew mainly in *Cistus* scrub – although, growing along the grassy verges of one particular road, we found a considerable number of tall (well over half a metre) spikes of the lizard orchid, *Himantoglossum hircinum*, showing well-formed flower buds but, tantalisingly, none of them were yet in flower.

On the lower slopes of the Nebrodi Mountains were swathes of *Ferula communis*, and by the roadside we also found *Ophrys atrata*, *Orchis italica* and *Umbilicus horizontalis* – I always wonder what the botanist who named it was thinking of, as it has a very *vertical* habit. Further into the mountains were hillsides covered in *Asphodeline lutea* and *Asphodelus aestivus*. By the roadside and in adjacent woodland there were *Bellevalia dubia*, *Cyclamen repandum*, *Dactylorhiza romana* (red and white), *Orchis lactea*, *O. longicornu* and *O. provincialis*. On the slope beside the road above the village of Cesarò there were *Anemone hortensis*, *Linaria triphylla* and *Ophrys atrata*, in addition to large numbers of *Ophrys fusca*, *O. lutea*, *O. tenthredinifera*, *Orchis lactea*, *O. longicornu*

Serapias lingua near Piana degli Albanesi

Ferula communis near Sperlinga

bulbocodium dotted over the turf and, on the woodland margins, *Anemone apennina* and *Primula vulgaris* – here, as elsewhere in Sicily where we saw it, with white rather than yellow flowers.

On the lower slopes of the Madonie Mountains we found much the same range of flowers as in the Nebrodi, although the higher areas were more varied and interesting. Near Gangi we found *Erodium ciconium*, a light pink *Centaurium*, *Ophrys bertolonii* and *Orchis longicornu*. We found *Cyclamen repandum* in deciduous woodland – as elsewhere - and, uniquely, on the

and, above all, masses of *Iris pseudopumila*, in both yellow and purple forms. North of Cesarò, in addition to more of the iris, we also found *Ophrys tenthredinifera*, *Orchis italica*, *O. longicornu*, *O. provincialis* and *Dactylorhiza romana*. In open deciduous woodland beside the road we came across *Paeonia mascula* in both its red and white forms and also *Cyclamen repandum*; as always, as soon as the deciduous trees gave way to conifers the cyclamen disappeared. In the turf and on the edges of the scrubby woodland at the Portella Femmina Morta Miraglia, north of which the road drops down again towards the sea, were leaves of species of Crocus and Gagea, *Romulea*

Hermodactylus tuberosus above Polizzi Generosa

Romulea bulbocodium near Portella Femmina Morta Miraglia

open hillside where a patch of woodland appeared to have been cut down. In a cultivated field near Petralie we found *Tulipa sylvestris* and in woodland north of Petralie were *Cyclamen repandum*, *Dactylorhiza romana*, *Orchis provincialis* and *Orobanche variegata*. South of the Colle del Contrasto there were hillsides of *Ferula communis* and *Asphodeline lutea*, with *Orchis lactea*, *O. longicornu* and *O. papilionacea*. In a spindly oak wood criss-crossed with tracks we found large quantities of *Cyclamen repandum* and *Dactylorhiza romana/markusii*, together with *Ophrys fusca*.

On the broad col of the Portella Mandarini there were *Dactylorhiza romana/markusii* (both red and white), *Erodium ciconium*, Gagea species, *Hermodactylus tuberosus*, *Muscari neglectum*, *Ophrys bertolonii*, *O. fusca*, *Orchis lactea* and, in the grass, masses of *O. longicornu*. At the side of the road west of the Portella we discovered *Romulea bulbocodium* and woodland carpeted with cyclamen leaves – probably *C. hederifolium*, as the conditions and the leaves looked right and there was no sign of any flowers. On the hillside beside the road north of Polizzi Generosa were *Aceras anthropophorum*, *Ophrys araneola*, *O. bertolonii* and *O. lutea*. About ten kilometres north of Polizzi Generosa,

Primula vulgaris, near Piano Zucchi

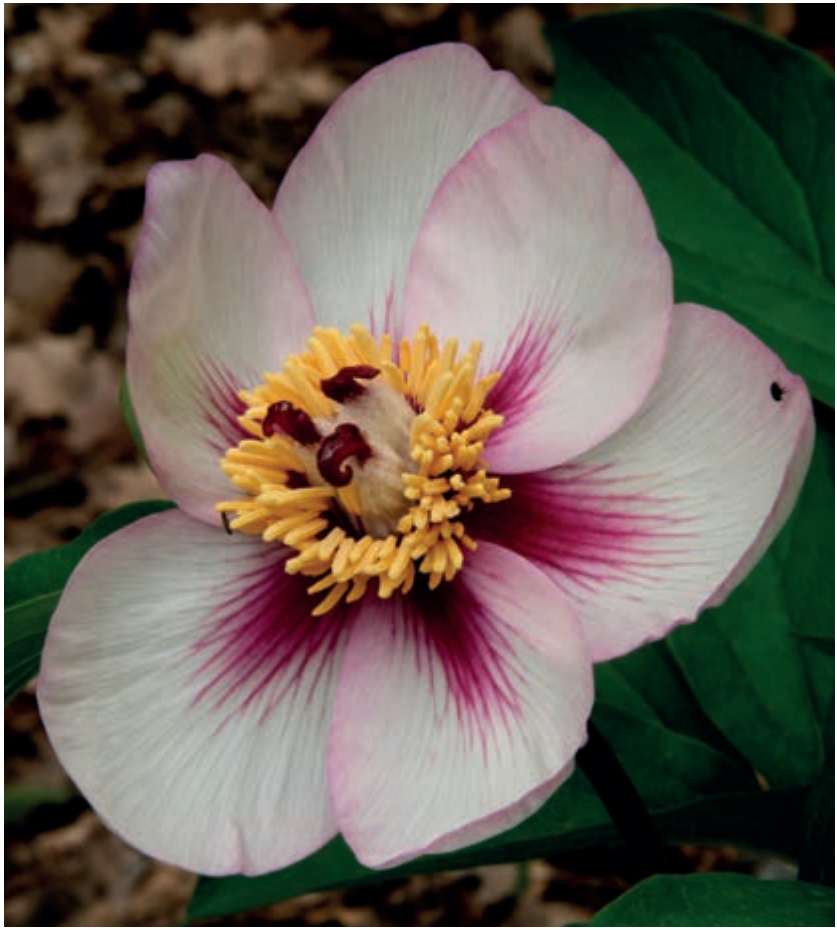
the slopes above and below the road were covered in places with great quantities of yellow and purple *Iris pseudopumila*, together with *Erysimum bonannianum*, *Euphorbia rigida* and *Hermodactylus tuberosus*.

The woodland above the village of Collesano contained *Anemone hortensis*, *Cyclamen*

Iris pseudopumila, above Polizzi Generosa

repandum, *Orchis longicornu*, *O. provincialis* and white *Paeonia mascula*. Higher up at the Piano Zucchi were *Anemone apennina*, *A. hortensis*, *Cyclamen repandum*, more *Paeonia mascula* but this time pink and red, *Corydalis solida*, *Romulea bulbocodium* and *Viola odorata*. On the woodland margins, in damp meadows and along watercourses, there were masses of *Primula vulgaris* and *Narcissus tazetta*. Higher still was yet more *N. tazetta* together with Ranunculus species, *Arabis alpina*, *Aubrieta deltoidea* and *Euphorbia rigida*. The Piano Battaglia, at 1650 m, is the highest point to which it is possible to drive in the Madonie Mountains. Here, on the edges of the woodland and in the alpine turf, in the bitter cold wind and the swirling cloud, we found masses of *Anemone apennina* and *Corydalis solida*, and patches of bright blue *Scilla bifolia*.

Paeonia mascula above Collesano



Anemone apennina at Portella Femmina Morta Miraglia

Cyclamen repandum above Fornazzo

Lynn and I could not cover all the areas suitable for plant hunting during our whistle-stop two weeks. We stayed near Enna, in the middle of the island, a little over fifty kilometres, as the crow flies, from north, east and south coasts. Unfortunately, not travelling by crow, the round trip to the coast in any direction expended a large part of the day driving, with driver and passenger ending up exhausted. Staying in the same place is usually less stressful although, with hindsight, we might have been better in this case to have moved around. Nevertheless, we saw much of interest and explored several different types of habitat with good results.

Ophrys oxyrrhynchos, Pantalica

Narcissus tazetta, Piano Zucchi

Two Less-known Balkan 'War-flowers'

Pavel Křivka

Danger may abound even where beauty thrives. The hunt for plants has never been free of risk. Think of David Douglas, Jean André Soulié, Ernest Wilson and Tom Hart Dyke, and you think respectively of death, murder, injury and kidnap. On my computer screen, abundant messages appear from Facebook groups such as '*Alpine plants and rock gardens*' that alternate with, for example, '*The Czech Republic against war in Syria*'. Pictures of *Epimedium* or *Crocus* flowers contrast with videos where, during the so-called 'civil' war in Syria, dreadful things happen. This is all a horrible testimony to the incongruous and apparently hypocritical world we live in. A world where on the one hand crucial matters of life and death remain uncontrolled while on the other hand a mountain of foolish regulations chokes trivial freedoms. A world where it is taboo to regulate the scope of billionaires' property or to impose effective limitations on financiers, debt, monetary crisis and wars. Simultaneously, even simple rock gardeners may be suspected of violating regulations concerning species protection. Because of the almighty lobby of nature protectors behind IUCN, the CITES Treaty, and other institutions and authorities, a rock gardener may incongruously become a criminal at the same time that terrorists and fighters elsewhere are killing innocent people under the banner of Freedom.

Above: The landscape below the summit of Cvršnica Mountain is sub-alpine karst with *Pinus mugo* occurring at elevations from 1800 to 2000 metres. Even in mid August there is still snow in the dolines and valleys at these altitudes. The species *Dianthus freynii* and *Primula kitaibeliana* are quite abundant here on the many screes.

Dianthus freynii

Campanula secundiflora

A snowdrop in a rock garden without permission from the appropriate authority may be considered illegal while the destruction of millions of the same plant by big construction projects is somehow acceptable.

Many people actually regard the hobby of rock gardening as an escape from the crazy world I have sketched above. This attitude was, and probably still is, very common in the Czech Republic where a lot of dictatorial restrictions existed before 1990. Your author thinks of himself not as a refugee of that kind, but has some sympathy with colleagues who concentrate on growing crocuses or epimediums in an attempt to distance themselves from the complexities of the surrounding world.

Nevertheless, in a few cases one can hardly ignore the social or political context even when cultivating rock garden plants. A rock gardener who tries to collect wild seeds of two desirable Balkan species, *Dianthus freynii* and *Campanula secundiflora*, will be confronted with post-war reality in the region where they occur. While looking for the first, one might tread on a mine from the Bosnian war (1991-1995). While searching for the second, one may be confronted by serious security problems in the new state of Kosovo that separated from Serbia in 2008.

My first War-flower, *Dianthus freynii*, a species from the group of cushion-forming *Dianthus* of the Balkan Peninsula, is rare in cultivation. It shows more similarities with alpine species of *Dianthus* from the Alps than with species from other Balkan mountains. The flowers of *D. freynii* are rather larger than the flowers of the well-known *Dianthus microlepis* from the eastern Balkans and its tough grey leaves constitute a distinctive

Dianthus freynii and habitat

difference from *D. microlepis* or *Dianthus scardicus*. The occurrence of *Dianthus freynii* is restricted to some limestone mountain ridges (Prenj, Cvršnica) of central Herzegovina in the western part of the Balkan Peninsula. On the Cvršnica Mountains, *Dianthus freynii* occurs mostly in consolidated screes in a plant community of low herbs containing some other Balkan endemic or sub-endemic plants such as *Gentiana dinarica, Primula kitaibeliana, Saxifraga marginata, Edraianthus serpyllifolius*

Dianthus microlepis (photo: Zdeněk Zvolánek)

Campanula hercegovina

and others. Many pictures of this species may be found on the internet with *Google* but very few of them depict the true *Dianthus freynii*. In communications between gardeners such as seed lists or pictures posted on web pages, the species is often confused with *Dianthus sylvestris* or other taller representatives of the genus. Regarding the seed of *D. freynii*, it is a very late flowering and fruiting species. When I was in Cvršnica in August 2013 it was still in full flower. The seeds cannot be collected before September.

The name *freynii* commemorates Franz Josef Freyn (1845-1903), the inspector of the Imperial and Royal Railways of the Austro-Hungarian Empire. This railway administrator was a passionate botanist and many contemporary plant collectors sent him their specimens for determination. Freyn´s very valuable herbarium, containing specimens mainly from the Balkan Peninsula and Asia Minor, was later bought by the Moravian Museum in Brno (CZ). This acquisition owed to Karel Vandas (1861-1923), a great expert on the flora of the Balkans, who also named the plant *Dianthus freynii*. Vandas was a president of the Brno Technical University and died in 1923 in Skopje (Macedonia). On the official website of the university one can read that Vandas died of malaria but the truth was probably even sadder: he was murdered because of jealousy over a woman. It is not only plants that imperil the plant-hunter!

In limestone rock crevices in the Cvršnica Mountains, outside the communities of *Dianthus freynii*, another endemic plant may be seen - *Campanula hercegovina*. For the purposes of this article, one might also

Campanula hercegovina under a limestone overhang. It can be very challenging and dangerous to photograph in such circumstances.

have called *C. hercegovina* a War-flower because the area of distribution of this bellflower is almost identical to that of *Dianthus freynii* and it is also confined only to Herzegovina. The species looks nice but in lower altitudes it has smallish flowers; nevertheless it may be a good campanula for cultivation or for the rock crevice.

The massif of the Cvršnica Mountains in Herzegovina, seen from Dugopolje, with the decrepit necropolis of the mediaeval Bogomil sect. The Bogomils rejected ecclesiastical hierarchy, and their tendencies were resistance to the state and church authorities. This helped the movement spread quickly in the Balkans. They did not use the cross or build churches, preferring to perform rituals outdoors.

Campanula secundiflora is my second interesting Balkan War-flower. This bellflower, found growing in fissures in limestone rocks, is endemic to the gorges of southern Serbia and northern Montenegro. It is quite easily distinguished from the other Balkan species of Campanula. Although the short and densely hairy leaves show similarities with the leaves of some west Asian and Caucasian campanulas like *Campanula sarmatica*, the stellate flowers resemble the well-known Balkan endemics such as *C. fenestrellata* or *C. portenschlagiana*. However, *Campanula secundiflora* differs from these species because of its erect stem and flower colour. The flowers are distinctly bi-coloured; the basic colour is very pale blue, sometimes almost white, with a dark violet eye in the mouth of the corolla tube. *Campanula secundiflora* was described by the classics of Balkan botany, namely by Roberto de Visiani and Josif Pančič.

A rich locality of *Campanula secundiflora* is situated in the limestone gorge around the monastery of Saint Archangeli near Prizren in the (now separated) southern Serbian province of Kosovo. The site

Campanula secundiflora

has an unhappy past. As we entered the 21st century, the monastery had long ago been destroyed and burnt down by the Turks, who destroyed it in the 15th century and later used the stone to build a mosque in Prizren in the 17th century. The reconstructed monastery was burned and looted in 1999 and during the March 2004 pogrom when, over two nights, numbers of Kosovo-Albanians burnt down dozens of Christian monasteries and churches and almost a thousand houses of non-Albanians, all in the ineffective presence of the surprised international military forces stationed there. More recently, the monastery was partly rebuilt with international money and now maintains an uneasy existence. The European tax-payer may thus be proud of the various ways their money has been spent in the Balkans: the Hague Tribunal, arms supplies, international military occupations - and even this monastic restoration.

Hazards and Precautions

As I have recollected above, a plant hunter who wants to see these two interesting and rarely cultivated plant species in the wild has to face some significant risks. In the case of *Dianthus freynii* these concern the dangerous minefields. Although the majestic mountain ridge of Prenj is quite densely

Pay attention to the minefield maps and never ignore the warning notices!

covered by minefields or suspected mined areas, a part of Cvršnica mountain and the adjacent valley of Dugopolje is supposed to be mine-free. Remember *supposed* and in any case always consult the maps of minefields on the internet (minska situacija – such as are shown here on the map of Prenj and Cvršnica). Reflecting on the craziness of contemporary international politics, it seems regrettable that the amount of money spent on mine clearance in Bosnia and Herzegovina is less than the budget of the ICTY (International Criminal Tribunal of the former Yugoslavia) in The Hague, whose task it is to provide the official version of the Yugoslavian wars with some judicial formality.

In the case of *Campanula secundiflora* in Kosovo, it is essential that any plant hunters adhere to some simple security rules for travelling in hostile areas. Never travel alone and never at night. Nowadays, in Kosovo, one may sometimes encounter lone cyclists from the Netherlands and other EU countries but these people do not realise the grave risks they are taking. For instance, in 2001, three medical students from Prague disappeared in Northern Albania and a very possible explanation for their disappearance was that they were believed to have been killed for organ harvesting. When travelling to Kosovo today it is crucial to be informed about the local situation concerning the aggressiveness of the locals. Although in other parts of Kosovo the situation seems to be better, the city of Djakovica (Gjakova) is still known to be risky. Thus, and regrettably, the very scenic and botanically rich gorge of Dečanska Bystrica above the Dečani Monastery in the Prokletije Mountains near Djakovica should definitely be omitted from botanical excursions.

A dangerous landscape with a tumultuous and violent history: ruins of the twice-destroyed orthodox monastery of Saint Archangeli at Prizren in Serbia

Easy Plant Hunting in Kaprun

David Shaw

Twenty years ago Carol and I visited the Hohe Tauern region of Austria for the first time as mountaineers and hill walkers, stopping now and again to admire the flowers. Twenty years on, time has taken its toll on our walking ability in the mountains: knees, hips and backs soon complain about galumphing up slopes and going on long treks. We still love going to the heights but we now look for places with easy access to the hillsides, where we may walk more gently and spend our day looking at the wee, sma' flowers. I suspect that many members are in, or are about to embark on, the same boat.

Kaprun, at the northern edge of the national park, is our chosen base because access to the hills is easy and no car is needed. Kaprun sits at the mouth of the Kaprunertal, a valley which has a road, a local bus, and three primary uplift facilities giving access along its length to the Kitzsteinhorn (photo above, courtesy of SalzburgerLand Tourismus GmbH). We visit in either June or September so the flowers we describe here could be from either period.

Let's start with the nearest uplift facility. At the top end of the village is the Maiskogelbahn, a gondola of the type in the movie 'Where Eagles Dare' – although the operator would never let me ride on the roof of it. This takes us from the valley (900 m) to the end of a ridge (1500 m) running down from the Kitzsteinhorn. We start on a good footpath to partway along the ridge. We are on the more rugged valley side and quickly come to sloping pastures where cattle are brought to graze the grasses and flowers. On the banks we enjoy masses of stunning blue *Gentiana acaulis* (although they may be *G. clusii)* that form large clumps in the grass in much the same way as we see primroses

Above: The Kitzsteinhorn (Photo by permission of Reinhard Lanner)

along grassy banks in Scotland. We also see *Saxifraga paniculata* and *Cerastium alpinum* growing in minimal soil on rocky ledges. Passing a small wooded copse, we admire a yellow *Viola biflora* tucked beneath the thicket. Beyond the trees is what would once have been a boulder field of large rocks deposited by the glaciers. The passage of thousands of years has allowed the voids between them to fill with detritus, forming soils in which plants now flourish. We first notice the sparkling blue of a sea of *Gentiana verna* in a sunny site, while round the corner is *Paris quadrifolia* in deeply shaded crevasses between the boulders. Unsurprisingly, there are thickets of *Rhododendron ferrugineum* all around with their rosy blossoms. A large display of pure white *Pulsatilla alpina* is a real treat growing up through rhododendron foliage that possibly protects it from the hungry mouths of the cattle. Now, on the first summit of the ridge, at the Drei-Wallner-Höhe (1860 m) we sit and enjoy the view before dropping back to the mountain restaurant 'Glocknerblick' for light refreshment. From here, if you look hard enough, you may just see the summit peaks of Grossglockner.

Dropping down towards the gondola station we cross the ridge to the other side where the ground is much smoother wherever it has been bulldozed into ski pistes. Boring green grass? – not at all! To our delight and amazement – in June – it is covered in yellow, blue and pink. The yellow is *Trollius europaeus* standing tall above the grasses; blue comes from many,

Gentiana acaulis
Viola biflora
Gentiana verna

many plants of *Gentiana verna*; and the pink is *Primula farinosa*. All blend together in a wonderfully coloured carpet. How did such a mass of flowers come to be growing there? From previous experience we know that slopes at ski resorts can contain a wealth of flowers but here hectares and hectares of slope are draped from about 1700 m right down to the village. The slopes were created about 50 years ago but have been extended and 'improved' every year since. The grass would have been sown but common sense says that no-one could have had sacks of alpine plant seeds to sow with it, could they? From the Maiskogel ski pistes you may walk back down to the village or return *via* the gondola.

The central section of this area takes us up onto the face of the Kitzsteinhorn. The ascent to the summit is by three gondola lifts that take you successively to 2000 m, 2450 m and 3029 m. Although the summit station is a 'must see' for its panoramic views there is little of botanical interest so we drop back to the next highest station, the Alpincentrum (2450 m).

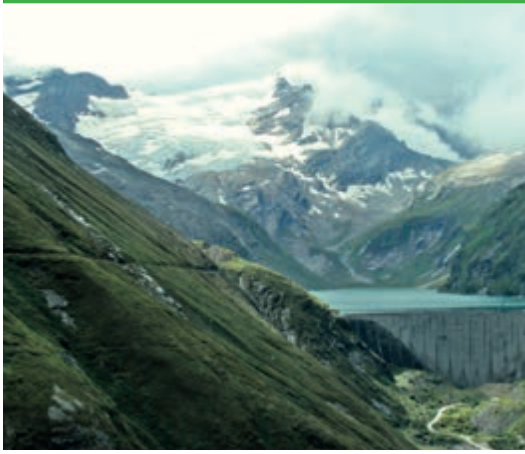
To the left of the station is a deep glaciated gully on whose grassy top may be found an edelweiss, *Leontopodium alpinum nivale*. Twenty years ago there were lots of them but on our most recent visit we found just one specimen. However, in the short turf you may also find banks of what I think are *Gentianella germanica*, with their attractive short-stemmed purple flowers. This area is also home to many of the more-

Paris quadrifolia
Rhododendron ferrugineum
Pulsatilla alpina

often seen mountain flowers such as *Saxifraga aizoides, Parnassia palustris, Cerastium alpinum* and the tiny *Gentiana nivalis*.

To the right of the station is a large outdoor training centre and above this the ground rises sharply to the edge of the glacier and the rim of the corrie (or cwm or cirque, depending on your linguistic preferences). In June there is still a lot of snow but there are many large islands from which the snow has melted. On these are some treasures. On dead moss and in gritty soils, *Primula minima* and *Primula glutinosa* are bedfellows and there could be some interesting hybrids around. Amongst the rocks the white flowers of *Saxifraga androsacea* contrast with its dark green foliage; it is accompanied by *Saxifraga rudolphiana* which has flowers very similar to *Saxifraga oppositifolia* - but with foliage that makes a very hard cushion, unlike its lax cousin.

Keeping the best trip until the last we make an excursion to the head of the valley and the Mooserboden Dam. Taking the usual service bus to its terminus at the Kesselfall we transfer to a private bus to ride up to the dam. I deliberately do not describe the bus ride as this might deprive you of the surprise and excitement of your first visit; enough to say that it is a fantastic ascent. Construction work for this hydro–electric scheme and the one below started in the 1930s when Austria was annexed to Germany and a lot of energy was required for re-armament; as it happens it was not completed until the late 1940s. The haulage road used



Trollius europaeus
Primula farinosa
The dam at Mooserboden

during construction is now managed by the hydro company and the local tourist association so that visitors may access this most scenic area. Visits to the dam are very popular and there is the expected number of cafes and tourist tat shops; most visitors do not go beyond this small area. We do. From the wall of the dam (2100 m) we see that the waters are surrounded by peaks of more than 3000 m. These are capped by snow-covered glaciers and their steep sides drop to water level – stunning views. Firstly, we take a short walk to the right of the dam headwall. Keeping to the short waterside track and, growing from the steep bank on your right, we find a clump of *Gentiana punctata*, a lovely tall plant, its yellow petals flecked with dark red spots. I take my photograph by climbing part way, feet constantly slipping on soft clay, camera in one hand. All is secure however as I hold a very strong blade of grass in the other hand – happy days! Later in the year we obtained some seed from this plant which germinated well but is now growing very slowly. Also in the grass here we come across a plant new to us which is knee-high and has lovely deep red to purple labiate flowers and ferny leaves. We take pictures but later realise that it is a Lousewort, *Pedicularis recutita*. The size must have confused us because we previously associated Lousewort with being no taller than the soles of our boots. At this end of the dam are *Crocus vernus*, *Gentiana verna*, orchids and hosts of other small alpines. Now comes the walk across

Leontopodium alpinum ssp. *nivale*
Gentianella germanica
Primula glutinosa (dark) & *Primula minima* (pale)

the headwall. If you have time, it is well worth looking in at the small museum dedicated to the construction and working of the dam. At the far end of the headwall is a short flight of concrete steps leading up to a path heading down the valley (and also up to a high refuge hut at 2800 m, but you are unlikely to take this route by mistake!) It is well worth exploring for botanical interest. In the scrub near the top of the steps are several clumps of *Anemone narcissiflora*, its flowers stunningly white against the dark foliage. The *narcissiflora* epithet always used to confuse me until I realised that it suggested the Greek God rather than daffodil-like.

The mountainside above is very steep and the path crosses numerous gullies, some broad and grassy, others narrow and obviously avalanche sites. The first gully we come to is shallow and in June is still covered in snow. At the edge of the snow bank where it is shallowest we find one of the quintessential scenes of mountain botanizing – *Soldanella* pushing up through snow. In this case we have found *Soldanella alpina* with bells much more deeply incised than on the *S. pusilla* that we found on the Kitzsteinhorn. This also tells us a little about the geology of the mountain, *S. pusilla* preferring an acid soil whereas *S. alpina* is happy in a more calcareous one. I have always marvelled at the ability of *Soldanella* to push its way up like this. Remember that this is not fresh spring snow but old stuff from the previous autumn that has compacted into a hard névé, yet somehow the flowers

Anemone narcissiflora
Soldanella alpina
Silene acaulis

still manage to force their way up into the sunlight.

These snow banks are quite easy to cross if you use care and there are many treasures yet to find along the path. It is just beyond here that we find *Saxifraga oppositifolia* and *S. rudolphiana* growing in quite close proximity. There are also clumps of white *Saxifraga androsacea* and huge clumps of *Primula minima* growing on rocks wetted by the recently melted snow. *Dryas octopetala* makes a brief appearance at the side of the path in June. On a return trip in September we notice that the whole hillside above the path is a mass of the fluffy seed heads on plants that we had never noticed before.

In addition to the plants I mention there is a whole host of other alpines to be enjoyed. Mooserboden is probably the gem of this region and if I had to visit Kaprun for only one day this is where I would choose to go. It provides us with one of our best non-botanizing days. A night of significant thunderstorms is followed by a day of torrential rain. The day afterwards, the sky is bright blue and we see the mountain again. Instead of the grey summits and peaks that we were used to, everything is pristine white, beautiful to look at, but not so good for plant hunting. Mooserboden is the obvious place to visit and we play in the snow and enjoy ourselves in the warm sunshine among all the surrounding snow-covered mountains above the blue of the lake. It is brilliant.

If you decide to visit Kaprun and

Dryas octopetala
Primula halleri
Saxifraga rudolphiana

Pedicularis recutita

Gentiana punctata

are prepared to accept hotel mealtimes then I suggest that a *Lakes and Mountains* package tour might be the easiest and cheapest way to travel. We prefer the freedom of an apartment so fly to Salzburg or Munich and catch a train to the neighbouring town of Zell am See. Although Kaprun is by no means dead, Zell may suit you better if you like some night life, but accommodation in the centre of town may be very noisy in the summer.

I have written this article in mind of those of us who feel our mobility is becoming a little restricted. It describes briefly some of our favourite locations and illustrates only a small percentage of the plants that we find. Of course, far more may be achieved by the more able members of our club who are able to use Kaprun as a centre for much longer walks and treks to find the flowers growing on the next hill.

Saxifraga androsacea

A Visit to Sicily

... with three beauty spots for nature lovers

Jörg Ettelt

In the first two weeks of April 2012 my wife and I found time to visit Sicily. Not really the time of year to be visiting beaches, but the flora was in full bloom and the temperatures quite pleasant. We chose Sicily because my wife, who is a geologist, finds herself magically drawn to volcanic landscapes. For myself the history and plants are the main attraction. And this time of year presented us with a good compromise.

Most of us think of Sicily as a smallish island off the Italian coast, whereas it becomes quite large when you have but fourteen days to explore. After all, it is the largest island in the Mediterranean and its twenty five thousand square km cannot be (dis)covered in these few days. Clearly we needed to define a main area of interest: volcanoes plus the history, both Greek and ancient. Our first part was in Catania, in the area of Mount Etna, as well as the south-east part of the island. Later we would travel to Milazzo, so as to include the Aeolian or Liparian Islands. The West, including Palermo, would need to be reserved for another trip. We based our preparations on travel guides, which dictated our daily excursions. I would like to present you with three places of particular interest for plant people - of course depending on the time of year.

Pantalica

Pantalica goes back to the original inhabitants of Sicily, the Sicula. The area is only recognizable today by its numerous necropolises. Considering the number (about 5000) of tombs carved into the almost perpendicular limestone cliffs, the accompanying city must have been of considerable size. Our starting point was the only building excavated from this ancient city, the King's House or Anaktoron. Getting there is not exactly easy. You must follow the winding roads until you find the correct turn toward Ferla. Coming from Syracuse, you

The path along the Anapo follows the route of the old railway line

Muscari comosum

first encounter the plateau-like Iblaei Mountains. This limestone massif is partly covered by lava and at its highest point is Mount Lauro (986 m). The massif is characterized by deep and steep canyons, of particular beauty for the wanderer. Nearby flows the Anapo, named for an ancient river god. This and other rivers have carved deep canyons and valleys into the landscape. During the industrial age a railroad was built along the course of the Anapo. Although no longer in use, its tracks provide a welcome footpath through the canyons. The shore near the mouth of the Anapo, where it flows into the Mediterranean, hosts an exotic plant, *Cyperus papyrus*, the true papyrus. The species, originally from Africa, was spread across southern Europe and the Orient; here we find its last stand in Europe. Right in the middle of the historical city of Syracuse, on the island of Ortygia, the city centre of antiquity, is a small stand of this papyrus, about a kilometre from the mouth of the Anapo.

Having parked at Anaktoron we found ourselves about eighty metres above the old railroad tracks and, warmed by the sun, decided to continue along the narrow but easy to follow path by the ancient King's Palace to the Byzantine church built among the cliffs. We startled a basking black snake but unfortunately he darted off amongst the undergrowth before I could ready my camera. It was most likely the relatively common Green Whip Snake, *Hierophis viridiflavus*, which is represented by a black form, sub-species *carbonarius* in this area. What completely amazed us was the sea of blossoms we were wandering through. Right near the parking area we saw the curious panicles of *Muscari comosum*. Here and there were limestone banks, often with niches and graves cut into them. Dotting the landscape were the attractive, half-round, tree-like forms of *Euphorbia dendroides*. Amongst the thick fields of blossoms we found borage, *Borago officinalis*, whose lovely blossoms deserved a closer look to reveal their detail. Another ubiquitous plant, represented by two subspecies throughout the Mediterranean, often creating great mounds, was *Euphorbia characias* ssp. *characias*. The interesting blooms of this subspecies warrant a closer look.

Cyperus papyrus in Syracuse on the city island, the old Ortygia

Euphorbia dendroides, a classic treelike inhabitant of the cliffs

The intricate beauty of *Borago officinalis*

Euphorbia characias ssp. *characias* reaches a height of as much as a metre in stands along fertile ridges

Soft limestone and numerous karst caves in the natural theatre of Pantalica

I reported about this species on the island of Crete in a previous article (Ettelt 2011). When taking the high road to the chapel you will reach a large, half-round, spreading and steep canyon reminiscent of an amphitheatre. Above, one sees hollowed out homes and graves, as well as shrines. The view across the mountains and valleys is quite grand. More flowers divert the viewer back towards the cliffs: a type of pea, *Lathyrus clymenum*, *Bartsia trixago*, Salsify or Goatsbeard, *Tragopogon porrifolius*, whose exact

Left: *Bartsia trixago*. Right: *Tragopogon porrifolius* has a heavy tap-root, and was once eaten as a vegetable. Below: Amongst the numerous blooms along the path, *Lathyrus clymenum* often caught our eye

subspecies I couldn't divine. At this season *Ornithogalum* species were in bloom and along the limestone banks the campion, *Silene colorata*, remained rather small. Of wonderful beauty were the clumps and gatherings of *Calendula* and *C. suffruticosa. Antirrhinum siculum*, the Sicilian Snapdragon, displayed its intricate blooms, and even when one strolled back along the same way, previously unnoticed plants waited to be discovered. No wonder – with the plenitude of species here. Thus, I finally saw a flowering example of Acanthus, *A. mollis*, and, not far from the parking, *Gladiolus italicus*. The deep canyons and steeply falling cliffs, with their hewn necropolises, as well as the fine air, touched us very much and made this excursion a high point of our stay. Had our time allowed we would have happily stay longer and explored further.

Above Left: *Ornithogalum montanum* often occurs in great expanses where little else grows
Above Right: *Silene colorata* may reach fifty centimetres in places
Left: *Antirrhinum siculum*, the ubiquitous Sicilian Snapdragon

Vulcanelli

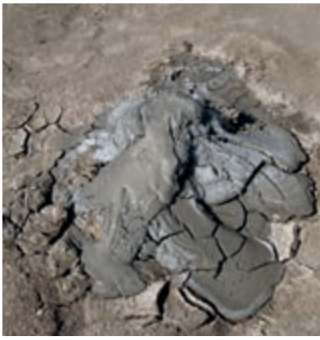
Close to the town of Aragona, North of Agrigento, known for its Valley of the Temple is a quarter kilometre large, pleated-looking area between the otherwise fertile landscapes of the mud volcanoes, that the Italians call the Vulcanelli. The area is an EU protection zone under the Life programme, with the name of Macalube di Aragona (www.macalife.it). The area is fenced off and sign-posted, but no sign leads to it from Aragona. Luck and some asking around are needed to find this beauty spot. Once there, you will find paths to follow. Dried-out water courses are mixed among mud roundels & hillocks and bubbling water-holes. Natural gases emit from the earth while moisture and pressure combine to create the mini mud volcanoes. During periods of drought the visible activity of the Vulcanelli is strongly reduced.

The protected status and associated re-naturalizing of the area have the positive effect of encouraging and reinstating the local plants. During our afternoon visit we enjoyed many representatives of the regional native flora. Of the poisonous and frequently

Left: *Acanthus mollis*
Top: Valley of the Temples – the name is misleading, as they actually stand on a plateau in a straight line
Right: Single specimens of *Gladiolus italicus* dotted the floral confusion

seen Sea Onion, *Urginea maritima*, only the foliage was evident; it lasts throughout the winter to be burned away later by summer heat. The blossoms appear around August to September and are followed by the emerging foliage. Very often we enjoyed the small to middling stems of blossom of *Orchis italica*. We saw none of the various species of Ophrys, although pictures on the internet suggest nearby large colonies of *Ophrys lutea*, which we found in other locales. We encountered massed *Moraea sisyrinchium*, also known as *Iris* or *Gynandriris sisyrinchium* – a joy to behold. Great clumps of *Asphodeline lutea* contrasted wonderfully against the striking blood-red blossoms of the clover *Trifolium incarnatum.*

Clockwise from top: *Orchis italica* accompanies the Sea Onion, *Urginea maritima*, whose flowers appear in spikes in late Summer; a small mud volcano in the protected area of the Vulcanelli; a bubbling water hole; loose carpets of *Moraea mediterranea*



Massive arrays of *Asphodelus ramosus*

The white blossoms of the endangered Sicilian endemic *Aster sorrentinii* are apparently only found at eight sites in the island, this being one of them. Unfortunately we had no luck or were simply too early in the season. Nevertheless the view on the meadows was a tapestry of colour, with frequent long racemes of the white Asphodel, *Asphodelus racemosus*. A stroll through this interesting habitat allows a visit to the Valley of the Temple with one or two hours for the Vulcanelli, giving enough time to take in all the natural flora on offer.

Miniera Florestella

Sicily is full of contrasts: it combines fantastic landscapes, wonderful people, brilliant culture and an ever-surprising cuisine. Modern Sicily is also decaying cities with heaps of garbage and closed or 'under renovation' (for eternity) tourist attractions. The sulphur pits of Miniera Florestella are no longer worked. To mention sulphur is to think of volcanic activity, although

The contrast of yellow *Asphodeline lutea* against red *Trifolium incarnatum*

Miniera Florestella: the abandoned sulphur mines are an open-air museum

these mines are not of volcanic origin and originated for natural plaster (gypsum). They lie not far from Enna, often called 'the belly button of Sicily'. The mines, once an important worldwide source, are today an open air museum financed by EU monies. Much of the area was fenced in and closed off, meaning we had to walk around the fencing until we met an impasse and then returned the same way - although the signs mislead one to believe there are ways through. The walk was worth it to see the view over the area. Imposing to see and even more so to smell was the water issuing from the old shafts, which clearly stank of hydrogen sulphide! Our reward was the flora that we otherwise would have missed.

Right at the beginning we were greeted by *Cerinthe major*, the Honeywort. Nearby grew the Roman Hyacinth, *Bellevalia romana*, for which

Cerinthe major growing by the path

Elusive *Bellevalia romana*

Our constant companion, *Asphodelus ramosus*

Orchis italica

you had to look closely to pick out. Also here, our constant companion of *Asphodelus ramosus* could be seen in great patches. This species seems to prefer sunny spots. In moist, fertile areas of light shadow was the giant fennel, *Ferula communis*, all over Sicily. This species can carry strong three metre floral stems and cover entire hillsides. In half-shade we found *Orchis italica*, the Italian Naked Man Orchid, often on loose pine duff soils but never in full sun. The plants we saw were not quite so far along as those near Vulcanelli, that stood in full sun without any protection. In the shade of the conifers there was a clear change in the flora with few blooming plants to be seen amongst the pine needles, although *Orchis lutea* was there, sometimes in large stands.

Ophrys lutea and its habitat


Flowers and leaves of *Galactites tomentosus*

I was frequently fascinated by the many thistles, of which Sicily has quite a few. We were a bit early in the season for their full beauty, as they has just started to show colour. One of the most notable was *Galactites tomentosus*, the Purple Milk Thistle. During our hikes through the mountains and between the ruins we were often greeted by the local lizards, *Podarcis waglerianus.* The Sicilian Wall Lizard is typically speckled or striped along its back, although we did see the much rarer unicolour form with its striking green back.

Spring is certainly the best season for the amateur botanist to visit Sicily although according to Peter and Ingrid Schönfelder (1977) the Autumn still

Flowers and leaves of *Calendula suffruticosa*

has many plants in bloom. Perhaps, dear reader, you are motivated by our description to visit this wonderful island. You won't be disappointed!

Our heartfelt thanks go to Peter Schönfelder and to our unknown SRGC translator for helping with the identification of many of the plants as well as assisting with this manuscript.

Further Reading

Jörg Ettelt (2011) Ein kurzer Bericht von einem Standort der *Euphorbia characias* ssp. *characias* auf Kreta. Avonia 29 (4): 164-168
Ingrid & Peter Schönfelder (1977) Die Herbstblumen Siziliens. Kosmos - Bild unserer Welt 73 (9): 683 - 689
Peter and Ingrid Schönfelder (2008) Die neue Kosmos-Mittelmeerflora. Franckh-Kosmos-Verlags Stuttgart

Fauna and flora In the Sicilian heat –
Above: The Sicilian Wall Lizard, *Podarcis waglerianus*
Below: *Sideritis romana* and *Sedum caeruleum*
Facing: *Petrosedum sediforme* bakes in the sun

Silver Saxifrages: A Re-evaluation

Adrian Young

The 'Silver Saxifrages' (section *Ligulatae*) comprise a small group of eleven species and several subspecies. After many years of virtual stasis, the status and allegiances of various members of this grouping have been re-considered. Moreover, following on from two decades of fieldwork discontinuously carried out in the Caucasus, it is likely that the classification first proposed by Engler & Irmscher almost ninety years ago will be overturned, bringing opinion into line with the long-suggested species recognition currently used by Russian and Czech botanists. Other changes have been made possible from genetic studies by Douglas E Soltis, Robert K Kuzoff, Elena Conti, Richard Gornall & Keith Ferguson, and others. The main changes can be summarized as follows:

- *S. callosa* ssp. *catalaunica* is upgraded to *S. catalaunica* Boiss & Reut
- *S. longifolia* has acquired var. *aitanica* Pau
- *S. mutata* has been relocated into section *Xanthizoon*
- *S. florulenta* has been relocated into section *Porphyrion*
- *S. kolenatiana* is distinct from *S. paniculata* ssp. *cartalaginea*
- *S. khiakhensis* Holubec & Křivka is a new species discovered by Holubec in the Caucasus.

Assuming these reconfigurations are all widely accepted - and there have been no dissenting voices so far - section *Ligulatae* will include the following taxa: *Ss. callosa* var. *callosa*, *callosa* var. *australis*, *catalaunica*, *cochlearis*, *cotyledon*, *crustata*, *hostii* ssp. *hostii*, *hostii* ssp. *rhaetica*, *khiakhensis*, *kolenatiana*, *longifolia* ssp. *longifolia*, *longifolia* ssp. *gaussenii*, *longifolia* var. *aitanica*, *paniculata* ssp. *paniculata*, *paniculata* ssp. *cartilaginea*, *valdensis*.

Having outlined these revisions, I now deal with them one by one, explaining the reasoning behind the changes and including such details as have come to my attention. The most widespread of all the species, Saxifraga paniculata, has been further studied in several of its 'outlier' populations and, in concluding this update, I append information on the North-American and northern Scandinavian representatives.

Saxifraga catalaunica

Saxifraga catalaunica, as its epithet (from Catalonia) reflects, is endemic to north-eastern Spain. The defining work on this species (*Flora Iberica 5*, 187) was carried out by Pablo Vargas, an eminent botanist based at the botanic garden of Madrid. He concluded that its accepted status as a subspecies of *S. callosa* needed revising, and he resurrected the species name chosen for it in 1856. His explanation was that these populations show minor but independent morphological characters that are difficult to include under any of the species of subsection *Aizoonia*. The main cited distinguishing characters are glandular cilia on the flowering stem (*S. callosa* has glabrous stems), shorter and broader leaves with a tapering pointed apex, and a distinctive silver band

Saxifraga catalaunica

all around the leaf margin. Those wishing to learn more should consult *Flora Iberica* (New Version), though most will need the further assistance of a Spanish dictionary.

Saxifraga longifolia* var. *aitanica

Only two silver saxifrages occur outside Europe. The most widespread is *Saxifraga paniculata*. The other, *S. longifolia*, is a well-known and popular rock garden plant. All cultivated plants came until very recently from either the French or Spanish Pyrenees. But *S. longifolia* is an African resident too, being found in the Atlas Mountains of Morocco. Charles Aitchison and David Tattersfield have recently brought to our attention the form that is endemic to the High Atlas, ssp. *gaussenii* Emberger. The significant characteristic is the broader leaf, consistently measuring 5 to 8 mm at its broadest point (1 to 4 mm wider than in ssp. *longifolia*). Although described almost seventy years ago, it is only in the last few years that this subspecies has established a toehold in cultivation.

Dieter Zschummel has also brought to my attention *S. longifolia* var. *aitanica* Pau (1936, *Cavanillesia* 8, 113). It was not generally known that *S. longifolia* occurs in the Sierra Aitanica near Alicante in south-eastern Spain (not far inland from Benidorm), a long way from its Pyrenean strongholds. My experience at the Alicante site suggests that this is not just one colony, restricted to limestone conglomerate at 1400 to 1600 metres. There is at least one colony on Puig Campana (1408 m), discovered by Angel Domínguez. An interesting question arises about the relationship between ssp. *gaussenii* and var. *aitanica*; the plants of var. *aitanica* that I grow are closer to ssp. *gaussenii* than to their northern Spanish relatives in as much as they have consistently

Facing and above: *Saxifraga longifolia* var. *longifolia*

wider leaves. It may well be that the Sierra Aitana plant is included in ssp. *gaussenii*. Currently there are no plants of this Moroccan subspecies in cultivation, as far as I know.

Saxifraga mutata

This species has never fitted comfortably into section *Ligulatae*. The rosettes superficially resemble those of other silver saxifrages but the flowers are very different, being yellow or orange, while the petal is narrow and pointed, unlike that of any other member of the section. The flat rosettes are of dark-green glossy leaves with small pores next to the margin, and occasional small lime encrustations. Current taxonomic thinking (M McGregor, *Saxifrages, a Definitive Guide*, 133), based on genetic analysis, places *S. mutata* closest to *S. aizoides*. As such, section *Xanthizoon*, hitherto represented only by *S. aizoides*, has doubled in size! Significantly, these two species hybridize (*S.* x *hausmannii*) naturally and have the same chromosome number (n = 13), whereas *S. mutata* does not hybridize with any members of section *Ligulatae*. Although several authors state that *S. mutata* is monocarpic, study of plants in the wild shows this to be untrue. In cultivation a single rosette is common but owes to poor technique. If you insist on using a well-drained John Innes type of compost you may expect to produce single-rosetted specimens. But if you remind yourself that this species grows in moist screes and if accordingly you choose moisture-retentive compost, then half of your plants will form four or five rosettes within three years of germination.

Saxifraga longifolia var. *aitanica*

Saxifraga paniculata ssp. *neogaea*

Saxifraga florulenta

This narrow endemic of the Maritime Alps has been a taxonomic headache for many years, parked - for want of anywhere better - in section *Ligulatae* until a better placement could be found (M McGregor, *Saxifrages, a Definitive Guide*, 131). Recent genetic examination has confirmed that *S. florulenta* has no close links with any other saxifrage. Elena Conti is currently researching this species. It links weakly with section *Porphyrion*, so it has been placed in section *Porphyrion*, subsection *Florulentae.*

Silver Saxifrages in the Caucasus Mountains

Until recently the accepted view in Western Europe was that *S. paniculata* **Miller** extends through Turkey into the main Caucasus range, where it is also represented by ssp. *cartilaginea* and ssp. *cartilaginea* var. *kolenatiana*. This classification was used by Engler & Irmscher in their 1916 study. Some authors have taken the view that var. *kolenatiana* is better given cultivar status (*S.* 'Kolenatiana'), whereas eastern European and Russian botanists have held a different view - that *S. cartilaginea* and *S. kolenatiana* are separate species. This latter opinion is backed up by extensive field experience and deserves serious consideration.

Saxifraga paniculata ssp. *cartilaginea*, Zigana Pass

Over the last few years I have grown and studied numerous silver saxifrages collected in the Caucasus. Czech collectors have been particularly helpful with plants, cuttings and seed. It is interesting that I have not received a single specimen of typical *S. paniculata* Miller from that region. This ties in with Aleksandr Grossgeim's *Flora Kavkaza IV*, wherein are described only two species, *S. cartilaginea* Willd and *S. kolenatiana* Regel. Vojtěch Holubec also does not list *S. paniculata* Miller from this region in his new comprehensive publication, *The Caucasus and its Flowers*. Looking at these two species in relation to *S. paniculata*, what are the main characters that distinguish them?

Saxifraga paniculata Miller has two constant features: the rosette leaves have large, prominent, forward-facing teeth on the leaf margin; these teeth always have lime-secreting pores on the upper surface. Furthermore, the rosette leaves are commonly glaucous green, and rarely glaucous. The leaves are incurved, forming a cup-shaped rosette; they do not lie flat like those of *S. hostii*. The leaf apex is commonly obtuse, sometimes acute. The flower colour is usually white, rarely pale yellow and very rarely pink.

The following three species are discussed by Vojtěch Holubec in his *Flora of the Caucasus.*

Saxifraga cartilaginea Willd has leaves with a prominent cartilaginous margin and small teeth. They are commonly glaucous and do not curve inwards but are straight and ascending. Rosette size is variable, with leaves from 10 mm to 50 mm. The flower colour is commonly white but pink and even red flowered colonies have been documented. There are some clear similarities with *S. paniculata* Miller but there are also significant differences. These two species are geographically distinct: *S. cartilaginea* is not found in Europe, its main stronghold being the Caucasus extending westwards into eastern Turkey, although it also found further south in Iran. Do intermediates exist? We simply don't know. As far as *S. cartilaginea* is concerned, there remain further questions with regard to its specific status, particularly about intermediate forms that might form a 'bridge' to *S. paniculata* Miller; both plants favour calciphile locations. New genetic data from Christoph Reisch (2008, *Journal of the Linnean Society* 93:2, 385–398) has seemingly determined a definitive understanding of the *S. paniculata* complex. He split *S. paniculata* into three subspecies: ssp. *cartilaginea,* ssp. *laestadii* and ssp. *paniculata*.

Saxifraga kolenatiana Regel is clearly distinct (from a gardener's point of view) from both *S. paniculata* and *S. cartilaginea*. Typically, it forms open green rosettes made up of markedly acuminate leaves, the small marginal teeth being blunt but the tip mucronate (terminating in a hard and sharp point). The pores are insignificant and no lime deposition is evident on the leaf surface. The flowers are commonly red or pink, rarely purple; a few white-flowered colonies are also known. It is now agreed that this plant cannot be included in *S. paniculata* or *S. cartilaginea,* neither of which has a mucronate leaf tip. *Saxifraga kolenatiana* is the only section *Ligulatae* taxon with red or pink as the base flower colour; in every other species, it is white (excluding the repositioned *S. mutata* and *S. florulenta*). *S. kolenatiana* is found mainly on acidic rock at high altitude in the main Caucasus; some similar plants have been reported from the little Caucasus in Georgia and there are no reports of its extending into Turkey. I have seen no reports of natural hybridization between *S. kolenatiana and S. cartilaginea* Willd. Christoph Reisch's research finally positions *S. kolenatiana* as a good species and brings to an end the East - West taxonomic conflict.

Saxifraga khiakhensis Holubec & Křivka is a new species discovered by Holubec in the north central Caucasus. Dense cushions of small rosettes are 8 to 12 cm wide and the white flowers are sometimes solitary.

Saxifraga kolenatiana

The American Silver

Saxifraga paniculata is the only silver saxifrage found in North America. It is fair to say that examples from this region are extremely rare in cultivation. A few years ago, having unsuccessfully attempted to track down *bona fide* stocks, I asked my good friend Rex Murfitt to put the word out in North America. He could not find any cultivated plants but persuaded enthusiasts to collect new material, with the result that plants from the following

locations are presently being grown: Black Bay Peninsula (Lake Superior), Burnt Island (Newfoundland), Point Riche (Newfoundland), Ha Ha Bay (Newfoundland), Stowe, (Vermont) and Cooks Harbour (Newfoundland).

You may well ask, why bother? It is really a case of setting the record straight. In 1944, Fred K Butters published his description of *S. paniculata* ssp. *neogaea* in the *Journal of The New England Botanical Club* (*Rhodora*, 46) He was convinced that the North-American examples of the species differed significantly from their European counterparts. The distinguishing features range from the arcane (sculpturing variation on the seed surface, configuration of the dehisced capsule) to the readily-observable (the basal leaves are thicker and fleshy; the inflorescence has a more compact panicle and larger, more numerous stem leaves; the crest of the fruiting ovary conspicuously overtops the sepal). Now that we have authentic material, Fred's claims may be checked for accuracy. It is likely that any consistent variations will be within the normal range of the species.

Saxifraga paniculata from 67°N

Saxifraga paniculata ssp. *laestadii* Neum is rare in cultivation. Even the most authoritative accounts, such as Beryl Bland's excellent guide (*Silver Saxifrages*) shed little light. After much research I have uncovered some information. The plant was named and described by L M Neuman in *Botaniska Notiser* 1905, 265. It is the northern form of *S. paniculata* in Scandinavia and can be found in the mountains east of Saltdal at latitude 67°N, just north of the Arctic Circle, where it occurs on both sides of the Norway-Sweden border.

This subspecies is very dwarf with elliptic or obovate basal leaves and almost capitate cymes. The axis of the inflorescence is 0 to 5 mm long, the pedicels equalling the flowers or shorter. Petals are white-yellowish, with rose-coloured spots. Engler and Irmscher ignored this plant in their 1919 monograph; it is possible that they were simply unaware of its existence. Some botanists deny this plant its subspecies ranking, preferring cultivar status as *S. paniculata* 'Laestadii'.

American botanists regard their plants as *S. paniculata* ssp. *neogaea* (Butters, 1944). However, as one of the two northern Norwegian population groups was given a subspecific name earlier, the priority name for the trans-Atlantic race is ssp. *laestadii* rather than ssp. *neogaea*. Additional separating characters have been proposed, such as panicle shape (open in ssp. *paniculata* rather than compact as in ssp. *laestadii*), flower shape (open instead of more bell-shaped), and stem leaves (subpatent as opposed to more appressed). This and the genetic data from Christoph Reisch provide good reasons to accept the northern and amphi-Atlantic plants as *S. paniculata* ssp. *laestadii* Neum.

Acknowledgements

In conclusion, I thank Vojtěch Holubec for sharing his knowledge of the Caucasus plants, and Dieter Zschummel both for plants and information. Rex Murfitt has as always been most helpful.

Fritillaria eduardii Regel

(The late) Joyce Carruthers & Zdeněk Zvolánek

While once visiting Karel Polívka, a well-known Czech bulb & peony aficionado and a leader of plant expeditions to Central Asia and the Caucasus, Joyce saw group of mature *Fritillaria eduardii* in flower. His were entirely yellow but she instantly fell in love with them. He later gave her seed that did not germinate and after his death his son gave her more, which also failed to germinate. We later realised that seed collected in the winter or late autumn usually fails. A few years later, another friend, Eva Korobková, gave us a few small bulbs of *Fritillaria eduardii* as reward for converting her retaining wall of horizontal limestone rocks, in which she could grow nothing, into a vertically placed crevice garden in which she could successfully grow many things. Regrettably and sadly, Eva is now also in the ground.

We read somewhere that these bulbs, like *Fritillaria raddeana* and *F. imperialis,* should be planted deep (50 cm or more) in prepared soil that includes some humus and fertilizer mixed into the bottom. We dug a deep trench not far from our south-facing dolerite cliff. The trench style was inspired by a photograph by Dieter Zschummel of *F. imperialis* growing by the million in Iran near a cliff with dionysias. Because our planting medium is mineral soil from broken down dolerite with good clay content we decided that we did not need humus; clay is nutrient rich, water-retentive and

provides good surfaces for bacterial activity around the roots of plants. We added only a small amount of onion fertilizer mixed in the bottom of the trench, and arranged the bulbs.

Eduard August von Regel was a botanist and gardener at the St. Petersburg Botanic Garden who described the species formally in 1883, following work by his father Albert, who had proposed to name the species after Eduard's grandfather Eduard. Thus may confusion arise! Our plants are correctly named and they do not smell of garlic. When starting to flower they are between 40 and 50 cm high, reaching about 60 cm when the first flowers fade.

Our *Fritillaria eduardii* flowered for the first time about three years after planting and the flowers improved in the following year. After flowering had finished we watered them well, having also scratched in a small amount of onion fertilizer, hoping thereby to increase the size of the bulbs and eventually to trigger bulb splitting. Without knowing it, this procedure followed the advice of Leonid Bondarenko for bulb splitting. He wrote a captivating story about this species in the wild (see www.fritillaria.org.uk/Articles/fritillaria_forest_by_leonid_bodnarenko.htm). As you may see from our photos, *F. eduardii* is yellow-orange. It begins to flower in the middle of March (even in a hard year) at the same time as *Crocus tommasinianus*. The cliff still has heat stored at root level in winter and is cool in summer.

We originally consulted Eva Korobková before sending this story. What a surprise - she told us that she had obtained her seed from Eduard Hanslík, a member of the Prague club. He was on an expedition many years ago in Tadjikistan east of Dushanbe at a place called Romit. When rather ill, he did not go with the main party but went off on his own outside the town and entered a very deep valley where there were large wild rhubarb plants and a soil rich in humus. It was there that he encountered a population of *F. eduardii* at the sloping base of the gorge. The plants were mostly 120 cm tall and their prevailing colour was yellow-orange, ranging almost

into yellow, with some that were the colour of red Bordeaux wine! He collected five bulbs and later had eight. Eduard has rhododendron and conifer woodland environments and grows his *F. eduardii* outdoors. During a series of bad summers they may not flower for as long a period as two years. The Czech bulb specialist Jan Jílek has collected other forms of *F. eduardii* (red and yellow) somewhere in Uzbekistan and this holds promise for the future of this outstanding fritillary in our rock garden. This is perhaps the only fritillary that can share steppe conditions with other warmth lovers. There is more information on this wonderful species in the December 2012 edition of *The Plantsman*.

Meanwhile, five years have passed between Joyce's original version of this article and the peaceful interment of her ashes under our biggest *Fritillaria eduardii* Regel. The late author and her plant are cooperating excellently and her group is getting ever stronger.

Challenging Ericaceae

Barry Starling

It is said that wise gardeners stick to growing those plants which do well in their gardens. In the British Isles we can grow so many different plants that we ought to be satisfied without struggling to grow those which may never be truly happy away from their home environment. There are, though, those of us who cannot resist the challenge of growing, for instance, tiny shrubs from the Arctic tundra or those from the balmy Azores. Being so much closer to that Arctic environment than the author here in Devon, Scottish members may be surprised to find that plants thriving in their gardens are described herein as challenging. If this is so then let them have a greater appreciation of their good fortune!

My first plant, however, is from warmer climes where the Pontic Mountains of Northern Turkey sweep down to the Black Sea. The time I first read of *Epigaea* (*Orphanidesia*, as it was then) *gaultherioides* only a handful of plants were in cultivation and my chances of obtaining one were about as likely as my holidaying on the moon. I remember attending a talk by Admiral Paul Furze in the early sixties on Middle-Eastern plants. He was an intrepid plant hunter adventuring in his trusty Land Rover, *Rose of Persia*. Sitting next to me was a young man of about my age and we wistfully talked of the wonders of going on such a trip. It was to be twenty years before I embarked on a plant hunting expedition but he, John Watson - for he it was, took off for the Middle East very soon after that inspiring talk. Among the seeds he collected were those of *Epigaea gaultherioides*, which he described as growing on barren rock in an open situation at about two thousand metres in the Pontic Alps. This, of course, does not align with the usual recommendation to grow the plant in shade and shelter and he did add that the plants he saw were pretty tatty. John's seeds were distributed to several of us keen to try them. My allocation yielded thirty-three seedlings and these in turn were spread around to plantsmen most likely to succeed with them. This, I believe, led to the gaining of a firm foothold in cultivation and it was not long before one or two specialist nurserymen were offering *Epigaea gaultherioides*.

The plant forms low mats of slender stems bearing large (8 to 12 cm long) oval leaves, dark green above, lighter beneath. The wide funnel-shaped flowers are up to four cm in diameter and are very pale to deep pink, opening in early spring. Seed capsules are similar to those of cyclamen in having a sticky substance around the tiny spherical seeds to aid distribution. Seed sown as soon as ripe on pure peat in a propagator will germinate within one month. It is advisable to sow thinly as the seedlings are best left undisturbed over winter to be pricked out the following spring into an ericaceous compost. Seedlings will flower in three to four years but must at all times be shielded from direct sunlight. It is worth trying a plant in leafy soil in woodland or a sheltered peat bed, but it seems prudent to keep a pot-grown specimen in the greenhouse over winter.

Facing: *Epigaea gaultherioides* (photo: Tony Garn, RBGE)

That doyen of American rock gardeners, Lincoln Foster, propagated epigaeas by jumbling up 8 to 10 cm long cuttings of semi-ripe shoots with sphagnum moss in a plastic bag, sealing it and hanging the bag under the staging of his greenhouse, where they rooted spasmodically over a period of three to four months. Foster had never seen *E. gaultherioides* and back in 1981 he wrote asking if he might visit my garden. As the date of his visit approached I noted that my plant would be at peak of flowering. On the appointed day the plant was perfect but a rare breeze from the South carried an unpleasant odour from our cesspit overflow to the area where *E. gaultherioides* was growing. Hastily I grabbed a bottle of Sanilav from the bathroom and shook the entire contents over the offending area. It did the trick. Its fragrance conquered the offending smell and in due course I was able to conduct my guest to the one plant he had come so far to see. He buried his nose in the flowers, exclaiming "*Gee, I never knew that plant had such a great fragrance*". To my shame, I did not disillusion him.

At about the same time as I started my search for *E. gaultherioides*, *Cassiope wardii* was added to my wants lists. Harold Bawden, a well-known connoisseur of dwarf shrubs, grew the plant well and managed to propagate just three or four plants most years which he then supplied to G Reuthe, the Kent nurseryman. I happened to arrive just as he was delivering the precious shrublets and bought one that eventually matured at about fifty cm

Cassiope wardii on show (photo: Ian Young)

in height and spread slowly and laterally by pushing up its square-sectioned, hairy and grey-green shoots from the base or just below ground level. Sometimes stolons would venture a few centimetres from the main plant before sending up a shoot and this afforded the best means of propagation. These, removed from where they joined the main plant, often had a few hair-like roots and if treated like cuttings would eventually establish good root systems. Years later, Steve Doonan of Grand Ridge Nursery in Washington showed me another very satisfactory method of using a fog house. Shoot tips about 25 mm long were laid on peat in trays with no removal of the lower leaves. A constant water vapour environment was maintained and after a few weeks each cutting developed a mass of roots from the lower leaf axils, like a shaving-brush. Potted individually, they soon grew to make sturdy little plants. *Cassiope wardii* produces a multitude of 8 mm long white bells with five-pointed corolla lobes at the tips of the shoots, each on a short pedicel. This species seemed happier in the dry atmosphere of southeast England, growing without die-back or browning of the lower stems, flowering regularly and well. During a visit to northwest Yunnan I was fortunate enough to see it growing at about four thousand metres close to a mountain summit on an otherwise bald outcrop of rock where drainage must have been excellent to the point where the plant would have become quite dry later in the season. Since moving to a wetter Devon climate I have lost my original plant and subsequently one other; I am now trying a third in full sun and in a well drained, peaty, gritty soil - all is well so far.

At the other extreme of stature is *Cassiope hypnoides* (*Harrimanella hypnoides*), one of the most difficult of all plants to please in cultivation. This comes from the sub-Arctic regions of northern Europe and is so diminutive that it is almost impossible to identify in the wild if out of flower among the mosses and other tiny shrubs with which it chooses to grow.

On a visit to Iceland in 1980, I checked into a small hotel in Akureyri in the north of the island. The receptionist turned out to be Scottish and told me that the climate there was not very different to that of her northeast Scottish homeland. Spasmodic ice and snow during winter, cool bright summers but with frequent mists and showers. In this environment, not five miles from the hotel, on the slopes of fifteen hundred metre Mount Kerling, I was to find *Cassiope hypnoides*, not in flower but with globular white buds indicating its presence. Here it was growing in mats of *Loiseleuria procumbens* and *Salix herbacea*, both in flower, on raised hummocks of a soil consisting of fine particles mixed with coarser volcanic grit and enriched with humus from previous year's decaying vegetation. I noted that after a short light shower on one day droplets of water were still on the plants a day later. These are conditions difficult to replicate in cultivation.

Almost a week later the thin 3 cm long wiry pedicels held open bells 4 mm in diameter, clasped by crimson calyces while slender stems bore close-set 2 mm linear leaves, not tightly adpressed as in most cassiope species but held at 45º. Many years ago I raised some seedlings and although I kept the frail plants alive for five or six years they never

Salix herbacea in the Tatra Mountains (photo: Jerzy Opiola, Wikimedia, published under the Creative Commons licence)

flowered and the drought years of the early nineties proved too much for them. As with other cassiopes the route to follow is to sow seed in a 7.5 cm pot containing 50% peat and 50% grit to within 1 cm of the rim and then to top with a fine layer of sieved peat. Seed is sown on the peat surface and only covered by a sprinkling of 3 to 5 mm grit. The pots are then placed in an open frame and it is only when a covering of moss develops on the surface that the minute seedlings appear. Sowing under glass encourages liverwort and this suffocates the young seedlings as they germinate.

Farrer (*The English Rock Garden*) describes in his inimitable way *Cassiope hypnoides* but then goes on to add words of cautious optimism suggesting that this species may just accept cultivation even in a less than ideal climate; he writes "*... in the case of the most precious and fine of all, C. hypnoides, from Norway and the chills of the Arctic North, which is the most minute and filmy mass of fine green fur, with ravishing white bells, preposterously big for the tuft, emerging and swinging on thread like stems, instead of sprouting from the sides. This is worth any pains to keep in good health; which is almost as hard to do, say the disappointed, as to get hold of it at all. But in a certain Banbury garden, hot and open, there is a specimen of it daring successfully the arid or mouldy extremes of the English climate*".

I have already mentioned in passing the next plant, *Loiseleuria procumbens*. It enjoys similar conditions to *Cassiope hypnoides* but is more widespread, being circumpolar in its distribution. It is not particularly difficult to grow, only requiring an acid soil that does not dry out in summer and, perhaps, a rock to sprawl over. The real difficulty is in persuading it to flower. Whereas in the wild, hundreds of the tiny pink flowers almost obscure the low mats on which they grow, in cultivation it can live for many years with not a single flower. In 1972 a plant collected at 1200 m by the Nordfjord in Norway was exhibited in full flower at a London show where it gained an RHS Award of Merit.

Its cultivator, Molly Dawson, had grown it for ten years without a flower but had then replanted it in a peat bed in full sun in the southeast of England where it flowered prolifically each subsequent year. On receiving the Award of Merit it was given the clonal name of 'Leon', the name of the village close to where it was collected. Interestingly, instead of the prostrate stems typical of this species, 'Leon' had short, upright shoots similar to the Japanese form, which is also freer flowering in cultivation.

Patience is the key to growing it from seed or, for that matter, from cuttings. It produces abundant seeds and these germinate readily if a little slowly. For the first two years seedlings are agonisingly slow, barely getting beyond the cotyledon stage in their first years. While so small they are very vulnerable and seed is best sown thinly with the seedlings not being

Cassiope hypnoides (photo: Barbro Risberg)

transplanted until their second spring. Semi-ripe cuttings, 2-3 cm long, of the current year's growth, may be taken during summer and rooted without heat in 50% peat - 50% sharp sand in a site where they receive ample light for as long a day as possible but no direct sunlight.

Perhaps the most challenging small shrub featured in this article is *Arctostaphylos* (*Arctous) alpina*, a native of Scottish mountains as well as occurring widely in the northern hemisphere on high latitude mountains and moorlands. Differing from the rest of the genus in being deciduous, for most of the year it is a modest shrublet, woody stemmed and procumbent. In spring, after the snow has cleared it produces, at the tips of its twiggy shoots, clusters of three to four 5 mm greenish-cream, urn-shaped flowers each with chocolate-coloured anthers. As the flowers drop so the leaf buds expand to produce thin-textured, 5 cm long, oval leaves, toothed at the margins. Throughout summer the plant remains undistinguished, its flowers giving way to blue-black fruits (a red-fruited form also exists), but then for two weeks in October this Cinderella has a ball. In the Daisetsu

Loiseleuria procumbens (photo: Peter Maguire)

Arctostaphylos alpina in the Varrio Nature Reserve, Finland (photo: Veli Pohjonen, Wikimedia, published under the Creative Commons licence)

Mountains of Japan, for instance, while birch and rowan gild the lower slopes, *Arctostaphylos alpina* smothers those volcanic summits with the hot crimson of molten lava.

I have made several attempts to grow this autumn fireball without success. Seed germinates, producing seedlings that struggle for a few years, their autumn leaves smouldering rather than bursting into flame. Hot and dry summers like those of the early nineties prove fatal; wet seasons like that of 2012 may prove more acceptable and if these become the norm perhaps I will try again. Friends from the northern half of Scotland have had greater success so, for those in cooler, moister climes, *A. alpina* is worth a try even if it is just for two weeks of autumn splendour.

Rhodothamnus chamaecistus is another plant about which Farrer waxes lyrical, stressing its love of a limestone habitat and suggesting that to grow the plant it is necessary to '*enrich*' the soil with limestone chips. Believing in Farrer as the '*patron saint of rock gardeners*', I killed two plants before growing a third successfully in my standard lime-free ericaceous mix. *Rhodothamnus* is at home in the Dolomites where the rock is magnesium limestone, acceptable in moderation to calcifuge plants and even beneficial in trace quantities to most Ericaceae. This 25 cm high alpine shrub, clad in 6 to 10 mm elliptic to oblanceolate bright green leaves each fringed when young with fine white cilia, is capable of producing a multitude of flowers

about 25 mm diameter, saucer-shaped at first and becoming almost flat like those of a small cistus. Borne at the ends of the shoots, they are held above the foliage on pedicels about 20 mm long. Though predominantly a clear pristine pink, on Mount Schafberg (1780 m) in Austria, within yodelling distance of the famous White Horse Inn, some have flowers which are slightly smaller with a prominent red eye.

In the wild, *R. chamaecistus* grows in open, light situations where the summer temperature is never as high as in lowland Britain and moist air is ever present. These conditions must be remembered when growing this little shrub in our gardens. Amazingly, it has a close relative six thousand miles away in the western USA. This is *Kalmiopsis leachiana* from Oregon, with which it successfully crosses, yielding the genus X *Kalmiothamnus*. The SRGC Seed List often includes seed of *R. chamaecistus* collected wild and this, I find, germinates better than seed collected from plants in cultivation. Seed sown in January in a heated propagator germinates within a month, subsequently having a good long growing period, to produce seedlings that may spend the following winter in the open with a minimum of shelter. Two to three cm cuttings of ripening shoots may be rooted but are not easy and when potted take a long time to settle down and grow out.

Some years ago, David McLintock, a leading authority on heaths and heathers, mentioned in a letter to me that he thought true *Daboecia azorica* was no longer in cultivation. Writers in the late nineties and the early part of this century suggested that the plant which masqueraded in gardens as *D. azorica* was, in fact, the hybrid between it and *D. cantabrica*, *D.* x *scotica*. I hurried to check out my genuine *D. azorica* only to find that robust shrubs on either side of it had suffocated the plant, leaving me with a twiggy corpse and a few empty seed capsules. My plant had grown in Essex, surviving severe winters in spite of its reputation for tenderness. Dry and hot sunny summers lasting well into autumn had ensured that the wood was well ripened and so was able to withstand low temperatures. Moving to a site 250 metres above sea level on northeast Dartmoor meant cooler summers and, frequently, wet autumns so that although my plant still survived, much of the current season's growth was blackened by frost.

Daboecia azorica is a small, compact shrub 30 cm high and 30 cm wide; it produces racemes of the most intense ruby-red bells over dark green foliage. Starting in late spring it continues to flower through summer when planted in full sun. Although plenty of seed is set, only a small proportion appears to be fertile but those that germinate grow on well and may produce plants of flowering size within two years. It is wise to protect plants for their first winter and possibly their second too, to allow for the build-up of a woody framework. Cuttings taken in early June root readily and will flower in their second year. On a trip to the Azores In 2006 I visited the home of *D. azorica*, Mount Pico on the island of the same name. There is a popular myth that *D. azorica* only grows on the

Rhodothamnus chamaecistus at Passo Duran, Agordo (photo: Enrico Blasutto, Wikimedia, published under terms of the Creative Commons licence)

Daboecia azorica (photo: Dejalme Vargas, the Azorean Biodiversity Portal)

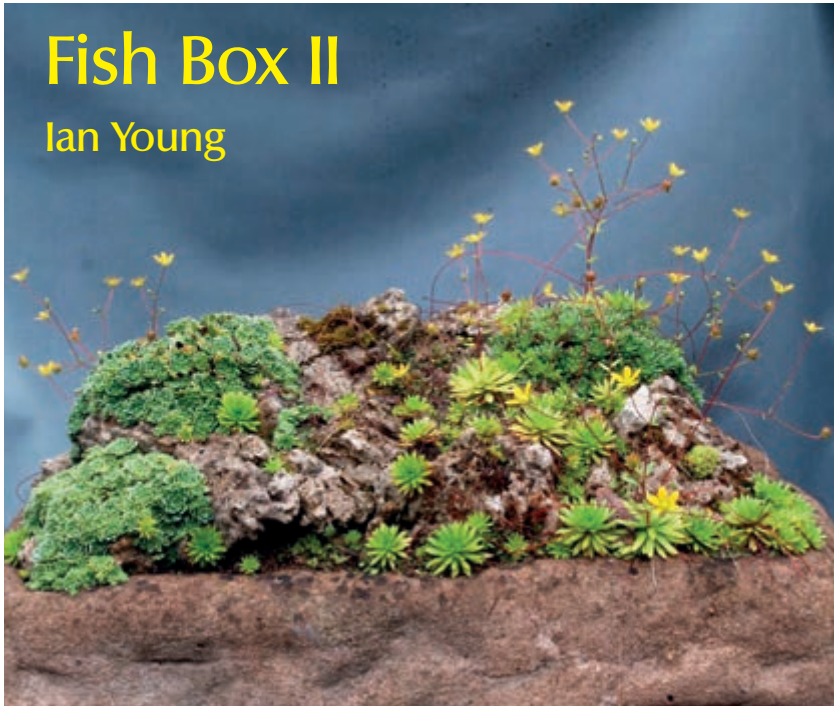
summit of this volcano cone and that the very highest plants are the most intense in colour. Parking the car about half way up the mountain (2320 m), I walked just 200 metres before finding this little heath in the company of white-flowered, low growing *Calluna vulgaris*, exotic looking *Vaccinium cylindraceum* and purple-pink *Thymus caespitosa* clothing every boulder. Towards the summit, however, *D. azorica* petered out about 250 metres below the peak. There were deep reds to paler pinks throughout the range and one of the best forms was not growing on the mountain at all but on a roadside bank in the hills on the eastern side of the island. It is also reputed to grow on the neighbouring island of Horta. I can report that *Daboecia azorica* is now back in cultivation and in the care of several growers. It is hardier than usually given credit for but from now on I shall take the precaution of keeping at least one plant in sheltered accommodation during winter.

Facing: The upper slopes of Mount Pico - habitat of *Daboecia azorica* (photo: Unukomo, Wikimedia, published under the Creative Commons licence)

As you will have noticed, not all of my attempts to grow these challenging plants have been successful but I hope that what I have learnt by trying them may give a few clues to others tempted to have a go.

Fish Box II

Ian Young



I developed the method of turning polystyrene (Styrofoam) fish boxes into credible-looking light-weight troughs many years ago to enable us to transport them easily to displays and shows. Although originally intended as a temporary solution to the weight problem, I have since used them widely as landscaped troughs, to increase stocks of bulbs, to sow large quantities of seeds, and so forth. After some time the paint would be damaged, especially along the top edges, revealing the white polystyrene, which did not look very nice so I would regularly go around repainting. I like the smaller fish boxes (40 cm x 30 cm) and in 2007 determined on a more permanent finish so started to experiment on coating boxes with cement. I have seen many methods where the box is wrapped in wire mesh to hold a layer of cement but I felt them too clumsy and unnecessary so came up with my method of poking holes about two cm wide all over the surfaces of the polystyrene so that when I applied the cement it would be forced through the holes, acting like rivets and keying the cement firmly to the box. I call them my cavity wall insulated troughs because the polystyrene provides some insulation both from the cold and the heat.

Above: A trough planted with limestone offers niches, height and deep roots

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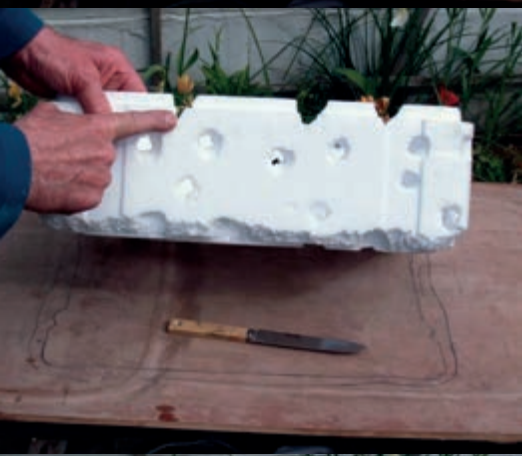
More online illustrations for this article are posted on www.srgc.net

I wanted this method to be simple and readily available to everyone so chose a proprietary brick-laying sand-cement mortar mix that comes in twenty kg bags from most large DIY stores; one bag coats two smaller troughs giving them an empty weight of about ten kg. I have never had long-term success with so-called hypertufa mixes of added organic or porous material in the mortar mix; recurrent frost heave simply destroys them during our winters. Adding peat or similar material to the mix makes it porous, allowing moisture to evaporate through the trough walls, whereas my mix is impervious and helps retain moisture during hot dry periods.

The tools you need are a firm board on which to form the trough, a bucket or tray for mixing the mortar, a mason's trowel or similar and - most important - suitable gloves to protect hands when handling and forming the wet mix. Working cement with bare hands *will* damage your skin and may cause lasting harm, so suitable gloves are very important.

Step one is to cut two square drainage holes, about seven cm, in the base. Cut these removed squares into two sections about 7 cm x 3 cm; you will use these pieces to form the actual drainage holes. I sometimes also chamfer the bottom edge of the box with a knife to remove the sharp corners but this is not essential. Next, punch the 'rivet' holes with a rounded stick or similar tool about two cm diameter. This makes a rounded hole on the impacted side and a cone shaped hole on the other. I therefore try to punch as many holes as possible



from the inside of the box so that the cone is on the outside, giving greater strength to the exposed external cement layer. Finally I make cuts to form a series of shallow V-shaped slots along the top edge; this adds thickness to the cement and extra strength to the top edge.

Place the box on the board and draw two lines around its base, one tight to the edge, the other approximately three cm out to act as a rough guide for the coating thickness. Draw a line around the two rectangular holes in the base. Now you are ready to make your mortar. Wearing your gloves and perhaps your dust mask, empty ten kg of mix onto a board or mixing area. Make a depression in the middle like a volcano crater and pour in some water. Carefully turn dry mix from the outside into the water-filled crater and repeat until the mortar is of an even moist constituency; it should be wet enough for the chemistry to work but not so wet as to be too runny. If you over-wet it you can always add some more of the dry mix.

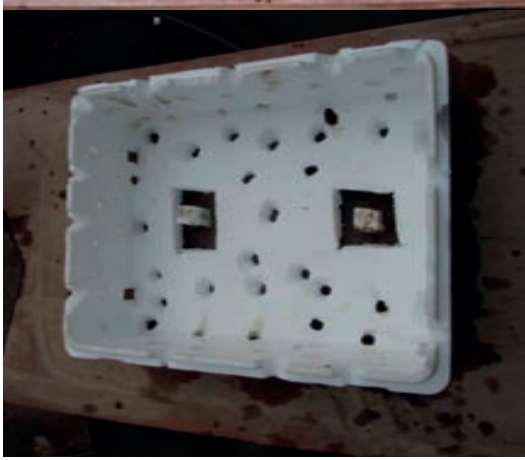
Remove the box from the base and place one of the small cut-outs upright into the middle of each of the four lines you drew around the drainage holes. Holding them in turn with a finger, surround them with some mortar. You can now use them as a guide to the depth of the base, which should be around a centimetre deep and be spread at an even thickness out to the furthest line you drew around the box. You need not be too accurate at this stage - indeed it is better to cover over the line than to fall short of it. Sit the box onto this flat bed of mortar, aligning the polystyrene cut-outs with the centre

of the rectangular holes. Surrounding them with the mortar will hold the box in place.

Cover the inside base of the box with mortar, ensuring that it goes through all the punched holes to key on to the base layer. I build the sides of the box by putting some mortar both inside and outside, working it with my hands and ensuring that the mortar goes through all the holes, bonding the inside and outside layers. Do not worry if the base seems to be spreading out over the guide lines at this stage because it will help support the mortar until you have covered the whole box. I work gradually round all the box until reaching the top where the inside and outside layers come together to form a solid edge about two cm deep.

Once the box is completely covered, shape it to look like real stone. Remove some of the surplus from the flaring base and add it to the sides for a naturalistic shape. Continue to work around the box, removing mortar to leave depressions and adding it to form lumps. I use the point of my trowel in the mortar to check that I am leaving sufficient to cover the polystyrene; five millimetres is about the minimum for thinner areas. Work right round the box, using your hands to form the shape and to smooth over any cracks in the mortar.

When reasonably satisfied with the shaping, leave the trough in a dry shaded area to firm up for a whole day in summer or two days in winter. Shape it without taking it from the board; at this stage the set will still be incomplete and it will easily take a bit of smoothing, scoring and cutting. Now leave it to cure, ideally for a few more days to be on the safe



side. Remove it from the board by sliding a flat mason's trowel or similar implement between the trough and the board to break the bond. Take great care not to pull on any of the sides as the cement will not have fully bonded and you may easily crack it. Lastly, shape the bottom edge, making it rounded and natural-looking; it will be harder by now but will no doubt take a bit of careful roughing up. Once happy with the shaping I rub off the sandy finish of the cement using an old rag, thus smoothing the surface. Leave the trough in a dry shaded area for a few weeks for everything to cure and harden up before landscaping and planting it.

Landscaping

The most common mistake when landscaping troughs is to make them too flat, placing just a few small rocks with most of the planting area below the rim. In time, with settlement of the planting medium, these end up looking like a sunken garden. I like to landscape by creating height so that most planting areas are *above* the top edge. My reasons are numerous. First, a dramatic rock landscape is more attractive even before adding plants. Second, there are more niche habitats; even in a small trough you can make slopes that face north, south, east and west, and within those slopes the bottoms will be moister while the tops will be drier. Third, you will find that troughs built up high need less watering than similar sized flat landscape troughs. The reason is that flat troughs heat up more quickly in the sunshine, with a higher evaporation rate. The angles of a high and rocky landscape only allow the sun to hit small areas

at any one time, greatly reducing the warming and evaporation. Fourth, the greater volume of a high landscape also gives better temperature stability, holds more moisture and provides cooler and deeper root runs for plants to explore.

Planting Medium

The old school of gardeners was taught to put a good layer of drainage into the bottom of their pots and containers to allow water to pass away freely. However, this layer caused exactly the opposite effect! They were ignoring the effects of the surface tension that opposes the force of gravity and holds the water within the smaller gaps of the potting mix to form a perched water table - this science has been understood for a very long time. In fact, adding a layer of gravel as drainage at the bottom of the trough has the very opposite effect to that desired because the mix above the gravel layer remains wetter for longer than if there were no 'drainage layer' at all. I believe that the drainage needs to be all the way through your potting mix and the old school gardeners would better achieve their desired effect by mixing the drainage into the mix and not having it as a separate layer at the bottom. Even further, as the neck of the plant is often the

most vulnerable to excess of moisture, they would be better turning the whole thing upside down and adding the gravel layer to the top of the trough and not the bottom.

The key property of your chosen planting medium is that it must be well drained. The old saying 'well drained and moisture retentive' may be confusing and I prefer to describe the ideal as retaining both moisture and air at the same time.

Use whatever planting mix you prefer. In recent years my own favoured medium has been sharp or concreting sand with no additives. All the plants I tried in this medium have grown well. Because I want to encourage the roots to grow deep while searching for moisture and nutrients, I add no feed at planting time. I plan to feed plants when they indicate that they lack nutrient and to date I have not fed any of these troughs. The plants grow relatively slowly and tight, rather as in their mountain homes, and my intention is to create a long term sustainable habitat rather than a quick mature look.

Rocks

You may use any type of available rock but a single type invariably looks best and most resembles a vignette plucked from a mountain side. Limestone and tufa have been popular for as far back as I can find records and still work well if you can get hold of them but they do come at a cost both to your purse and the environment. Natural habitats made of these rock types are getting scarcer and it is best to find alternatives. My favoured 'rock' for landscaping troughs and raised beds in recent years has been a porous concrete block, often called breeze (or brieze) block in Britain. It may sound dreadful but if used properly, breaking it up and hiding the flat surfaces, it not only looks very good but the plants love it as much as tufa, rooting and seeding into the porous surface. Other recycled materials such as roofing slates, broken slabs and the like may be used to good effect.

Assembling

The first stage of completion is to cover the drainage holes with something that prevents the planting medium from falling out but allows water to pass freely. I use either perforated zinc or fine plastic mesh. Fill the trough with your planting medium; I encourage you to pile in as much as you can, forming a steep sided mound above the top edges of the trough before adding any rocks.

Place your rocks to form a landscape. Be bold, starting with one large rock to anchor the design; you may have to remove some of the sand so as to bed the rocks. Cover as much of the surface as possible with rocks to create an attractive landscape full of planting crevices. Unless the trough is to be placed against a wall, check that it looks good from every direction. When placing rocks, consider how water flows, avoiding any steep gullies running from top to bottom because heavy rain may wash the sand out of them. Adding smaller stones helps stabilize the sand, avoiding wash-out, as does

careful placing of plants. I often leave a trough for some time to contemplate its rock landscape before I decide what to plant. If I have some mortar left at the end of a trough-making session I use it to make a small free-form trough with a flat base and a low rim just as you would form a pie or flan base – this may be landscaped and planted up like the larger versions.

Planting

I may simply scatter seeds or insert cuttings rather than use established plants because I find they grow best that way. I also enjoy watching them growing and maturing slowly so do not need to leave large gaps between the rocks. If you use larger established plants you may have to plant them while you are placing the rocks so as to get their roots deep into the centre. I advise that you wash off the roots of any pot-grown plants. I have done this for many years with great success. The plants establish much better when their roots are forced to explore the planting medium. The only time of year that I would not wash off the roots is during the winter - at which time I would not be planting up troughs anyway.

I find labels a terrible distraction in troughs, spoiling the effect of the landscaping. When I plant up a trough I take a digital picture of the labels laid beside the plants; I file this so that if I forget a name I can check the picture to refresh my memory.

The surprising effectiveness of breeze block in a high landscape

Plants

I need not go into details about which plants to use – that is the fun part for you – but I offer a few guides. Most of the smaller alpine and rock garden plants may be grown in troughs. The situation of the trough, such as sun or shade, will obviously have an influence. I often move smaller troughs around, exposing them to full sun in the spring then moving them into partial shade in the summer – this prevents the likes of Himalayan saxifrages from becoming scorched by the sun.

The miniature garden style of planting as many different plants as possible into the trough is popular but you might also consider using a single species in a small trough. Use plants of different ages to suggest a vignette lifted from a mountain side and allow plants to self-seed and naturalize. Good initial plants include many saxifrages, especially species and cultivars of the section *Porphyrion* and the silver saxifrages (section *Ligulatae*) – both provide a decorative neat cushion of foliage all year round with flowers in spring. Sedums and sempervivums are also extremely good trough plants and should certainly not be overlooked.

It is easy to see why trough gardening has been so popular for so long; anyone can accommodate a trough even without a garden or - like us - you can have masses of them ...

… masses of them. A variety of different rock types and troughs

Viola Hunting Season kicks off with a Bang

John and Anita Watson

The site and flowers of our find of *Viola chamaedrys* with a rather suggestive landmark silhouetted against the distant chain of the main Andes.

A significant part of our main season of viola hunting at the end of 2013 and the start of 2014 was funded by the SRGC. To whet your appetite for the results, we offer this account of our warm-up for the main field exploration to follow. It began early, during an exceptionally hot and settled spell of late winter weather, before it was followed by an equally unseasonal shivery, cloudy and frosty start to spring. This latter not only zapped all the precociously forming apricot fruits in our garden, among other damage, but wreaked substantial havoc on central Chilean early-season agriculture and floriculture. Now we are baking once more, with occasional record high temperatures for the time of year, and are worrying that the Andean viola season may start to overtake us.

But to begin at the beginning - late August. Our new friend from Los Andes, Carlos Celedón, discovered via his internet viola, other flora and natural history photos, contacted us at that time. A year or so previously he had already discovered and photographed the white form of annual *Viola chamaedrys*, a species that we hadn't seen ourselves. As a result we were able to add his image to our file. Unfortunately his white form grows in a very inaccessible and distant spot, requiring younger limbs than mine (John's) to reach it in the nearby Andean foothills. However, he informed us that, while looking for pre-Columbian artefacts in the countryside several years back, he had stumbled by chance upon rosettes of a tiny viola out of flower which looked similar to, but not the same as, his white form. The good news was that its location was nearer still for us, only a few kilometres from our home here, and by the side of an unadopted but well-maintained dirt-surfaced

Below: the locally prolific tiny annual *Viola chamaedrys* Leyb
Facing: White form of *Viola chamaedrys* (photo: Carlos Celedón)

The balance of life forms: in the upper picture (Carlos Celedón), male and female of one of the three violivorous fritillaries of the region, *Yramea cytheris*, are copulating; in the centre picture, a female is about to refuel from a battered *Viola chamaedrys*; in the lower picture two dangerously exposed caterpillars of the same species devour *V. chamaedrys*.

country connecting road. The idea was to recce and locate the plant for a later visit.

Although superbly camouflaged and extremely localized in disturbed soil patches - where it was often protected from marauding flocks of goats by ferociously armed non-native *Xanthium spinosum* (Asteraceae) - it was easy to find once your eye was 'in'. The great, unexpected and pleasurable surprise was to encounter a good number already in flower so extremely early. To my chagrin, just as I was on the point of snapping a local species of skipper butterfly in the act of pollinating one, it 'skipped' off! During our revisits, though, we were able to take a load of photos of native fritillary butterflies laying eggs on the violas and sometimes drinking from their flowers. We were extremely fortunate to notice a well-developed caterpillar on one (these particular larvae are usually nocturnal), as well as a few half-eaten rosettes. I should add that violas, particularly violets, are the exclusive food plant of most fritillary butterflies throughout the northern and southern hemispheres. This exclusively herbivorous and occasionally symbiotic relationship is of very ancient origin and is considered to have evolved here, in what is now the southern temperate Andean sector. We are keen to supplement the very limited existing field observations of this interaction here in South America. But those 'butterfly moments' took place later on. During the first visit, while exploring a bit further along and higher, on the crest of the shallow pass, we came upon a smaller population of *V. chamaedrys* not yet in flower, including a cluster with green rosettes, that we surmised were probably white-flowered (although interestingly, the one photographed by Carlos has typical cryptic brown leaves). They were indeed in flower when we returned a couple of weeks later and proved to be white or very pale pink. We have finally managed to persuade a reluctant Carlos that his original white population and those we all found together are indeed variations of the same *V. chamaedrys*. How satisfying it was to add this species, first of the season as well, to our list, considering that we had searched for it in vain several times at its type site fairly nearby on the former main pass to Santiago.

Viola chamaedrys, like so many rosulate violas, is extremely rare, elusive and of highly restricted distribution. As known, it probably totals no more than a scattering of populations over several square kilometres at three sites in central Chile. The one near our home is the type area and the only one known at present. You could count on your fingers the number of botanists and enthusiasts who have ever seen the species live. Other than Carlos Celedón's internet Flickr site, these photos are the first ever to be published of *V. Chamaedrys*. This of course is only a small contribution; hundreds of thousands of species that have never been depicted with accurate identities are steadily making their way into human iconography all the time. Nevertheless, in such small ways the SRGC and its members continue to input to science.

Show Reports

Edinburgh 12th April 2014

The 75th Edinburgh show proved to be exceptional. Ian Bainbridge confirmed that it was the biggest show in five years and had the greatest amount of plants entered in sections one and two. Extra prizes were awarded in both sections to mark the 75th anniversary. Cyril Lafong won class 34 with his *Erythronium helenae*. Margaret & Henry Taylor were the winners of class 75 with their *Primula marginata*, *Primula marginata* 'Alba' and a lovely yellow *Fritillaria moggridgei*. Sue Simpson was the winner in class 81 with her *Primula marginata* 'Prichard's Variety'.

The Royal Botanic Garden Edinburgh put on a wonderful gold medal winning display and also won a professional medal for a plant of Forrest medal quality - a fine pot of *Narcissus bulbocodium*. Stan da Prato received the Alfred Evans Quaich for his *Andromeda polifolia* 'Nikko' with its masses of pink flowers, a beautiful plant despite having the (very) common name of Bog Rosemary. Another prize-winning ericaceous plant was Sue Simpson's *Rhododendron megeratum* 'Bodnant'. Sue also received the bronze medal for most points in section two.

Above: *Primula* 'Aire Mist'

Narcissus bulbocodium

Trillium ovatum x *rivale*

One plant that caught my eye was an attractive *Trillium ovatum* x *rivale* that won a certificate of merit in class 43 for Cyril Lafong, who also had a certificate of merit for his *Primula bracteata*. Other certificate winners were Bob Maxwell for *Fritillaria* 'Canmore Park' and Sue Simpson for her *Clematis columbiana* var. *tenuiloba* 'Ylva'. Cyril Lafong won the class 1 section one with six plants that included *Primula* 'Rumbling Bridge', named after Graeme Butler's nursery, and an *Androsace chamaejasme*. He took the Elsie Harvey memorial trophy for three new, rare or difficult to cultivate plants with *Androsace species nova*, *Saxifraga dinnikii* forma 'Alba' and *Daphne rosmarinifolia* 'Goldstrike'. The best plant in show was a lovely pink-blushed *Ranunculus parnassifolius* that won Sam Sutherland the Forrest medal. This plant hails from the Pyrenees and its common name is the Parnassus-leaved Buttercup.

Among the many primulas on show, one that stood out and was the winner of the K C Corsar challenge trophy, was Bob Maxwell's large pan of pure white *Primula* 'Aire Mist'. Cyril Lafong won the R E Cooper Bhutan

Facing: *Pulsatilla vulgaris* ssp. *grandis* 'Papageno'

Primula 'Rumbling Bridge'

drinking cup for the best Asiatic primula, a *Primula bracteata*. Other prize-winning primulas from Stella & David Rankin included *Primula* ex 'Kath Dryden', *Primula auricula* hybrid and *Primula* x 'Kusum Krishna' (Sanskrit for *Flower of Krishna*). The special prize for best plant in section two for a first time exhibitor went to Bill Jessop for his *Androsace vandellii*. The Henry Archibald rose bowl went to Mike Dale for three pans of rock plants of

Facing: *Ranunculus parnassifolius*

Pulsatilla jarmilae

different genera: *Sanguinaria canadensis* 'Flore Pleno', *Jeffersonia dubia* and *Anemone* x *seemanii*.

When taking my accompanying pictures I was particularly drawn to two beautiful pulsatillas: a large pot of *Pulsatilla vulgaris* ssp. *grandis* 'Papageno' and a *Pulsatilla jarmilae* - a plant that I had not previously encountered. Stella & David Rankin won the Bill Mackie quaich for the best saxifrage in the show with their *Saxifraga porophylla*. I particularly enjoyed photographing some of the saxifrages because they can be difficult to photograph outside - even the slightest breeze makes their flowers tremble uncontrollably. *Saxifraga* 'Dora Ross' and *Saxifraga* x *edithae* were my personal favourites.

Facing: *Sanguinaria canadensis* 'Flore Pleno'

Once I had finished photographing the plants and the judges had finished their deliberations, I left the hall to get a much needed cup of tea and encountered a long queue of people ready and eager to enter the show. I hope they all enjoyed it as much as I did. The 75th Edinburgh show was a great success and formed a fitting tribute to Carole & Ian Bainbridge in their last year as show secretaries for the Edinburgh Group.

Liz Cole

Perth 19th April

The show offered many delights and trophies for the visitors and exhibitors who came to Perth on one of its best sunny spring days. There was a fine collection of entries in most classes but I can only give readers a flavour of the quality of exhibits here by concentrating on a few of the main highlights.

The Dundas quaich for the winner of Class 2 went to Cyril Lafong with *Androsace muscoidea*. Cyril also won the Forrest Medal with his *Iris suaveolens* 'Yellow'. He has been growing this plant for the last 10 years. It hasn't often needed re-potting and has been growing in this particular pot for the past four years. Its 2014 flowering seems to be a particularly good one; it hasn't always performed like this. This year it was covered with flower spikes but sometimes, frustratingly, it only flowers over the middle or outside part of the plant. It grows very well in a position where it receives full sun in the morning and early afternoon.

The Major-General D M Murray-Lyon trophy for the best plant exhibited by a former Tayside member went to Margaret & Henry Taylor for their *Tropaeolum brachyceras*, a Chilean species with orange flowers. It came from AGS seed (sown 8/12/2009) so is now four years old and was cultured in gritty compost in a frost-free environment.

Stan da Prato was awarded the L C Middleton Challenge trophy for the most first prize points in section one. His combination of six pan plants comprised *Andromeda polifolia* 'Blue Lagoon', *Rhododendron* 'Ginny Gee', *Clematis* x *cartmanii* 'Pixie', *Rhododendron* 'Penheale Blue', *Trillium* sp. and *Lathyrus vernus* 'Alboroseus'. Stan also won the Alexander Caird trophy for the winner of Class 1.

The E H M Cox trophy for the best dwarf rhododendron was awarded to Sue Simpson for her *Rhododendron megeratum* 'Bodnant' and she was awarded the bronze medal. This plant was a strong yellow-coloured specimen. It belongs to the subsection *Boothia* along with *Rhododendron sulfureum* and *R. leucaspis*. Cream-flowered forms are also found.

Margaret & Henry Taylor scooped up the Perth trophy for most points by a member of the Perthshire Group. The John Duff memorial prize for the best plant in section two went to Francis & Margaret Higgins for a sizable pot of *Pleione* sp. that was well worthy of section one.

Facing: *Rhododendron megeratum* 'Bodnant'

Cyril Lafong's six pan entry

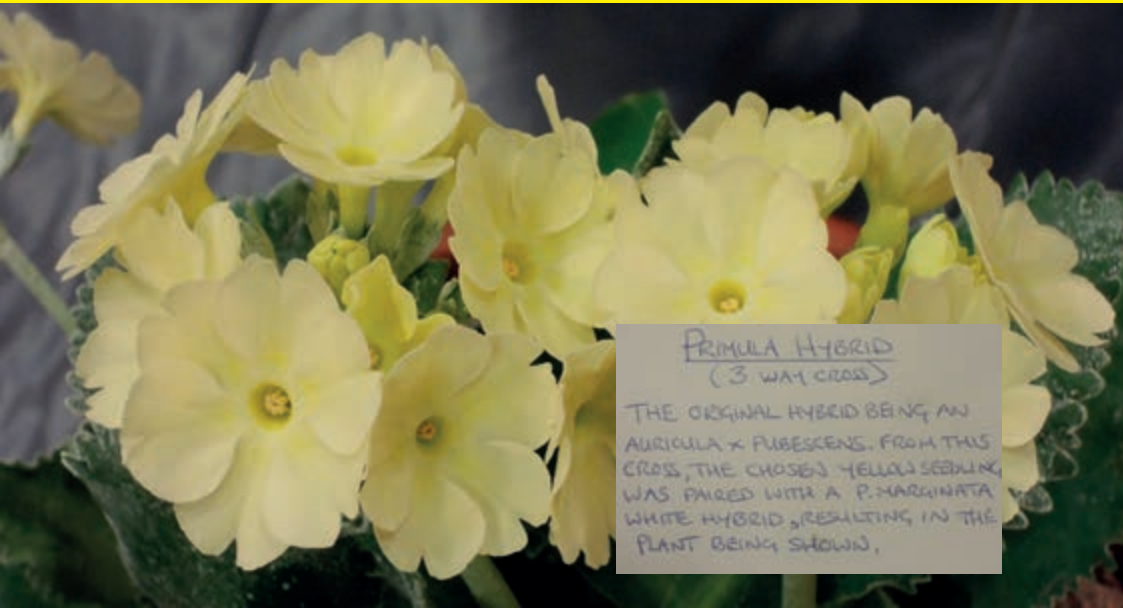
Graeme Butler's *Primula cachemiriana* had five globular deep violet flowering balls, looking a bit like *P. denticulata* but with mealy narrower leaves and darker flowers. It is a member of the section *Denticulata* and it should do well in the garden. Halda lists it as synonymous with *P. denticulata* but Richards maintains that it is a separate species. In the wild it is found growing alongside streams and in alpine meadows in the Himalaya. It won the R S Masterton memorial trophy for the best Asiatic primula.

Lastly, Peter Semple's *Fritillaria pallidiflora* was grown from seed sown in 1981. It germinated in 1982 and was grown on in gritty, limy compost. Thirty-two years later, I now counted around nineteen flower spikes on this enormous fritillary, which had been grown in a twelve inch pot. This specimen merited the Bulb trophy for the best bulbous plant and the Joyce Halley award for the best plant grown from seed.

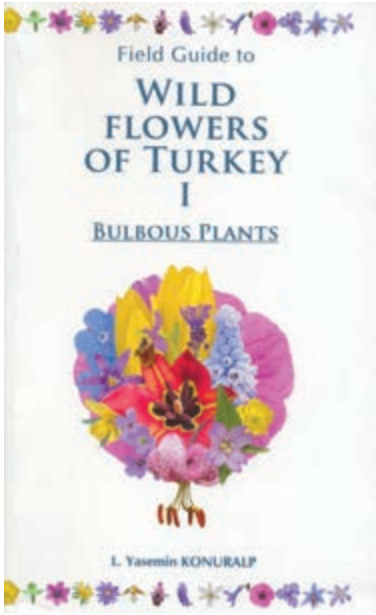
Our thanks go to all exhibitors, caterers and visitors who made the Perth show such a great success this year. Come again in 2015!

Cathy Caudwell

Facing top: *Ranunculas parnassifolius* 'Pink Form'
Below: *Clematis columbiana* var. *tenuifolia* 'Ylva'
Facing below: *Primula* hybrid


PRIMULA HYBRID
(3 WAY CROSS)
THE ORIGINAL HYBRID BEING AN AURICULA x PUBESCENS. FROM THIS CROSS, THE CHOSEN YELLOW SEEDLING WAS PAIRED WITH A P. MARGINATA WHITE HYBRID, RESULTING IN THE PLANT BEING SHOWN.

Field Guide to Wild Flowers of Turkey (1: Bulbous Plants)
L Yasemin Konuralp
480 pages, 263 plates
with 553 colour photos, b/w photos, b/w line drawings
ISBN: 978-605-89610-6-7
$50 including carriage from the author's www.wildflowertours.com



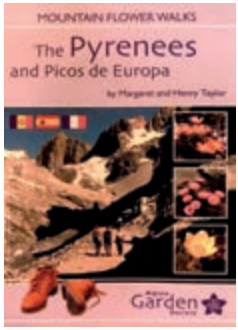
Miss Konuralp started professional life as a tour leader rather than a botanist. She has built up a considerable knowledge about the endemic wildflowers of Turkey, together with a large collection of beautiful photographs. She has produced this book, hoping to prevent the disappearance of native plant species in Anatolia - especially those that are endemic - by providing a wildflower field guide for both travellers and locals. She is to be heartily congratulated on the production of this handsome and profusely illustrated volume.

Although there are multiple photos to a page, the images are of a good size and there are often several views of a flower to help with identification. The photographs are excellent and the descriptions well-written and helpful, including information on distribution and habitat. In addition to the colour photographs there are a botanical glossary and a large number of line drawings clearly indicating the various parts of the flowers in question. The arrangement is by family and genus and there is a good index with Latin and Turkish names, and English names where appropriate. This volume actually includes some genera (such as Primula) in addition to bulbous plants and a second volume is planned for the near future. The book is small enough to be easily portable, although quite heavy because of the high gloss paper on which the photographs are printed.

Nobody who is interested in the flora of Turkey should be without this book.

Michael J B Almond

Mountain Flower Walks:
The Pyrenees and Picos de Europa
Margaret and Henry Taylor
256 pages, many colour photos
ISBN 978-0-900048-91-3
Alpine Garden Society £22.00
(members' price £17.60)



One of the more time-consuming matters in planning a mountain holiday is the work of collating all the useful information, on where and when to go and what to see, that resides in all the articles in rock gardening journals and other locations. For those of you who are thinking of a trip to the Pyrenees or Picos de Europa, your prayers are answered; it's all here in one concise and pocket-sized book. Margaret & Henry Taylor, who have visited these mountains many times over many years, have written the latest in the Alpine Garden Society's series *Mountain Flower Walks*.

In the introduction they say that the late Lionel Bacon, author of the 1979 *Mountain Flower Holidays in Europe*, gave them good advice on keeping detailed diaries of all their trips. What has now emerged is a summary of many of those diaries, and what useful information they contain!

Essentially, the book goes from east to west, first in the Spanish Pyrenees, then the French, followed by the Picos. Each of the thirty areas that are treated in detail has a general introduction, and information on accommodation, access and maps. Timing has a brief mention and there is a simple map of good sites within each area, accompanied by descriptions of how to get to them and around them, the special plants to look for, and the briefest of summaries for information at a glance. The book is well-studded with high quality photos of the plant gems, as well as useful pictures of mountains, tracks and sights of interest even extending to the local food.

Follow this guide and you'll be sure to have fantastic experiences of the Pyrenees and Picos, two wonderful mountain ranges. They may be just on our European doorsteps in modern travel terms, but they offer lots of surprises, and the Taylors' excellent pocket book will be invaluable in helping you to find them.

Ian Bainbridge

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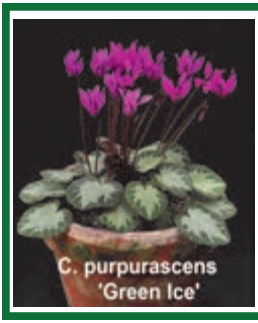

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SPECIAL OPEN GARDEN DAY

Ron & Susan McBeath invite all to their annual Open Garden Day on Saturday 6 September at their home, formerly known as Lamberton Nursery near Berwick

Open from 9 am to 4 pm, this is a unique opportunity to explore their stunning garden, refreshments available. Also present Pottertons Nursery and Macplants offering an extensive selection of alpines and bulbs for sale

A talk "Plants for the Autumn Garden" will be given by Gavin McNaughton starting 2 pm, in the village hall

The Fritillaria Group of the Alpine Garden Society

www.fritillaria.org.uk

Benefits include two newsletters each year and a seed exchange in August. There are also two meetings with speakers and plant sales.

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