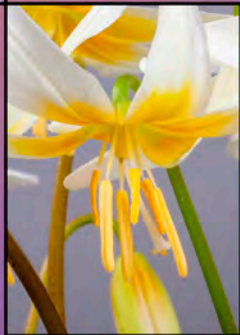
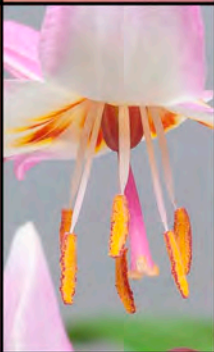
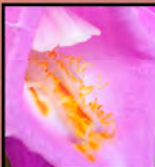
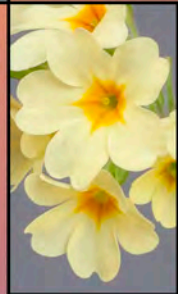
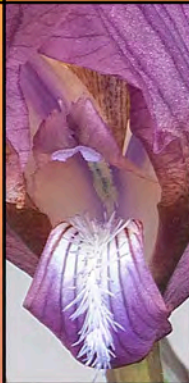
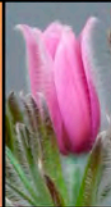
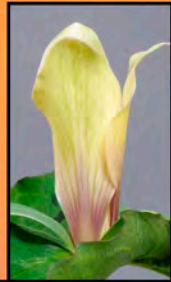


THE ROCK GARDEN 144



Postal Subscriptions from 1st October, 2019

Postal subscriptions are payable annually by October and provide membership of the SRGC until 30th September of the following year.

Subscription Rates	UK	Overseas
Single annual	£20	£25
Junior (under 18 on 1 st Oct)	£3	£8
Family (Two adults and up to two children under 18 on 1 st October)	£23	£28

Three year subscriptions are available at three times the above annual rates. Renewals for three year subscriptions may only be made at the end of the three year period.

All subscription payments to the club must be made in GB Pounds Sterling.

Cheques should be made payable to 'The Scottish Rock Garden Club' and must be drawn on a UK bank.

Subscription payments may be made through the post by Visa or Mastercard providing the following information is sent:

- The long number on the card
- The name of the cardholder as shown on the card
- The card expiry date
- The cv2 3 digit number (from back of the card)
- The cardholder's signature.

Visa, Mastercard and Paypal subscription payments may also be made via the secure order form on the Club's website at www.srgc.net

No card details whatsoever are retained by the Club after the transaction, whether sent by post or through the web site.

Applications for postal membership and subscription payments should be sent to:

Subscription Secretary
10 Quarry Avenue
Acklington
Morpeth
Northumberland NE65 9BZ
United Kingdom
Telephone: 07986 849364
Email: subsec@srgc.org.uk

Help your Club! There are vacancies for:

- Minutes Secretary (this year)
- Seed Distribution Manager (this year)
- Seed Packing Manager (from 2020)
- Subscription Secretary (from 2020)

Contact the secretary: secretary@srgc.net

Electronic subscriptions

Electronic subscriptions are available at £11 per year to individuals, valid from the date of payment. Payment may only be made via the web site using Paypal. No printed material is sent for such memberships. All journals and documents are made available for download from www.srgc.net as pdf files. Any seed exchange charges will be payable at the time of ordering via the web site.

Further information about this form of membership is available only at www.srgc.net (and not from the Subscription Secretary).

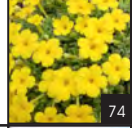
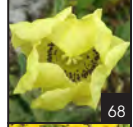
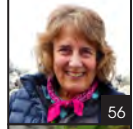
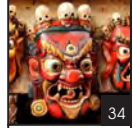
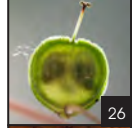
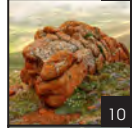
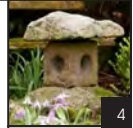
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The Journal of the
Scottish Rock Garden Club
January 2020

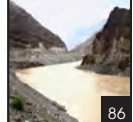
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The Editor welcomes articles, photographs and illustrations on any aspects of alpine and rock garden plants and their cultivation. Authors are encouraged to submit material electronically but articles may also be submitted in manuscript. Digital images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

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

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

Enquiries about advertising should be made to:

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Contact may also be made through the club website: www.srgc.net

The SRGC Discussion Weekend will be held at Grantown-on-Spey, 9-11 October, 2020

Friday 9 October 2020

- 15.00 Registration
- 16.00 – 17.00 Plant staging
- 18.00 Dinner
- 19.45 President's welcome
- 20.00 The Jim Archibald Bulb Lecture: Liberto Dario
'The Geophytes of Greece: tulips, fritillaries, irises and orchids – meet Greek beauties adapted to a harsh climate by half living underground'
- 21.00 Small Bulb Exchange

Saturday 10 October 2020

- 7.00 – 9.00 Breakfast
- 8.00 – 9.00 Plant staging
- 9.00 Optional activities
- 9.30 Guided walks in the area, organised by the hotel
- 12.15 Lunch
- 13.45 The Harold Esslemont Lecture: Adrian Cooper
'Growing Alpines and Related Plants in South East England'
- 14.45 Nick Courtens *'North American Alpine Plant Conservation Strategy, Seed Collecting in The Rockies'*
- 15.45 Tea and coffee
- 16.15 Geir Moen *'Propagation and Cultivation of Alpines'*
- 18.30 Drinks reception
- 19.00 Gala dinner
- 20.15 Presentation of show trophies
- 20.30 Plant auction

Sunday 11 October 2020

- 7.00 – 9.00 Breakfast
- 8.00 Show opens
- 9.30 The William Buchanan Lecture: Geir Moen *'European Treasures'*
- 10.30 Tea & coffee
- 11.00 Liberto Dario *'Olympus: the mythical mountain and its mythical plants'*
- 12.15 Lunch
- 13.15 Show closes
- 13.30 Nick Courtens *'Updates on the Betty Ford Garden, Vail, Colorado and how the SRGC has helped'*
- 14.30 The John Duff Lecture: Mike Dale *'A North of Scotland Plant Trail'*
- 15.30 Closing address
- 15.45 Tea & coffee

We have been able to retain the cost at £237 per person for the weekend for two persons sharing (see the Secretary's pages in *Dryas* for full price details and an order form). The preceding Thursday night or following Sunday nights are both available at £71-50 per person per night for dinner, bed & breakfast. Outside this period the Grant Arms will welcome your company at the normal rate.

Apply at registration@fireflyuk.net or to Peter Maguire, 18 Princes Meadows, Gosford, Newcastle-upon-Tyne, NE3 4AZ. Closing date is 31 August 2020, subject to availability. We look forward to seeing you in October 2020.



Perth
Plants
people

Preparations are well in hand for the decennial International Rock Garden Conference in Perth, Scotland, from the **8th to the 11th of May 2021**. All Alpine and Rock Garden enthusiasts will be warmly welcome at the Concert Hall in Perth to meet old and new friends and to contribute to a programme designed to inform, entertain and socialize. We invite you to attend this event to present and hear talks, enjoy plants, and chat to friends.

Perth is one of Britain's newest cities. It lies on the banks of the Tay, Britain's largest river. The city was awarded top prize and crowned *Champion of Champions* in the Royal Horticultural Society's (RHS) 55th annual *Britain in Bloom* community gardening competition. With river walks on the left bank that pass the Bellwood Heather Garden, and with mediaeval and Georgian parts, well stocked with cafes and restaurants, the city is attractive for visitors. Nearby are fine gardens with alpine and rock garden interest at Branklyn, Pitlochry, Clunie and Scone Palace, all led by active rock gardeners. Not far away are the botanical gardens at Edinburgh (RBGE), Dundee, Glendoick and St Andrews. May is a most attractive month here, usually with open weather and great variety of flowers and blooms. The conference will be held in Perth Concert Hall, the most modern in Scotland, and one with excellent facilities.

The conference starts with the International Plant Show in the Perth Concert Hall. There will also be photographic and artistic competitions and exhibitions. We expect great displays of plants from exhibitors and nurseries and hope that delegates will enjoy the day as much as we do. In the evening of 7th May we will gather for the introductory socializing of *The Big Bletcher*. In Scotland, when we *blether we chat amiably*.

Programme

Friday 7 May Evening

Saturday 8 May

Sunday 9 to Tuesday 11 May

The Big Bletcher

The International Plant Show

The Conference

Speakers so far include:

- Jiří Papoušek – Tufa and Alpines
- John Massey – Hellebores and Hepatica
- John Mitchell – 25 years of China
- Paul Spriggs – Crevice Gardens
- Johan Nilson – Himalaya
- Ian Christie – Scottish Alpines and Orchids.
- Ian Young – Bulbs in Cultivation
- Paul Cumbleton – South African Bulbs
- Robert Rolfe – Alpines in Cultivation
- Marcela Ferreyra – Patagonia
- Hamish Brown – New Zealand Alpines
- Anne Spiegel – Anne's Rock Garden
- Olga Bondareva – Russian Alpines
- Jim Jermy – European Alpines

Conference Dinner

The conference dinner will be held in the Concert Hall on Saturday Evening

Activities

We encourage delegates to apply at registration to give a short talk in the evening slots. The Committee will choose a selection according to space.

Booking

PDF application forms and payment details are available on the club website, by email from alpines2021@gmail.com or on paper in *Dryas*.

Accommodation

The conference fee pays for the conference talks, dinners, lunches and refreshments. Delegates are asked to make their own overnight arrangements. There is a wide variety of accommodation in the city.

Tours

Three tours are available to delegates:

Pre conference tours (Brightwater Holidays)

- Perthshire & RBGE, with Brian Cunningham
- RBGE, Perthshire and Dumfries & Galloway, with Colin Crosbie

Post-conference tour (Greentours)

- A tour to the Pyrenees.

Tour enquiries: Julia Corden (07976 849666 or julia.corden@icloud.com)

One Woman's Gardening Journey

Margaret Young

I started growing alpinines with my husband Ian in the earliest days of our marriage in 1972. We were not even Scottish Rock Garden Club members – journals came from a neighbour – but we always attended the annual Aberdeen alpine flower show, in those days held in the Music Hall. The plants we saw such as cassiopes and Asiatic primulas fascinated us. The combination of colourful flowers on these small plants that grew in challenging conditions high on the mountains of the world was irresistible and we wanted to grow them ourselves. We became members of the SRGC and began to exhibit plants at its shows around the country. We were mentored by the famous grower Harold Esslemont, who gave us plants and advice in equal measure. We had great success in showing; at one time we had nearly every trophy to be won at any of the club's events! The only ones we didn't have were for members specific to a local area outside our own. Stan da Prato, the current holder, tells me that we won the plantsman of the year salver for most first prizes, for seven years. One of the very positive features of the SRGC is that judges may enter at shows. We achieve this by working in teams of three; if a judge has a plant in a class a reserve takes over. Our thirteen shows and displays start in February in Dunblane and finish in October at our Discussion Weekend, held in 2019 and 2020 in Grantown-on-Spey. Ian and I served as judges in our turn, and as show secretaries at the Aberdeen show for over twenty years, although latterly we stopped showing our own plants. Today, the basis of our garden is growing interesting plants in an informal setting.





Across the Border

There has never been quite the same emphasis on exhibiting in Scotland as there is with the Alpine Garden Society in England (which we joined at the same time as SRGC). Even so, it was with Scottish assistance that some shows were established in the North of England and that spring shows in Blackpool / Kendal and Northumberland, and an autumn show in Newcastle, are now joint shows between SRGC and AGS. Many members who don't exhibit on the benches still look forward to seeing the plants, meeting friends and, along with the general public, buying plants and bulbs from specialist nurseries, something that is even more important nowadays as the horticultural trade is so dominated by a few large chains offering too limited a range of plants.

My friend Tim Ingram in Kent often writes about this ethos of showing over gardening. He is more of a gardener than an exhibitor and feels there is great importance in that. I agree – although Ian and I had great fun during our showing career, it is now more important to us to have a wonderful garden, where we can enjoy the beauty of our plants every day of the year. It seems better than following the arduous pattern of growing show plants and transporting them, and us, around the country. I may be getting too old, but there is some delight in turning over in bed on a cold spring morning, probably with frost and snow outside, and going back to sleep while others are getting up to drive hundreds of miles to the show. Nevertheless, I admit I enjoy seeing photos of the show plants on our interactive club forum and, increasingly, on social media.



Under Glass

In Scotland, winter may continue well into spring. Some of us enjoy glasshouses that give both grower and plants some winter protection, extending the season of possible pleasure. Here in Aberdeen, Ian and I now have mostly bulbs in our glasshouses, giving us a winter's worth of excitement from our winter and early spring flowering bulbs. We have three glasshouses – two at 2.4 x 1.8 m and one 3.6 x 1.8 m. To accommodate the wide variety and sheer number of bulbs, Ian now grows most in square 11 cm pots. Some parts of the greenhouses have been converted into sand beds where many bulbs grow happily and give a riot of colour early in the year. Cross pollination is frequent and Ian has experimented with hybridising, naming the best forms mostly after our local area; thus *Corydalis* 'Craigton Blue', 'Craigton Purple' & 'Craigton Red', *Erythronium* 'Craigton Cover Girl', *Fritillaria* 'Craigton Max', *Fritillaria pyrenaica* 'Braeside', *Narcissus* 'Craigton Clumper', 'Chalice', 'Chorister' & 'Gem' and *Tecophilaea* 'Craigton Storm Cloud'. Since January 2003 he has written for the SRGC website in his weekly *The Bulb Log*. The log, with its record of Ian's methods and musings, is eagerly anticipated and read by many. It has been joined by videos where Ian strolls around the garden, chatting about the plants that take his eye – another way of sharing our garden with others.

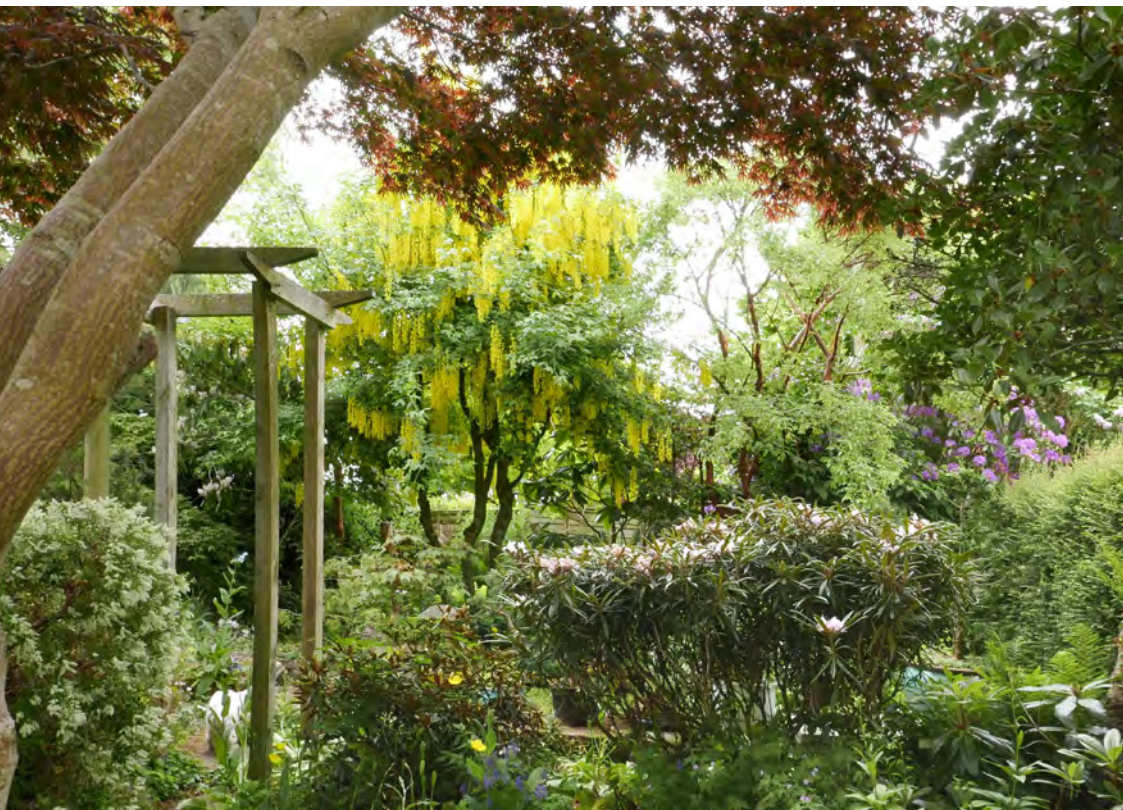
In our Garden

Here in our two-thirds of an acre in Aberdeen we have a quite densely planted woodland garden, with numerous trees, large shrubs and rhododendrons, under-planted with a range of woodland and moorland plants. Our passion is to have a garden that is more of a landscape than a plant collection. Our thinking

even extends to the driveway, where we encourage plants to seed themselves for a natural effect. Over the 45 years we have been here some things have had to be cut back or even removed, which gives us opportunities to develop other ideas. We have some scree beds, sand beds and lots of troughs in which “our” kinds of plants lend themselves to being grown in pretty much any way you like. The key is to have fun while you find ways to make the plants happy and so provide yourself with more pleasure from them. Ian is well known for developing the method of turning polystyrene fish boxes into troughs that mimic the appearance of real stone. The SRGC has won many gold medals and “best in show” awards at national shows such as *Gardening Scotland* by using these troughs. The method has been taken up widely, with demonstrations of the technique being given by alpine groups across the UK, in New Zealand, Canada and America.

The Value of Seed

We grow most of our plants from seed. The SRGC and other clubs are vital in this, since it is often only from such sources that seed of many plants is available. There are specialist seed suppliers, in the same way as there are specialist nurseries, but it is mostly through membership of our clubs that one finds out about them. The seed exchanges are vital in building a network of friendship and knowledge. Growing true species from seed produces naturally vigorous plants and avoids the gradual weakening that has affected so many well-known garden cultivars vegetatively propagated over generations, a problem that is acute with many bulbs. Plants that survive with you when grown from seed are self-selecting for your own conditions and will grow better – no small advantage.





Electronic Communication

It used to be said that shows are the shop window of our gardening hobby and of the professional trade. However, several local shows no longer take place and in some cases the clubs behind them have folded, even at a time when gardening TV is so popular. Most of us in Scotland are frustrated by the limited coverage on our TV channels compared to the wall to wall coverage of Chelsea and other RHS shows south of the border. However, technology offers us answers, and the SRGC set up its website (www.srgc.net) in about the year 2000. This provides information on our seed exchange and on grant aid for students and travellers, as well as the more obvious routine details of our shows and meetings. The website has been a home for the SRGC's interactive forum since 2001. The forum is open to all (with one section reserved for registered forum members, who need not be full SRGC members) and it has become a place where a huge amount of information is shared and made available to the wider world. The forum currently has almost 400 thousand posts in fifteen thousand topics by four thousand members! As I write, only one third (about 1800) of members of SRGC lives in Scotland – we are truly an international community of plant lovers.

The SRGC was one of the first clubs to digitize its printed journals and make them accessible to all on our website. It is a guiding principle to share information to educate and encourage an interest in alpine and rock garden plants and a quick glance at the website will show just how seriously we take that project. Ian is passionate about erythroniums and has published his book *Erythroniums in Cultivation* on the website, where it may be downloaded free of charge. Beside the weekly *Bulb Log*, we have created an e-magazine, the *International*

Rock Gardener (IRG, which I edit), provided free each month since 2010. This has proved hugely popular, bringing many thousands of readers to the site and to learn about our club. We have contributions from the IRG and for the forum from a very wide range of gardeners and growers: descriptions of how to make garden features; advice from specialist growers; accounts of explorations in the wild; and descriptions of new species. There is so much interest in Nature, the plants of the wild and wonderful places of the world. The SRGC happily shares information with many sister organisations, such as the AGS in England, NRV in Holland, VRV in Belgium, KSP, the Rock Garden Club of Prague in the Czech Republic, and the North American Rock Garden Society. I spend much of my time each day working voluntarily for the SRGC on such projects as compiling a photo database of plant seeds, the Jim Archibald Archive (a rich resource of material commemorating the late plantsman and seed collector), the IRG, and the forum. This has enabled Ian and me to share our passion for plants with friends around the world – and our garden is shared on the internet to a huge audience that we could never manage to welcome personally to our little paradise.

A Changing World

I hope that organisations like the SRGC, the AGS, the Caley and all others will continue for many years yet. These groups are invaluable in preserving our horticultural heritage, currently suffering from public spending cuts that have badly hit our public parks and their ability to train new generations of gardeners. Appreciation of plants in gardens and wild places is an important way to teach the public about the beauty and fragility of our natural world. If our clubs can help in that, as well as making our homes and gardens happier places then yes, it is good!

We, our friends and the SRGC are always looking to the future. The next milestone on our botanical journey is being planned by the SRGC, already well advanced with plans for the International Alpine Conference to be held in Perth in Scotland in May 2021.





An Alpine Garden in the Tien Shan

Frazer Henderson,
Blaž Muhič and Nuraiym Syrgak

The morning started with weak sunshine, then drizzle, followed by a blustery wind, heavy rain, sleet, snow, continuing with afternoon sunshine, more drizzle, thunder, hail, and finally a still cool evening: all making a typical summer's day in the mountains surrounding Kyrgyzstan's highest lake, Song Kul.

At an altitude of 3016 metres, Song Kul lies within the central Tien Shan range between the Song Kul-Too (north) and the Moldo-Too (south) subordinate ranges. This endorheic (one with no outflows) lake is about 18 km wide and 29 km long but is shallow with a maximum depth of only 13 m. Its name has many meanings but perhaps *The Last Lake* is the most appropriate, given its isolation in an alpine plateau surrounded by high mountains traditionally only visited by herders engaged in transhumance during the months of June to September. In more recent years, visitors – mainly birdwatchers, botanists and intrepid travellers – have taken the opportunity to enjoy the hospitality of enterprising shepherding-families with their sparse and temporary yurt settlements along the lake's grass-flushed shoreline. Huge flocks of native Alai, Kyrgyz and Romanov





sheep as well as goats numbering in the thousands ensure that the rich *jailoo* – summer pasture – of the plateau is kept well cropped, although unfortunately denuded of interesting vegetation. However, very occasionally, a few Frog Orchids (*Coeloglossum viride*), blue-grey *Pulsatilla campanella*, pink *Pedicularis alatauca* and bright white-pink *Astragalus nivalis* are left unmolested. Because of the climate there are no trees along the shore or in the mountains; indeed, the vegetation beyond the plateau is largely restricted to geophytes and low growing, ground-hugging mats or small saxatile plants.

On the lake, water fowl such as Mallard (*Anas platyrhynchos*), Tufted Duck (*Aythya fuligula*) and Great Crested Grebe (*Podiceps cristatus*) – all species familiar to those of us from Europe – serenely go about their business while, overhead, lively Black-headed Gulls (*Chroicocephalus ridibundus*) and Common Terns (*Sterna hirundo*) noisily demonstrate their aerobic prowess and ability to annoy a small flock of Bar-headed Geese (*Anser indicus*) which have travelled from the Indian sub-continent to breed in their Kyrgyz summer grounds. On the south shore and along muddy inlets small numbers of summering Ruddy

Allium atrosanguineum on Song Kul





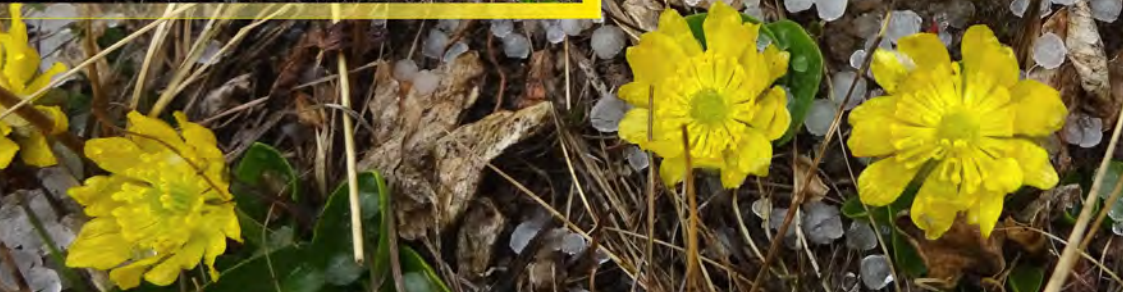
Aster alpinus



Viola kunawurensis (syn. *V. tianschanica*)



Oxygraphis glacialis





Song Kul's natural scree garden

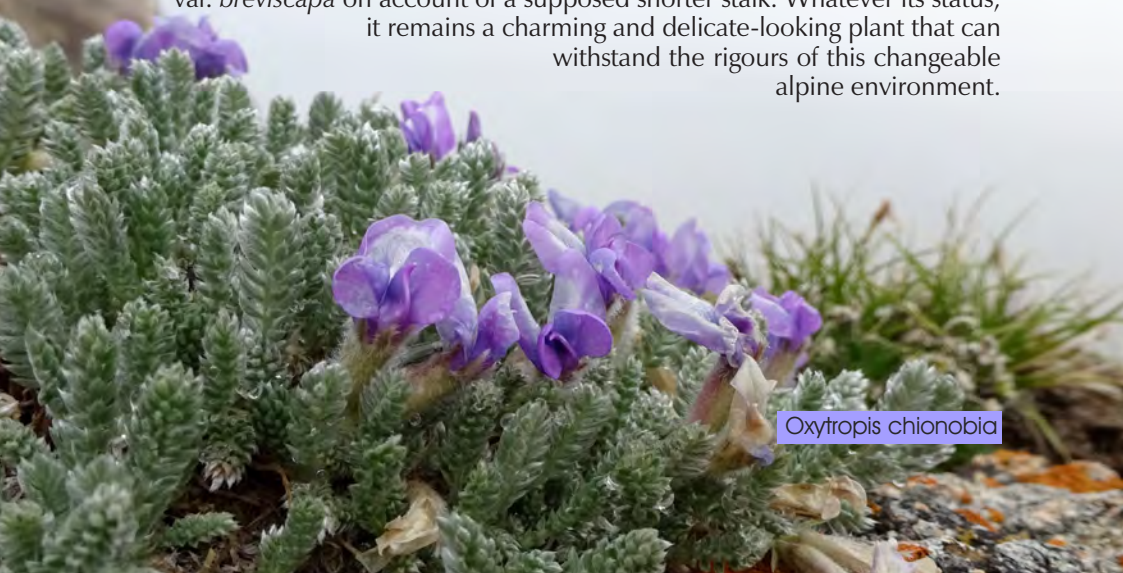
Shelduck (*Tadorna ferruginea*) and Black-tailed Godwit (*Limosa limosa*) prospect for food.

A number of seasonal snow-melt streams spill across the thin turf of the granitic mountain range of the Moldo-Too down towards the lake and, in the broader and damper areas small hairy Kyrgyz cattle graze. Their dung provides what grass needs – phosphate, potash and nitrogen. The vegetation in these moist flushes tends to contain, in addition to grasses, a wider range of plants including high concentrations of the reed *Juncus macrantherus* with its yellow clustered flowers and the blood-red *Allium atrosanguineum*.

In broader areas between ridges, the alpine meadows are spangled with *Trollius dschungaricus* interspersed with the Central Asian Edelweiss, *Leontopodium ochroleucum*, blue *Viola altaica*, *Gentiana karelinii* and the occasional *Primula algida* as well as short-stemmed and intensely blue *Aster alpinus*. In other areas, where grass is sparser and there are more surface stones, grow *Oxygraphis glacialis*, sporadic specimens of *Morina parviflora*, a yellow and white form of *Pedicularis oederi* with a dark brown galea (the hooded or helmeted part of the flower), *Anemone narcissiflora* ssp. *protracta*, the yellow-flowering *Saxifraga macrocalyx*, an intermittent distribution of *Tulipa dasystemon* and, in view of its attractiveness and altitudinal location, the aptly named *Callianthemum alatavicum*.

On the rocky and lichen-encrusted outcrops that burst through the lower slopes, *Rosularia* species eke out an existence on the fissures, as does the charming *Viola kunawurensis* (syn. *V. tianschanica*). At the base lie the attractive lousewort *Pedicularis violascens*, white-flowered and especially hairy *Eritrichium villosum* as well as starry *Androsace septentrionalis*, though there is some conjecture that in this region this well-known annual is in fact a distinct species – *A. fedtschenkoi*, supposedly distinguished from *A. septentrionalis* by virtue of a much larger corolla. Some authorities contend, however, that *A. fedtschenkoi* is a synonym for *A. septentrionalis* var. *breviscapa* on account of a supposed shorter stalk. Whatever its status,

it remains a charming and delicate-looking plant that can withstand the rigours of this changeable alpine environment.



Oxytropis chionobia



Anemone narcissiflora ssp. *protracta*



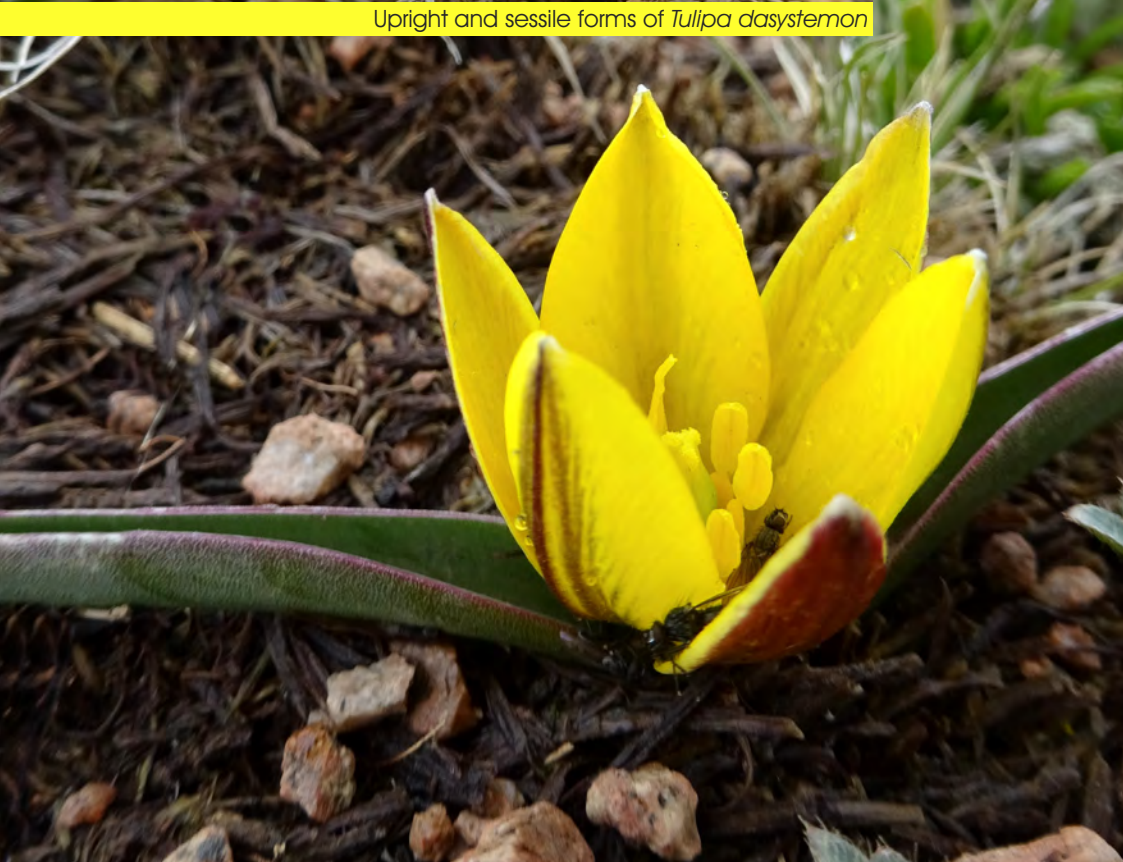
Pedicularis oederi



Saxifraga macrocalyx



Upright and sessile forms of *Tulipa dasystemon*





Chorispora songarica

Moving to the higher elevations of the Moldo-Too where the rock outcrops are more substantial, a wider range of saxatile plants is found,



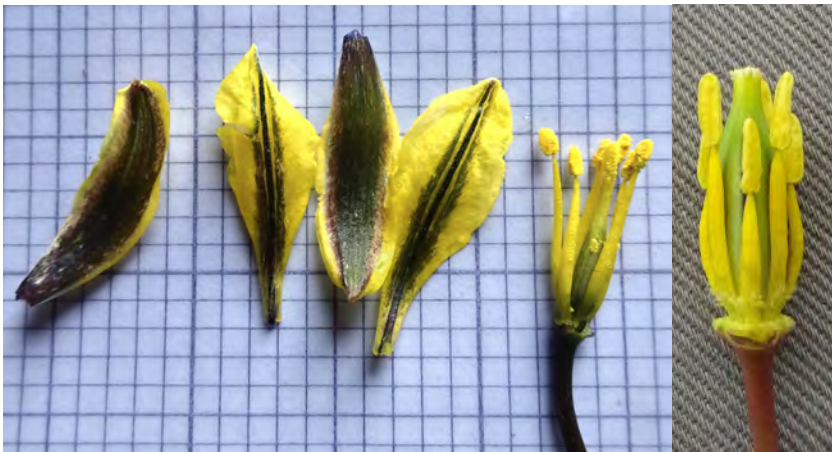
Chorispora bungeana



Trollius lilacinus

including *Oxytropis chionobia*, *Androsace sericea* with its white flowers with a yellow eye and a yellow or bright heraldic-red surround, as well as the blue-violet flowers of *Dracocephalum paulesenii*.

In areas of scree or bare earth, either close to rock outcrops or where land slips have occurred, the plants are seemingly arranged in well-spaced assemblages in a manner that no gardener could better. Some of these small screes contain yellow-flowering *Chorispora macropoda*



Tulipa heterophylla tepals & sexual parts; variable stamens on *T. dasystemon*



Pedicularis ludwigii near Tash-Tuulga

(or could it be *C. songarica*), attractive blue *Oxytropis chionobia*, *Smelowskia calycina* with its white flowers held in racemes of 10-15 cm, magenta hippocampus-like inflorescences of *O. microsphaera*, and the large purple-flowered *C. bungeana*, commemorating the Ukrainian botanist Alexander von Bunge (1803-1890) who described much of the Tien Shan flora, including the two aforementioned *Oxytropis* species, in 1874.





Primula algida

Breathless from the exertion and altitude, one is left breathless by the beauty of these plants, in weakening sunshine, against the deepening red-orange hue of the sabulous soils. While the plants clench the alpine ground against the elements, Gldenstadt's Redstart (*Phoenicurus erythrogastrus*), three species of Wheatear and the Horned Lark (*Eremophila alpestris*) flit with ease between the rocky outcrops.

Over a ridge on a south-facing slope within a large patch of grassless ground are hundreds of low-growing *Tulipa dasystemon*, their blooms rarely more than 5 cm high. Indeed, some even lack a stem of any appreciable length and rest just above prostrate leaves. We may only presume that this is an adaptive feature to the harsh climatic conditions. It is interesting to note that the species possesses stamens



Juncus macrantherus

of markedly different lengths, with the three that align with the inner tepals being noticeably longer than the others. This is in marked contrast to *T. heterophylla*, which has even-length filaments. It also possesses, unlike other species within the genus, a flower that has both nodding or horizontal habit together with a distinct waist about one third up the inflorescence. In some of these 'scree gardens' the two species grow and flower together. There is substantial variation in flower colour of *T. heterophylla*, with the outer tepals being in every hue within a spectrum from muddy purple to lime green. Variable flower colour is a common and, occasionally, frustrating feature of the *Tulipa* genus.

Returning to the yurts on the Song Kul shore via a different valley, the snow-covered ground sparkles with the translucent aquamarine of *Trollius lilacinus*, another species described by Bunge as long ago as 1835. Above, a soaring Himalayan Griffon Vulture (*Gyps himalayensis*) captures the eye before the onset of hail which falls heavily and quickly enlivens a field of *Oxygraphis glacialis* and *Aster alpinus*.

At the south-eastern end of the lake at Tash-Tuulga is a number of stone circles, each consisting of eight round stones. Tash-Tuulga, which translates as *stone hearth*, refers to the place where Manas, the hero of a traditional epic poem, together with his warriors ate horse meat boiled in huge cauldrons upon the stones. Though the poem may be an accurate record of history, archaeologists consider the stone circles as memorial monuments from a much earlier period, dating back to first millennium BC and therefore a feature of Scythian culture. Close to the stones are Broomrape, *Pedicularis ludwigii*, *Androsace sericea*, a pink *Hedysarum* species and appropriately – coming full circle after a long day in the field – the Frog Orchids - *Coeloglossum viride*.





Song Kul: *Smelowskia calycina* on rock outcrops. This image is supported by a generous donation from two new SRGC members





Pteridophyllum racemosum:
A Beautiful but
Tricky Subject

Peter Williams

I suspect that most gardeners with a passion for shade-loving plants would be tempted by *Pteridophyllum racemosum* if it appeared on a stall at a plant fair or conference. I saw this beautiful Japanese woodland poppy for the first time at the annual general meeting of the Hardy Plant Society in 2015 and just had to buy one, despite the price tag of £16.

After admiring the sheer beauty of the potted specimen for a couple of weeks, I forced myself to plant it into a woodland bed. It established satisfactorily but failed to survive its first, quite unexceptional, winter in the 'wild'. The post-mortem investigation began with the excavation of the corpse but revealed little except a small brown mass of dead tissue – cause of death unknown. The inquest continued online and my findings suggested that the species was considered by many to be a true diva – beautiful but difficult to please, and temperamental. There were reports that plants frequently died without apparent cause or were devoured by slugs and snails and rarely, if ever, set seed.

Before my first specimen had been officially declared dead, I had decided that this species was just so attractive that I would try to establish a small colony in my woodland garden. I thought that I would grow new plants from seed to reduce the cost, but obtaining seed proved impossible. It did not appear in plant society seed exchange schemes, or on lists produced by specialist alpine or woodland seed companies. Even images of seeds and seedlings were very difficult to find on the internet. I contacted a couple of well-known nurseries that supply this subject and both told me that their plants were produced by division and were imported from Japan. They also said that they had either not been able to get seed, or had had no success with seed.

I decided to obtain my new plants directly from Japan and, with some trepidation, opened an internet payment account, ordered, paid in advance in Yen, and waited anxiously for five plants to arrive. I need not have worried: the plants arrived beautifully packed in late January 2016, just a week after ordering. The cost was surprisingly low considering it

Washed roots of Japanese plants



Emerging shoots in the glasshouse



included the price of the plants, the cost of root washing (because soil may not be imported into the UK), health certification from the Japanese Ministry of Agriculture, Forestry and Fisheries, and packaging & transport. Even with all these charges, the cost per plant was significantly lower than the price I had paid for my first, short-lived, specimen.

On arrival, I potted the plants into a 1:1 mixture of ericaceous compost and coarse perlite and transferred the pots to a frost-free glasshouse. Within three weeks, new leaves began to appear and in late March 2016 I planted a group of three specimens into a very shady north-west facing woodland bed that receives just a short period of late afternoon sun in mid-summer.

The plants thrived. They increased in size, flowered well and, despite receiving no special winter protection, have returned each year for the past three years. Indeed, in mild winters they remained rather scruffily evergreen. Flowers are usually apparent as the new foliage emerges in late March or early April, and flowering is at its peak in late April or early May.



- Shoots & flowering stems, early April
- Full flower, early May
- Underwater, early April



In both early and mid April 2018, the bed where the pteridophyllums were growing was flooded for several days. This coincided with the rapid growth of the plants and I feared the worst. However, this immersion had no ill effects and the plants flowered better than ever, going on to produce mature seed for the first time. In previous years I had looked expectantly for seed but none had appeared. Unlike most poppies, *P. racemosum* has an ovary with two ovules and hence just two seeds can be produced from each flower.

In early June 2018, it was apparent that some seed had formed and I removed the flowering stems when the lowest flowers started to shed their seed. I placed the cut stems in paper bags and allowed them to air-dry for a few days before carefully screening the contents and isolating the seed. Three plants produced about seventy seeds that were shared with fellow enthusiasts.

I retained thirty seeds and sowed them immediately either into my standard compost, (80% fine peat, 20% grit sand and 1 gram per litre of 5-6 month, Exact Mini, slow-release fertiliser added at the time of sowing) or into the soil near the parents in a protecting plastic ring. This latter technique is one that I frequently use with my trilliums – a 70 mm length of 110 mm diameter



Capsules developing two seeds





Pteridophyllum racemosum seeds

plastic pipe (standard sewer pipe) is pushed or hammered into the soil near the parent plants. Seed is gently stirred into the soil surface and protected with 5 mm galvanised mesh held in place with a nylon wire-tie to exclude small mammals and large invertebrates. This system allows the seed to experience natural conditions whilst being easy to find and protected from careless hoeing. Obvious weed species that germinate in the circles are carefully removed as they develop.

The potted seeds were kept in the shadiest part of a cold and well-ventilated glasshouse, kept moist by an occasional watering. Seedlings began to emerge in February and I got quite excited at the prospect of having a crop of young pteridophyllum plants. I examined the pot enthusiastically with a small hand-lens, at least daily, and became even more excited when the first true leaves appeared and were somewhat lobed. Doubt then crept in. I began to suspect that the seedlings were a little smaller than the seed size might have indicated and they also looked worryingly familiar, and indeed they were. After a few more days of observation, I realised that they were not pteridophyllums but common birch that had blown in from nearby trees! My hopes had rather clouded my judgment, at least temporarily. In early March 2019, far more promising seedlings emerged. These had ovoid distinctively notched cotyledons and, after six weeks, the first fern-like true leaves developed to confirm that these were indeed pteridophyllum seedlings.

Distinctive notched cotyledons and the first fern-like true leaves





Small plants in mid-June with three true leaves

The germination rate was very high (eighteen seeds from twenty sown) and all survived their pricking-out. The young plants had formed two or three fern-like leaves by mid-June and, as each leaf developed, it supported more lobes than its predecessors. When weeding near the parent plants in June 2018, I looked to see if there were any self-sown seedlings and I found a small number. These I


initially left to develop *in situ* but they became so very heavily shaded by their parents and adjacent plants that I decided to lift and pot them in an attempt to increase their chances of survival.

I also examined the area inside the plastic ring where I had also sown seed. At first, I saw nothing that looked like pteridophyllum seedlings. Closer scrutiny revealed four tiny plants (from ten sown seeds) that were clearly the desired species. The true leaves were very small and I observed that the cotyledons were missing or damaged in all instances and had probably proved attractive to small grazing invertebrates. The loss of food reserves stored in the cotyledons was probably the cause of the small seedling size. I have left these seedlings in place because they are not heavily shaded and I will monitor their development over the coming year. In this instance, successful germination was higher for pot sown seed (90%) than soil-sown (40%).

Transplanted seedlings were grown in 9 cm square pots filled with a commercial low-nutrient nursery ericaceous compost. Half were planted in late July into the woodland beds in situations similar to those of their parents and the others were kept in a cold, shaded and very well-ventilated glasshouse, as insurance. The wisdom of this last act is questionable because I do not find growing this species in pots at all easy. The

The camera is used to reveal self-sown seedlings *in situ*





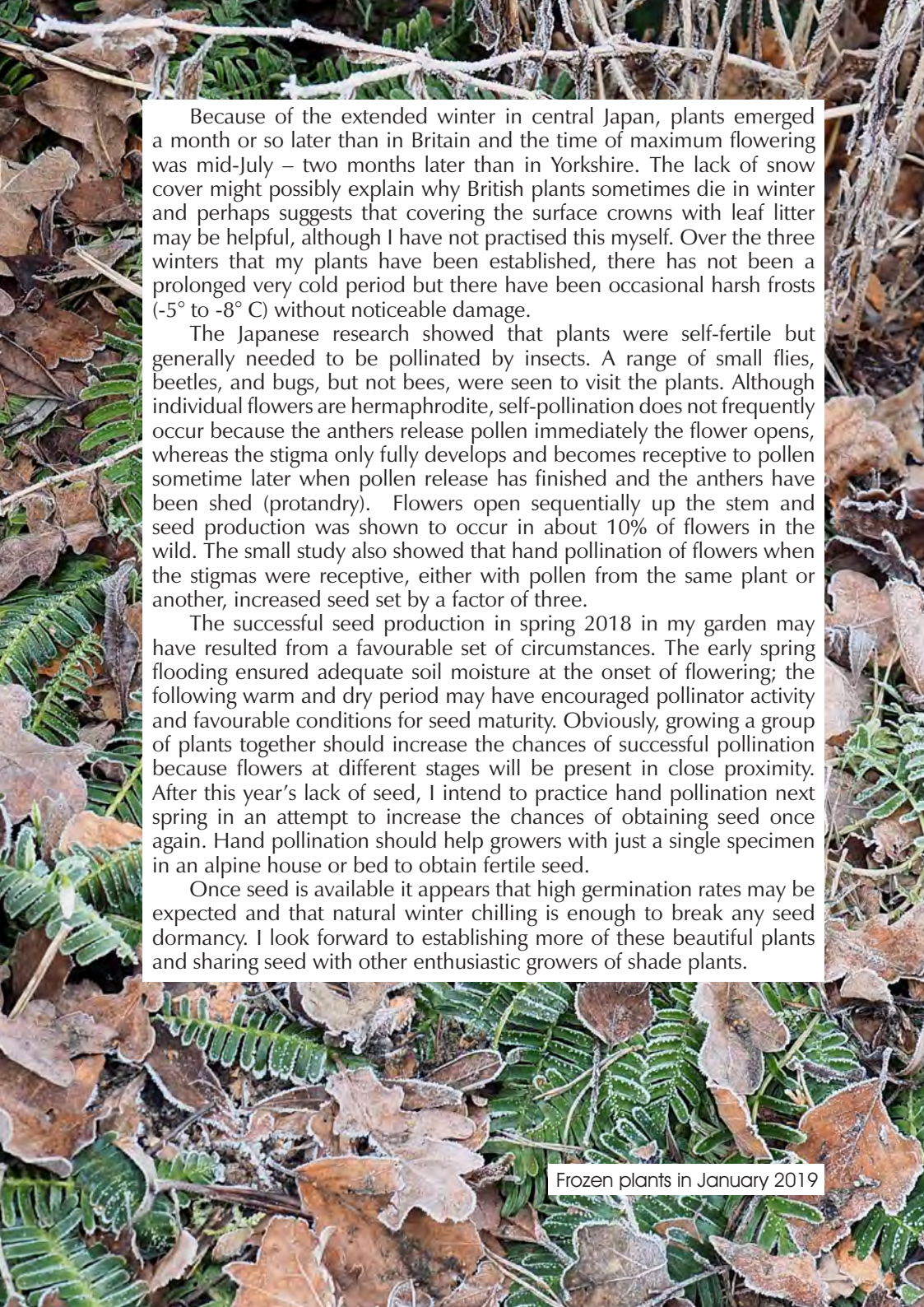
A very small plant in the protective ring, with the cotyledons missing or damaged.

remaining two plants from my first order and others obtained in subsequent years from Japan have grown variably in pot culture. Some appear to thrive whilst others in the same compost, and growing in the same shady conditions, 'sulk' and lose their leaves in late summer. Although they usually reappear in spring, they do not grow as well as plants established in the garden. I have tried a range of composts from purely organic to largely mineral and various proportions of the two, but have not established a mixture that appears to suit all plants – the diva factor perhaps!

The excellent growth of the species for three years and the production of fertile seeds last year suggest that the soil and other conditions in my garden are suitable for *Pteridophyllum racemosum*. This year (2019), the plants flowered well but produced no seed. Perhaps the different weather conditions are responsible. In 2018 the spring was very wet and then warm and dry, and 2019 has been the exact opposite.

To try to understand why this species has proved generally difficult to grow in Britain and why seed-set is so unusual, I consulted the scientific literature. Some possible insights are provided in a fascinating research paper on the breeding system of *Pteridophyllum racemosum* in a sub-alpine, mature *Abies* forest in central Japan (Ozawa M, Kudoh H & Kachi, N (2001) Breeding system of *Pteridophyllum racemosum* Sieb. Et Zucc. (Papaveraceae). *Plant Species Biology*, 16, 237–239). The study plants grew at an altitude of just over 2400 m where the annual rainfall was between 1500 and 2000 m. Between December and March, the plants were often under snow cover and emerged with the snow-melt. Flowering began in June and peaked in July.

The growing conditions described in the natural habitat were therefore cool, permanently moist and heavily shaded; the local environment experienced by my plants was fortuitously very similar. Although my soil is a shallow and very acid silty loam (pH 5.5) that is prone to surface drying, there is a clay horizon at approximately 80 cm that helps maintains sub-surface soil moisture levels despite the low annual rainfall (620 mm) in East Yorkshire. The flooding in April 2018 that so troubled me might actually have been beneficial and possibly simulated the snow-melt period in Japan. The low pH and surface dryness also serve to deter the slugs that appear to be problematical for other growers.



Because of the extended winter in central Japan, plants emerged a month or so later than in Britain and the time of maximum flowering was mid-July – two months later than in Yorkshire. The lack of snow cover might possibly explain why British plants sometimes die in winter and perhaps suggests that covering the surface crowns with leaf litter may be helpful, although I have not practised this myself. Over the three winters that my plants have been established, there has not been a prolonged very cold period but there have been occasional harsh frosts (-5° to -8° C) without noticeable damage.

The Japanese research showed that plants were self-fertile but generally needed to be pollinated by insects. A range of small flies, beetles, and bugs, but not bees, were seen to visit the plants. Although individual flowers are hermaphrodite, self-pollination does not frequently occur because the anthers release pollen immediately the flower opens, whereas the stigma only fully develops and becomes receptive to pollen sometime later when pollen release has finished and the anthers have been shed (protandry). Flowers open sequentially up the stem and seed production was shown to occur in about 10% of flowers in the wild. The small study also showed that hand pollination of flowers when the stigmas were receptive, either with pollen from the same plant or another, increased seed set by a factor of three.

The successful seed production in spring 2018 in my garden may have resulted from a favourable set of circumstances. The early spring flooding ensured adequate soil moisture at the onset of flowering; the following warm and dry period may have encouraged pollinator activity and favourable conditions for seed maturity. Obviously, growing a group of plants together should increase the chances of successful pollination because flowers at different stages will be present in close proximity. After this year's lack of seed, I intend to practice hand pollination next spring in an attempt to increase the chances of obtaining seed once again. Hand pollination should help growers with just a single specimen in an alpine house or bed to obtain fertile seed.

Once seed is available it appears that high germination rates may be expected and that natural winter chilling is enough to break any seed dormancy. I look forward to establishing more of these beautiful plants and sharing seed with other enthusiastic growers of shade plants.

Frozen plants in January 2019



Annapurna Circuit 2012

Liam and Joan McCaughey

Our first encounter with the Himalayas was in March 1977, when we walked up to the Annapurna Sanctuary from Pokhara, on a purely trekking trip – this was just after Nepal had begun to open to trekkers. We had not then developed our subsequent interest in alpine flowers, and indeed were too early for them to be at their best. However, we were able to see some magnificent displays of rhododendrons. That trek took us up the valley of the Modi Khola river, toward the southern aspect of the Annapurna massif, with the spectacular peak of the “fish-tail” mountain, Machupuchhare, on the right. Behind these mountains, to the North, the valley of the Marsyangdi river separates Annapurna from the ranges further north and east. The Annapurna trail follows this route.

The first western exploration of the flora of the upper Marsyangdi valley was in 1950. Colonel D G Lowndes was the botanist on an expedition organized by Major Bill Tilman who, with keen climbers in the party, made several high altitude treks, one taking them over the 5600 m Mustang La to the Kali Gandaki gorge, returning by the Thorung La (*The Geographical Journal* 117:263 1951). Lowndes meanwhile remained in the valley, his base camp being at Braga, at around 3600 m, and he explored high into the side valleys but, from his account (*Bulletin of the Alpine Garden Society* 22:215, 313 1954), he does not seem to have gone up as far as the Thorung La.

Ron McBeath spent a month in 1983 above Manang and published a detailed account of his findings (*The Rock Garden*, 75:185 1985). Then in 1988 Christopher Grey-Wilson led the first AGS expedition to Nepal (*Bulletin of the Alpine Garden Society* 57:242, 352 1989), his party trekking and exploring the valley in detail – both these expeditions went up to but not over the pass. Since then, the Annapurna Circuit has become one of the great high-altitude treks of the world. There seemed to have been no botanical expedition in the interval, and in 2012 John Birks decided to remedy this. We were invited to join a small party

Gangapurna
sunrise



to follow the trail up the valley and over the 5416 metre Thorung La, while recording the botany we encountered.

Somewhere we read *“Only mad botanists and lovers of leeches go trekking in the monsoon”*, so of course we set off at the end of June, just as the rains were moving in. Our group met in Kathmandu, flying in from Norway, England, Ireland and Canada. Kathmandu had changed a lot since 1977 – bigger and more chaotic, the population having increased fivefold in the interval, and this was before the earthquake in 2015 that caused so much damage and loss of life. We checked into the Shangri La Hotel and then met our Sherpa team, led by Phu Tashi.

A day in Kathmandu was long enough to repack into waterproof kitbags, which our porters would carry, and for a trip downtown to remind ourselves of the culture, but not enough to visit the temples of Durbar Square nor the magnificent Buddhist stupa and temple complex of Swayambhunath (Tibetan, *Sublime Trees*) which had fascinated us previously.

Our trek began a hundred miles west, from Besisahar near the bottom of the Marsyangdi valley, which we reached after a long bus journey along crowded winding roads. Although at 760 m, this village is lower than Kathmandu. This was the end of the motor road, and we began walking along the Marsyangdi river. We were fortunate in comparison with the earlier botanical parties who had to walk from Dumre, about 35 km lower down the valley, and we had the advantage of excellent steel suspension bridges that now cross the rivers. Here and for the next three days we saw local people working in the fields, preparing for the planting of rice. The natural flora was semi-tropical too – orchids included *Arundina graminifolia*.

Our route divides naturally into two phases, with the village of Manang at 3400 m marking the change from low or moderate altitudes to a high-altitude trek. About halfway along the first phase, the route up the Marsyangdi valley swings west and enters the rain-shadow of the

Arundina graminifolia



Annapurna massif. From Besisahar, we followed the valley north, gaining altitude and making distance for the first few days. While preparing for the trip, we had read all we could about the problems of altitude and the theory of acclimatisation to this. What we had not taken seriously was the heat and humidity met at lower altitude. This was exhausting and we all were constantly drenched in sweat, and quite dehydrated by the end of each day. In retrospect, especially with Grey-Wilson's account, we should have anticipated this problem. There were leeches, too; some of the party applied a traditional Sherpa remedy, which was particularly ineffective, but we had taken advice from Martin Walsh, and sprayed DEET on our boots and gaiters.

The trail follows the Marsyangdi river rather closely and in places we were more in it than beside it! Work was going on to extend the motor road, but we followed the old track. On the fourth day we lost our leader – John had to turn back, defeated not by altitude but by the heat & humidity, and returned to Pokhara to botanize in cooler valleys on the way to the Annapurna Sanctuary. This was particularly disappointing, as he along with Hilary had planned and organized the whole expedition. Chris and George rose to the occasion and assumed the leading rôle.

Lilium nepalense





Calanthe tricarinata



The flora was still low-altitude, including arisaemas – *A. tortuosum*, *A. griffithi*, *A. costatum*; orchids – *Ponerorchis chusua*, *Calanthe tricarinata*, *Oreorchis micrantha*; Pedicularis – *Pedicularis bicornuta*, *P. scullyana*, *P. longiflora* var. *tubiformis*; and much more (including half a hillside of *Cannabis sativa* – maybe a reminder of the hippy days of the sixties). We spotted a perfect but solitary *Lilium nepalense* growing in the open pine forest by the track; it was rapidly surrounded by photographers. As we climbed, we passed the local families hard at work – the men forming terraces and ploughing with bullocks while the women planted out the rice seedlings. Elsewhere, a group was winnowing while our porters passed by. Their loads look heavy enough but, if carrying for trekkers, are regulated – not so those carried by others, and we wondered how they manage with sixty kilos or more on a headband. When we asked our Sherpas, the answer was depressingly simple. By the time these people reach the age of forty, they are physically worn out, and hand over to the next generation. Across the river at one point, we could see honeycombs attached below an overhang on an inaccessible cliff face. Apparently inaccessible, as you will have seen film of the intrepid harvesters who climb up and brave height and bee stings for the honey.

The Annapurna Trail is very popular with trekkers, and in the peak season (not the monsoon that we had chosen), groups of trekkers, around fifty at a time, move from hotel to hotel, essentially spaced a day's trek apart. Food is plentiful but, rather than traditional, is very much tailored to western taste – and of course everything must be grown locally or be



Epipactis royleana

brought up by porters or mules. The accommodation is basic, as would be expected, but rooms often have an en-suite toilet, though showers were communal. Some of our group, who had been to Nepal previously and camped, said they preferred that – but free camping is not practical on such a heavily used trekking route. We would set off early in the morning around six, break for lunch and a sorely needed rest around eleven, and complete the day's trek around three in the afternoon. This being a digital age, there would then be competition for the scarce charging points for camera batteries.

Over the next few days, we trekked steadily onward, at times encountering gangs working to take the motor road further up the valley. The flora was interesting, although still subalpine. Some of the most attractive plants included *Anemone demissa* (a different form from Ron McBeath's, which grows higher up), *Calanthe tricarinata*, *Clematis vernayi*, *Dicranostigma lactucoides* – a beautiful delicate horned poppy, *Epipactis royleana*, *Iris goniocarpa*, *Pedicularis longiflora* var. *tubiformis*, and a pretty little orchid, *Ponerorchis chusua*, growing in the same damp conditions as *Primula tibetica*.

On the eighth day of the trek, we reached Manang, at 3540 metres, where the Marsyangdi valley turns west, from where we began our acclimatisation to high altitude. From here on, the flora was becoming more alpine. Nature has other interesting things at this altitude – that



Above: *Anemone demissa*

Below: *Anemone demissa*, rose-pink form





Above: *Primula tibetica*

Below: *Dicranostigma lactuoides*





Clematis vernayi

evening as we ate in the hotel, our lead Sherpa showed us a jar containing a caterpillar that had been invaded by *cordyceps* fungus. This is used in traditional medicine to treat a wide range of ailments and sells for \$20-\$80 per gram (average Nepalese monthly household income is about \$50), so harvesting them is very worthwhile.

Iris goniocarpa



Ponerorchis chusua



To avoid altitude sickness, the recommendation is “climb high, sleep low”, so the next day, July 4, was up to Khansar (3756 m) and back to Manang, and on day 10 we continued to Yak Kharka at 4018 m. This was the pattern for the next stages, gaining around 300 m a day. With this gentle progress, no-one had any problems with altitude, although the low oxygen pressure certainly made walking more tiring. From here on, the flora was becoming more alpine, and the following day as we trekked up past Khansar to Yak Kharka (4035 m) the count included *Androsace muscoidea* forma *longiscapa*, *Androsace strigillosa*, *Anemone demissa*, *Anemone rupicola*, *Corydalis juncea*, *Dicranostigma lactucoides*, *Eriophyton wallichii*, *Lancea tibetica*, *Onosma bracteata*, *Pedicularis cheilanthifolia* ssp. *nepalensis*, *Primula munroi* (*involuta*), *Primula sikkimensis*, *Rhododendron lepidotum*, *Scutellaria prostrata*, *Spongiocarpella* species, *Stellera chamaejasme* and others.

The views across the valley to Gangapurna would be spectacular in the usual trekking season, but not so in the monsoon, and the snow peaks remained covered in cloud. We continued slowly upward through the villages on the route. The people here are Buddhist, and along the way we passed wayside chortens, being careful to go in a clockwise direction. *Chorten* is the Tibetan word for these structures,

Pedicularis longiflora var. *tubiformis*





Androsace muscoidea forma *longiscapa*
Scutellaria prostrata



Primula munroi
Base camp at Thorung



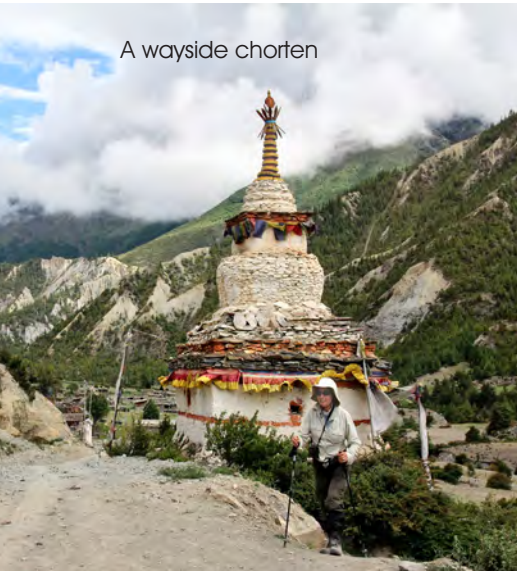


Stellera chamaejasme
Androsace strigillosa



which contain relics, and elsewhere may be called stupas. There are also prayer flags fluttering over the path, and prayer wheels to be spun (clockwise) to send prayers up to heaven. As we trudged slowly up from Yak Kharka and back, and then next day on to Leder (4450 m), we found our first blue poppy, *Meconopsis bella*, mostly in a deep blue colour, but occasionally purple-tinged, growing through low-growing scrub that included *Rhododendron lepidotum*. Two other attractive small hanging bells were those of *Lilium nanum* and *Fritillaria cirrhosa*.

The skies remained cloudy, with the heights obscured, so that we were denied the spectacular views to be seen in the main trekking season. Our picture of *Aster diplostephioides* on the slope above Leder shows typical weather (the small group of buildings in the distance includes our 'hotel'). We searched this slope, finding *Rheum moorcroftianum* by a tumbling stream, and with *Androsace strigillosa*, *Inula*



A wayside chorten



Aster diplostephioides



Meconopsis bella
Rheum moorcroffianum



Fritillaria cirrhosa



hookeri, *Polygonatum hookeri*,
Gymnadenia orchidis, *Morina*
polyphylla, *Androsace lehmannii*,
A. muscoidea longiscapa and
Thermopsis barbata.

Now, nearly two weeks into the trek, we felt we were becoming acclimatised and, leaving Leder, we trekked up to Thorung Base Camp at 4540 m. This is very well equipped, and we were met at the entrance gate by a notice proudly announcing "Electric heater in dining room; Fresh bakery items; Horse and Porter service; Satellite telephone; Continental/ Italian/ Nepali cuisine; Hot shower; Rooms with attached toilet; Happy Trails !!" All this was



Meconopsis horridula

true and, having arrived at midday, we lunched in comfort before going on up the slope to 4750 m and back to camp. On the way up to Base Camp, the flora was excellent, there was the second blue poppy, *Meconopsis horridula*, in an electric blue tint that doesn't seem to happen in gardens, and a second highlight was the pink anemone. Ron McBeath in 1985 described "a superb form of the widespread *Anemone demissa* ... with bright rose-pink petals" and he surmised that of all the plants in the Marsyangdi valley, this would make the greatest impact in our gardens, if introduction were successful. Unfortunately, it has not been introduced and we were delighted to find it, still spectacular, at 4500 m.

Rhododendron lepidotum continued in patches on the slopes, and there were composites – *Aster himalaicus*, *Cremanthodium arnicoides*; several *Pedicularis* species – *P. mollis*, *P. cheilanthifolia* ssp. *nepalensis*, a brilliant pink *P. siphonantha*; *Eriophyton wallichii*, *Delphinium roylei*; and two primulas – *P. sharmae* and *P. buryana*. Joan particularly wanted to find the latter, as reading Howard-Bury's account of the *Mountains of Heaven* had led to our visiting the Tien Shan a couple of years previously.

After our lunchtime rest, the group botanized up the slope, almost to Thorung High Camp, before descending again. Phu Tashi, our Sherpa leader, had suggested that we change plans and go over the pass next day, rather than sleep at High Camp. The weather was fine, if cloudy, and he worried that, if it deteriorated, our very lightly clad porters might be in danger. Unlike ourselves and the Sherpas, some of the porters were still wearing only light T-shirts and the danger was real.



Primula buryana

But so is the danger of altitude sickness, and we elected to continue our 'trek high, sleep low' routine. This afternoon as we ascended another 210 m to 4750 m, some real alpine gems appeared – including two almost black-leaved plants, *Soroseris glomerata* and *Corydalis latiflora*, as well as *Cremanthodium purpureifolium* with its patchily purple and green leaves, *Lagotis kunawurensis*, *Parnassia kumaonica*, several androsaces and saxifrages, and also the blue of *Meconopsis horridula*.



Next morning, we repeated this pattern, climbing up past Thorung High Camp to 5000 m, botanizing as we went and returning in the afternoon. Highlights began with the beautiful

Soroseris glomerata





Above: *Corydalis latiflora*

Below: *Cremanthodium purpureifolium*





Lagotis kunawurensis

Primula wigramiana just below the buildings and then higher up were three saussureas – *S. graminifolia*, *S. simpsoniana* and *S. tridactyla*, also a number of small cushion plants, *Androsace muscoidea*, *A. zambalensis*, *Potentilla microphylla* and *Silene nigrescens*. At lunchtime, as we rested in the restaurant (despite its name, High Camp consists of substantial stone buildings), Phu Tashi had us each write our name on a prayer flag and he then put these fluttering in the breeze to ensure our safe ascent and crossing of the pass next day – and this was not a tourist gimmick.

In the morning, we were breakfasted and on our way by five, before the sun had begun to fall on the peak of Gangapurna. At last we had a view of the high mountains! With a long climb and then a long descent, we paid little attention to botany until we reached the summit. It is pretty barren up here, so we added little to the list, except for a striking *Rhodiola himalensis* ssp. *himalensis*. We reached the pass just before nine and posed for our group photo – Hilary deservedly in front, flanked by Chris & Joanne, and behind standing Liam, Joan, Liz, Sheena, George & Sue, along with our Sherpa guides (the porters had gone ahead and were by now well down the other side).

There now began the descent to Muktinath, 1700 metres below us, and a completely different environment, dry in the shadow of the peaks. Before we began to descend steeply, there were a few new high-altitude plants along the track, including *Androsace muscoidea* forma



Primula wigramiana

longiscapa, *Anaphalis nepalensis* var. *monocephala*, *Trollius farreri*, *Androsace lehmannii* and *Primula sharmae*. As we descended, we met trains of mules coming up the shorter steep slope laden with supplies for the trekkers' hotels. Muktinath is a holy site for both Buddhists and Hindus, and pilgrims come up from hundreds and thousands of miles away. We next had a rest day and visited the main temple, with time to buy an ammonite from a stallholder as evidence of the origin of the Himalaya in the ancient oceans, before continuing the two day trek to the airport at Jomsom. Here it was time to say farewell to Phu Tashi, Ang Nuru and the rest of our team of Sherpas, who had looked after us so well and got us safely over the summit. We had become friends and come to a better understanding of the tough lives and courage of these mountain people. From Jomsom, the Sherpas and porters continued by surface transport, while we westerners

Saussurea tridactyla



Saussurea graminifolia



Rhodiola himalensis

flew – rather nervously, for the air is thin, the runway short (with a bump like that in aircraft carriers), and the wreckage of an aircraft that hadn't made it three months previously was visible from our hotel. All went well, however, and we arrived safely down to Pokhara and to a reunion with John in our hotel. After a day to relax and tidy up, it was a short flight back to Kathmandu, with just time to look again at the ancient temples, statues and cultural mix of the city.

The dry rain-shadow of Annapurna, looking west towards the Daulaghiri massif





An afterword - Two years later, in 2014, the area above Manang where we had walked so happily was the scene of a massive blizzard, and the death of many people, both trekkers and local inhabitants. Hearing of this, we felt very much in sympathy with them, and appreciated how lucky we had been on our expedition. The Sherpas and local porters so often put themselves at risk to look after first-world travellers and we should remember that, for us, trekking and botanizing in these high mountains is a privilege.



Group photo on the Thorung La: Hilary in front, flanked by Chris & Joanne and, standing, Liam, Joan, Liz, Sheena, George & Sue, along with our Sherpa guides. The porters were by now well down the other side





Wildflowers of Nepal's Melting Glaciers

Elizabeth Byers



As the planet warms and Himalayan glaciers melt, a small miracle is taking place. On the boulders and rubble exposed by melting ice, pioneering wildflowers are colonizing the new land. This is an extreme environment with essentially no soil and with freezing temperatures much of the year. The substrate shifts unpredictably as boulders settle and the underlying ice melts. Living on the edge of biological possibility, these extraordinary flowers are not just hanging on by a thread – they are thriving, sometimes extravagantly. These species have special adaptations to deal with the challenging environment, such as long elastic roots, wind-proof exteriors, and an array of special enticements to attract scarce pollinators. Many of the flowers are valuable in Tibetan medicine or as incense, but these are rare specialist species and should be enjoyed by visitors with camera and eyes only.

The melting Ngozumpa Glacier, taken from Gokyo on May 13, 2018. Bright turquoise meltwater ponds in the distance are direct ice-melt. In the foreground, paler milky blue or tan-colored ponds are connected to underground streams that funnel meltwater through the “Swiss cheese ice” of the glacier. The milky colour comes from glacier-ground silt, also known as rock flour. Rubble melted out from the ice covers every exposed surface of the glacier. The glacier ice underneath the rubble is still thick, perhaps one hundred metres in thickness, but riddled with holes and tunnels. The elevation of the glacier here is 4750 m, which is well below the rising equilibrium melt line in the eastern Himalayas.



I have been exploring the glaciers of eastern Nepal for forty years with my husband Alton Byers, a mountain geographer whom I met while climbing Island Peak in 1980. We are climate-change witnesses who have seen the ice literally crumble beneath our feet. Rivers of ice that we used to cross with crampons and ropes are now either lakes or treacherous piles of boulders and shifting rubble. If the rubble is thin on top of the glacier, its dark surface absorbs the sun and the glacier underneath melts rapidly. When the rubble reaches a thickness of about one metre, the rock begins to act as an insulator, protecting the core of ice from the heat above, and the rate of melting slows but does not stop. Streams of water run below and through the melting glaciers in a complex system of meltwater ponds, tunnels and underground pools. I think of them as Swiss cheese glaciers, or Emmental ice if you are a gourmet. In the winter, these underground streams can back up behind temporary walls of ice (think of the thin membranes of cheese between holes in an Emmental), only to burst out in the spring, causing flooding downstream. I experienced one of these terrifying floods first-hand and caught it on

Delphinium glaciale Hook.f. & Thomson, Glacier Larkspur, Ngozumpa Glacier, 22 August 2017. Range: Himalaya (Nepal to Bhutan). Elevation: 4800 - 6000 m. Often confused with more widespread *Delphinium brunonianum*, which has larger and less dissected leaves. The aerodynamic profile helps protect against high winds. The juice is useful in getting rid of ticks on livestock.

video in 2016 (<https://eos.org/articles/glacial-outburst-flood-near-mount-everest-caught-on-video>). All in all, the shifting and debris-covered glaciers of eastern Nepal are not habitats hospitable to life.

And yet, these primary screes of shifting rocks that have not seen the light of day for millennia are not barren. You might expect the slow breakdown of rock by lichens, occasional mosses tucked into moist crevices, and a few windblown spiders to be the sum total of life. But this is not so. Some uniquely adapted wildflowers that normally find their home on the coldest of alpine talus slopes are expanding into the new habitat with abandon.



Berberis angulosa (left) and *Rhododendron lepidotum* (facing bottom), native shrubs with fairly broad distributions, are moving into the high alpine zones and may potentially replace the cold-adapted alpine specialists *Berberis tsarica* (below) and *Rhododendron nivale* (facing top).





Alpine plants in eastern Nepal face the same challenges as those elsewhere. Their habitat is shrinking toward higher altitudes. They are crowded out by generalist species that are better competitors. The first stage of this process is often what appears to be an increase in diversity as generalist species move into the areas that used to be the sole domain of plants especially adapted to surviving in cold temperatures. Then, the cold-adapted alpine plants begin to diminish. One sign of this in eastern Nepal is the migration of the generalists *Rhododendron lepidotum* Wall. ex G Don and *Berberis angulosa* Wall. ex Hook.f. & Thomson into the high alpine, where *Rhododendron nivale* Hook.f. and *Berberis tsarica* Ahrendt used to reign supreme.





In the Himalaya, there is still plenty of land in the alpine zone but much of it is increasingly vertical. The lower alpine zone (approximately 4100 to 4700 m) contains many high valleys and flatter moraines where alpine plants continue to flourish, but generalists are now starting to respond to the reduced cold stress. Above 4700 m are the mostly vertiginous mountainsides of the high alpine zone. Here the tongues of glaciers offer tantalizingly gentle slopes as ice transforms to rock rubble. Thus, it is a joy to see that the newly exposed debris on the glacier surfaces is fair game for at least a few of the high alpine species that can cope with shifting substrates, lack of soil, and refrigeration from the ice core below them.

Photographing these glacier wildflowers is a thrill, but not everyone's idea of fun. There is the long walk in, typically six to ten days of hiking on rain-drenched trails. The altitude of the debris-covered glaciers,



Senecio albopurpureus Kitam.,
Scree Ragwort (Ngozumpa
Glacier, 17 August 2017).
Range: Himalaya (Nepal,
Sikkim, Bhutan), South Xizang
(Gyirong). Elevation: 2600
- 4600 m. This bright yellow
flower has long underground
stems (rhizomes) that put
out lateral shoots and allow
it to hold on to the shifting
substrate. The leaves of this
plant are intensely fragrant.



Saussurea tridactyla Sch.Bip. ex Hook.f., Snow Lotus, Changri Glacier, 22 August 2017. Range: Himalaya (Nepal, Sikkim, Bhutan), South Xizang. Elevation: 4500 - 5800 m. Dense cottony hairs provide insulation from extreme cold and wind in the harsh alpine environment. Like many alpine plants, this species grows slowly over many years. It is much threatened by over-harvesting for medicinal uses.

Saussurea gossypifera D. Don, Snowball Plant, Ngozumpa Glacier, 18 August 2017. Range: Himalaya (Garhwal to Bhutan), S. Tibetan Plateau, Southwest China (Yunnan). Elevation: 3500 - 5700 m. This unusual plant has a fascinating adaptation to encourage pollination in a zone where flying insects are few. The cotton-like hairs weave together, leaving a small hole at the top for pollinators to enter, where they find a little insulated "room" with purple flowers for a floor. Here the insect can enjoy a respite from the outside cold, wind and rain while it pollinates the flower. This plant is considered sacred by Buddhist lamas, and is used as *lupje* - incense for the nāga deities.



Following Page: *Saussurea simpsoniana* (Fielding & Gardner) Lipsch., Cotton Lotus, Khumbu Glacier, 23 August 2017. Range: Himalaya (Kashmir to Bhutan). Elevation: 3800 - 5800 m. This plant insulates its upper parts with densely woolly hairs and a rounded upper surface to funnel the wind overhead. This species is threatened by over-harvesting for medicinal use. The whole plant is used to treat boils. 🍁







Stellaria decumbens Edgew., Alpine Stitchwort. Barun Glacier, 6 August 2014. Range: Himalaya (Kashmir to Bhutan), Tibetan Plateau, West China. Elevation: 3200 - 5000 m. This mat- and cushion-forming perennial is listed in the *Guinness Book of Records* and elsewhere as the highest altitude plant species in the world at 6135 m; but A F R Wollaston awards the honour to *Arenaria bryophylla* at 6180 m in the multi-author book *Mount Everest, The Reconnaissance*, 1921. In 1935, Eric Shipton collected *Saussurea gnaphalodes* at 6400 m on his attempt of Mount Everest from Rongbuk, and discovered a species nearby new to science at that time, *Lepidostemon everestianus*. The French botanist Cédric Dentant recently identified plant fragments collected by Albert Zimmermann during the 1952 Swiss expedition to Mount Everest. These plants were growing in rock crevices in the western cwm at 6350 m and Dentant thus added two more species to the list of contenders for highest known vascular plant: *Saxifraga lychnitis* var. *everestianus* and *Androsace khumbuensis*.

from 4500 to 6000 metres elevation, plays havoc with human lungs and brains. There is a lot of empty treacherous rubble to cross for each great find. Ice caves yawn and small avalanches cascade into frigid meltwater. The glaciers feel dangerously alive, shifting, with streams rushing underneath. It is the monsoon and, while the rains are soft at these high elevations, it is still likely to be raining or snowing. But the lure of finding one of these beauties! It is the best, most humbling, wondrous

Facing: *Arenaria glanduligera* Edgew. ex Edgew. & Hook.f., Gland-bearing Sandwort, Ngozumpa glacier, 16 August 2017. Range: Himalaya (Garhwal to Bhutan), Tibetan Plateau. Elevation: 4100 - 5100 m. Tucked into rock crevices, this small fragrant loosely-cushioned wildflower shelters from wind and cold. It is adapted to shifting screes with its branched roots.

Previous page: *Waldheimia glabra* (Decne.) Regel, Smooth Ground Daisy, Mingbo Glacier, 30 August 2017. Range: Pamir-Altai, Chitral, Karakoram, Himalaya (Kashmir to Bhutan). Elevation: 4100 - 5400 m. This aromatic plant tucks itself into cracks between rocks to escape the cold winds. The Sherpa name *chupó* means water incense. In Sherpa culture, dried plants are used to give a pleasant fragrance to stored blankets or clothing. In Rai culture, shamans make a paste from the root and put it in an amulet to protect against evil spirits and sickness. 🍀





Facing: *Oxyria digyna* (L.) Hill, Mountain Sorrel, Ngozumpa Glacier, 18 August 2017. Range: Europe, West and Central Asia, Himalaya (Kashmir to Bhutan), Tibetan Plateau, Siberia, West China, Japan, North America, Greenland. Elevation: 2400 - 5000 m. This panarctic-alpine plant is a familiar sight to plant-lovers who have hiked in the European Alps, North American Cascades or Sierra Nevada ranges. Leaves are eaten raw or cooked, or given to livestock as fodder. The leaves are high in both Vitamin C and oxalic acid. All parts of the plant are used in the treatment of dysentery. Note the yellow *Senecio alboburpureus* sheltering among the leaves.

feeling to see their bright cheerful faces beaming up the from bleak rock. Thriving amidst the cataclysm of climate change, how can there not be hope in the world?

I like to look at flowers the way a pollinator might, from close-up and at ground level. So, if you are out hiking the glaciers around Mount Everest, Makalu or Kanchenjunga and you see a body happily sprawled on the ice or tucked into a rock crevice, come say *Hello!*



Elizabeth Byers is currently building an app for smartphones and tablets to showcase over 500 species of wildflowers, flowering shrubs and trees of Sagarmatha (Mount Everest) National Park. The app will include a picture-based key and ethnobotanical or ecological lore for each species. The app will be offered on Google Play and the Apple Store in May 2020.

The Garden in the Sky: Schachen Alpengarten

Connor Smith



ne cold Scottish day in Perth, I was sitting with my former boss from America and his wife in a lovely warm French restaurant. The *Beast from the East* (a large-scale anticyclonic storm that delayed the season and brought much snow) had just passed. I had longed to see a small nearby garden and, with darkness upon us, I decided to phone there and chance my luck to arrange a visit that night. A very kind lady answered and informed me that the head gardener lived on site and was happy to show us round. We were met with a figure holding a torch in the darkness – our guide. The light bounced from the whites of the *Galanthus* and the cinnamon undersides of rhododendrons. The gardener told us a story of a garden in the Bavarian alps where he had worked as a young man under one of the great alpine gardeners, Dieter Schacht. Since then, Jim Jermyn – now at Branklyn Garden – and I have stayed in touch and Jim has become a good friend. The story of the garden in the sky stayed with me. A year passed before I encountered the Merlin Trust, which offered the chance to work at the garden for up to three weeks. I jumped at the chance.

Few Alpine gardens have attained the fame of the Schachen over its 118-year history. Although well respected, an air of mystery surrounds it and few have made the journey south of Munich. The three-hour drive south to Garmisch-Partenkirchen begins the trip to one of the most remote gardens in the world. This hidden oasis can only be accessed on foot along the forestry trails. The three-hour hike makes it even more special to reach the garden at 1860 metres. It sounds daunting, but the wanderer is rewarded with rich surrounding flora. On my ascent, *Saxifraga mutata* was in full flower. The flower spike reaches a height of 40 cm with orange flowers painted on green stars. They grew either in groups with the next generation's rosettes or as individual plants on steep and exposed hills. *Saxifraga caesia* and *Campanula scheuchzeri* could be found clinging onto rock crevasses. *Prenanthes purpurea* may be found on the grass road verges; its graceful arching stems along with *Aquilegia atrata* both flower in a vivid purple. As the vegetation changed from the forestry plantations of *Picea abies* into the native *Pinus cembra*, I found a small attractive plant that I have longed to see in Scottish *Pinus cembra* woods: *Moneses uniflora* grew in well shaded mossy topsoil. I was surprised by its diminutive stature, only five to ten mm, as in photos it has always appeared larger. This small pendulous flower hangs low to the grass, nodding its approval as you plod on towards the Schachen.

Meconopsis integrifolia ssp. *souliei*

The Schachen

I was met at the Schachen by Jenny Wainwright-Klein, the Zambian-born horticulturist who has been at the botanic gardens of Kirstenbosch, Kew and now Munich. Jenny has been on many collecting trips to Lesotho – the most recent co-funded by the SRGC and Hamburg Botanic Garden – to the Caucasus, and to German native plant areas. Thomas Heller, an experienced horticulturist, greeted me. He has excellent knowledge of the surrounding vegetation and the sites of the most prized plants. He attributes his cooking skills to the necessary purchase of food supplies two weeks at a time at the Schachen. Kenton Seth, a fellow worker from Colorado, had joined a week or so prior, to learn additional skills as he paves the way for crevice gardens of the future.

Jenny and Thomas have been working for the last 26 years or so during the twelve weeks that the garden is open. They have tremendous knowledge of the garden past and present, the area and the plants. The garden was started in 1901 by Botanischer Garten München Nymphenburg and is very close to King Ludwig's Schachenschloss. His name may sound familiar because he was responsible for building many palaces in Germany, most notably the palace featured in Disney's famous emblem. The surrounding area is filled by native meadows with mountains (Alpspitze, Zugspitze and Kreuzeck to name a few) on either side.

If you asked most gardeners what their most-used gardening tool is, most would reply along the lines of secateurs, a watering can or a trowel. At the Schachen, you prepare for battle. You are armed with a pickle (a pickaxe for the very stony beds), a hackle (a metal hook perfect for getting into the small gaps between the rocks to unearth weeds), and a small knife to deadhead plants swiftly to contain their spread.

It is difficult to pick only a few plants from a garden that contains gems from all over the world and to do them justice. *Primula* is a well-represented genus and out of the many beautiful plants, if I had just three, I would first choose *Primula involuocrata*. It was collected in the wild by the great Dieter Schacht. Its elegant habit of pure white flowers and notched petals is enticing. In the same subsection of *Sibirica* growing close by is *Primula yargongensis* with pink to mauve flowers and deeper lobes. *Primula reidii* (var. *williamsii*, a smaller robust form) is another wonder from north-western Himalaya, brought to the Schachen by Jim Jermyn in the 1990s. Although it is thought to be monocarpic, or at least very short lived, it has been successfully over-wintered in some areas; it is always prudent to keep seed. The final choice (despite mentioning more than three) is down to timing. I missed the different types of *Primula clusiana* in flower by being later in the season so I must mention *P. sikkimensis*, specifically the white form *Primula sikkimensis* var. *hopeana*, often with a cream to pale yellow centre. *P. sikkimensis* var. *pudibunda* is also in the garden but is said to be more difficult to grow as it requires stricter alpine conditions than the other sturdier members.

For an additional account, please look at *The International Rock Gardener* 121, January 2020

The genus *Meconopsis* has a proud tradition in my home country of Scotland. Many remarkable cultivars have been grown and originate here in the moderate climate for such Himalayan plants. The Scottish climate and passion for these plants is shared with the Schachen. I am always proud when I see how well our wee country has done, walking past *Meconopsis*. 'Huntfield' in all its glory, a plant obtained by Allan Jamieson in the Scottish Borders. *M. integrifolia* ssp. *souliei* stayed in flower for my duration at the Schachen (two and a half weeks), much longer than the type species. It is more difficult to grow than its woodland edge cousin, *M. sulphurea*, but is equally as beautiful. The lovely enveloped yellow flower makes it difficult to photograph the beautiful dark stigma. Perhaps some work could be done to breed in the reflexed characteristic to further display the floral parts of the species – like the chosen parent – as does *Narcissus cyclamineus* for many daffodil cultivars. *M. balangensis* var. *atrata* is a stunning flower, dark purple from growing in iron-rich soils. *M. racemosa* is a lovely light blue that shades deeper in colour toward its centre, with crinkled petals and deceptively sharp stems. A deep blood-red flower of a possible *M. staintonii* also joins this group, although we are not entirely convinced in this categorizing, because of frequent hybridization and the introduction of many coloured forms as *M. napaulensis*. Regardless, it is a lovely not-so-blue poppy.

Much to the surprise of many visitors, the beloved *Gentiana lutea* comes in other colours and not just the characteristic blue that we have grown to love. Despite the reluctance to include the Yellow Gentian with the rest of the 'better-looking' family, it has been adored by herbalists for years (some even say since the second century BC). The fact it can be made into an alcoholic drink is a great asset of botanical interest. The bitter taste reaches dizzying heights, while its appearance resembles something from a wizard's cupboard. The plant itself is a good addition to an herbaceous border, where it typically reaches one metre. I have seen slightly taller in the moist meadows that it frequently inhabits. Propagation by seed is advised as the root does not divide or transplant well. Despite having read that the roots reach thirty cm, having tried to dig them out as they sporadically form clumps in the wrong places in the garden, I can testify that they can easily reach one metre in length.

As much as I adore the dainty little *Campanula pulla*, it poses a danger to its neighbours. Having adapted to strong competition in its native habitat it easily becomes rampant in the rock garden. It is strongly advisable to contain its spread because its thread-like rootlets will find home in any available space in the garden regardless of soil type. This should not put you off growing this reliable species; its little violet coloured bells are a wonder to see as it meanders in and out of the yellow potentillas and *Primula yargongensis*. Another of the reliable genus is the monocarpic (meaning it dies after flowering) species *Campanula thyrsoides*. It differs from the smaller blues of the typical campanula with its tall spike of tightly

packed cream-coloured flowers rising to a height of thirty cm. *Campanula barbata* is a mix of both; it has the height of *C. thyrsoides* and the typical blue bells on an elegant stem.

Jenny collected *Moraea alpina* in the wild in Lesotho in 2013. High altitude ultra-violet light at the Schachen makes its colour more intense. It grows in basalt rock soils in its native lands, which are kept wet through frequent and nearly daily thunderstorms. Its early summer emergence suits the short growing season at the Schachen. The flower lasts only a day, but multiple flowers appear for around ten days. Seed at the Schachen is sown at 18° C, after which germination should take about four or five weeks. Interestingly for me, it flowered during the day (a nice prize at the end of lunch) with the leaves unlike *M. stricta* – which flowers before the leaves.

Nomocharis seems to be a plant that keeps on giving. Regardless of which one of the ten or so species you have chosen, it tends to result in a stunning plant. Downward-facing flowers of *Nomocharis oxypetala* were tucked in one of the Himalayan beds. Its pink shade with a light white streak through the centre of the petal is accompanied by the pink and white speckling individual to every plant. *N. aperta* is the other highly variable plant that seems to change its patterning from white with pink blotches to light pink with deeper blotches.

It sounds odd to mention weeds when talking about a garden, but bear with me, because the Schachen has no ordinary weeds. It is surrounded by a protected nature reserve and lots of native flowers creep in. Although considered a prized ornamental practically everywhere else, such beautiful plants as *Lilium martagon* must be removed. *Gymnadenia conopsea*, a native orchid, has sown itself in and among plants throughout the garden. Looking at the roots reveals a swollen hand for a root system.

Castilleja elmeri is a member of the Orobanchaceae family (a parasitic group) and comes into flower three or four years from seed if successfully attached to its host – in this case an *Erigeron bloomeri* (Asteraceae). 2018 was a good summer at the Schachen as it was not too dry, leading to the production of two strong flowers, which it had again in 2019. *Megacarpaea polyandra* is one of the more unusual plants in the garden. This monotypic (only plant in the genus) oddity comes from China. It flowers ten years from seed, forming a large umbel with a rosette of deeply divided leaves. Although plants do not produce a lot of seed, it germinates easily. *Wulfenia carinthiaca* is one of the true Schachen relics. It was planted in 1907, just six years after the garden was built. Its dense mat of purple flowers has engulfed a rock just by the entrance to the living quarters. The similar *Horminum pyrenaicum* quickly became one of my new favourites. Given the sprinkling of plants outside of the garden in the protected zone, it had clearly been another gardener's favourite.

Despite the allure of these exotics, they can pose a great threat to the protected vegetation that surrounds the garden. However, the perfume emitted when removing the flowering stems is so enchanting that I chose to collect them into a vase alongside *Pulsatilla alpina* ssp. *alpina*.

A Hike to Meilerhütte

I thought I was spoiled for choice within the realms of the garden, but a simple step outside revealed there was much more to find.

The Meilerhütte is situated at the top of the trail, right on the Austrian border and to the South-East of the garden. It is a gorgeous ninety-minute hike through meadow with *Gentiana lutea*, *Adenostyles alliariae*, *Crepis aurea*, *Phyteuma orbiculare* and on into the wind-torn *Pinus mugo*. One of the most interesting meadow plants was an orchid by the name of *Traunsteinera globosa*, which seemed to have perfected the art of imitation. Orchids and other plant groups use mimicry to trick unsuspecting pollinators, in this case as a clover (*Trifolium* sp.) which at first glance works perfectly. Only when looking closer do you see the difference. *Rhododendron ferrugineum* may be found growing under pines while *Rhododendron hirsutum* clings to life against the rocks. The two are easily distinguished, for *R. hirsutum* has hairy foliage, often lighter green and smaller. The flowers are frequently a paler pink than *R. ferrugineum*. If in any doubt, a simple rub of the leaves of *R. hirsutum* releases a pungent odour, which I cannot quite place, sometimes reminding me of paint stripper. Stepping into the new level of the hike, *Sesleria varia* and *Carex sempervirens* become the dominant grasses. *Dryas octopetala* flows over rocks while *Pedicularis rostratocapitata* and *Androsace chamaejasme* poke out of rocky outcrops with *Tofieldia calyculata*. *Gentiana verna* and *Gentiana bavarica* (var. *subacaulis* in some literature). I found the latter typically darker in flower, but this is a highly variable characteristic. When looking at the leaves, the difference is clear: *Gentiana bavarica* has small almost *Sedum*-like leaves neatly arranged in a bundle. I found a small patch bursting with *Primula farinosa*, *Pinguicula alpina*, *Anthyllis vulneraria*, *Primula auricula* and gentians. A plant I never tire of is *Silene acaulis*, a simple plant which forms beautiful dense carpets covered in light pink flowers over the rocks. While the *Silene* found a home on the rocks, *Saxifraga caesia* could be found tucked away in small gaps in them. Its distant relative *S. aizoides* also seemed to prefer shadier spots and I only saw one plant in flower, under a step. Its light orange to yellow flowers are strikingly like the *Saxifraga mutata* I found at the beginning of the hike. Kenton, my hiking partner (only for a few days before he returned to the USA), spotted some soldanellas in flower by a small snow deposit. *Soldanella pusilla*, identified by the venation on the leaves, is a delightful small alpine. I wandered slightly off path towards a patch of snow and was rewarded for my trouble with *Saxifraga oppositifolia* in full flower in the middle of July: it is always nice to have a fond memory of home follow you on your travels. *S. oppositifolia* (dark form) does not seem to be performing as well in Scottish gardens as in years gone by, perhaps because of the extra heat we have experienced in summer, so it was

satisfying to see this one flourishing. As you near the summit, *Papaver sendtneri* greets you in full flower as you settle in the cabin for some food and a well-deserved pint. Prost!

The Austrian Side

A week later I found myself curious; Jenny had mentioned that the south facing slopes on the Austrian side were much warmer, allowing different plants to thrive. After breakfast, some advice from Jenny, and the usual generous helping of factor 50 (the highest one can get) sun cream to protect my pale Scottish skin, I was ready. The cream was essential in the warm weather of July 2019, with record-setting European temperatures and a new record of 31° C at home in Edinburgh. I slowly ventured down the steep slope as the small rocks tumbled down with each step. My plan was to go down to Söllner but the path was too steep and, without adequate equipment or experience, I decided against it and continued down the mountain. By doing this, I inadvertently added about three hours to my total hike time. *Viola biflora* was more apparent on the Austrian side, growing everywhere but preferring the shadier spots out of the sun's gaze.

I have a deep affection for *Globularia cordifolia* with its small blue pom-pom flowers. It was rare as I began the descent but became large clumps lower down. I was on the hunt for arguably the most iconic plant in Germany, Edelweiss (*Leontopodium alpinum*). Both these plants tend to rot in the damp and mild winters of west coast Scotland, preferring to bake in the Austrian sun. The same may be said for those in cultivation at the Schachen. The taller Asiatic steppe species from Mongolia and China perform much better than the stricter alpine Edelweiss, because of the summer wet. Sadly, the sheep knew I was coming and had nibbled on the fresh foliage on every plant I found. The further hike down to the *Betula* forest didn't reveal anything of great botanical interest so I marched back up to return to the garden with a well-earned sun burn: a nine-hour hike from 1860 m to 2300 m to around 800 m and back. In the southern hemisphere section, there are some plantings of *Zaluzianskya* (*Z. ovata* and *Z. oreophila*), a genus endemic to South Africa that produces a scent at dusk to attract pollinators like the nocturnal hawk moths.

A quote heard some years ago has stuck with me: 'History never repeats but it does rhyme.' Over a year after my first trip to Branklyn Gardens where I first heard about the Schachen ... I was fumbling about in the cabin ready to leave for another torchlit tour.

Above: *Gentiana lutea*

Below: *Campanula thyrsoidea*



Not another Tufa Wall!

George Watt



The Edinburgh Botanic Garden Alpine house at RBGE - home of the tufa wall

Sue and I had witnessed the use of tufa at Wisley and elsewhere, including Scott Cook's substantial tufa column, albeit with the advantages of the dry eastern climate, and we had seen images of the wall built by Harry Jans (<https://www.jansalpines.com>); we had admired simple tufa arrangements on benches and in troughs, but it was the new wall at the Royal Botanic Garden Edinburgh (RBGE) that inspired us to construct our own modest version. Fortunately, the inspiration came in October 2013 as we were erecting Sue's first Alpine house, a *Rhino Premium* (6.1 m x 3.6 m), complete with generous roof vents, over twenty louvred vents and three constantly running fans. Roof and side blinds were further additions. When John Mitchell and Elspeth McIntosh (RBGE) heard of our intention they were very enthusiastic and gave us advice and practical help. We also received advice from Tim Lever at Aberconwy Nursery and later were generously given plants by various friends including Richard Barr and the now much-missed Bill Robinson.





Burnside's Alpine house - home of the mini tufa wall

The support walls were built of standard concrete blocks, each extending 1.2 metres from the corner and having a small return at the ends, both of which, for aesthetic reasons, were treated with masonry paint. A hole in one of the floor paving slabs accommodated a drain. The outsides of the adjacent panels were coated with a green paint, especially formulated for glass, to hide the plethora of spider webs and other things.

Acquiring tufa is almost impossible in Britain and Jim Jermyn suggested that he and I take the trailer and nip over to the continent, see a few excellent gardens, drink some beer and then find some tufa! However, thanks to a friend we acquired what we needed nearer home. Maybe this was just as well when remembering Sue's response to Jim's suggestion. Unlike RBGE, we had no diamond chainsaw and could only use a Stihl saw, limiting us to using smaller pieces of stone. We first pressure-washed the tufa. In general, we followed the principles of the Edinburgh wall, with a 10 cm gap between the tufa and the concrete blocks. We filled this

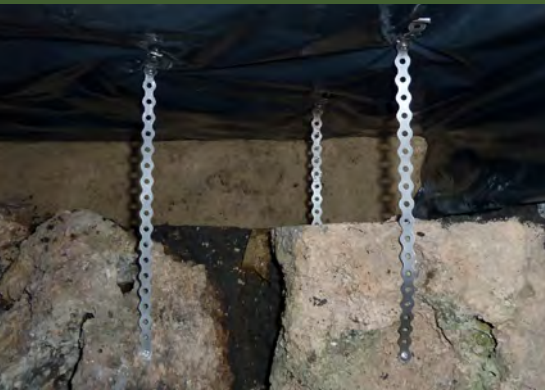




Unmixed substrate



Building



Stainless steel ties
Irrigation system



Drilling
Planting with plastic, cane & straws





Pointing and planting

gap with a mixture of sharp sand, limestone chips, perlite and cat litter (7:1:1:1), adding a small amount of *Osmocote* 'Exact', which releases nutrients steadily throughout the entire growing season. We lined the block wall with thick polythene and laid a drain along the base. We covered it with a layer of coarse grit, followed by a permeable membrane, on top of which we poured and compacted the coarse sand mixture. The mortar for building the tufa wall consisted of sand, peat, cement and lime (6:2:3:1). As the wall rose, we secured the tufa to the wall with stainless steel ties.





Once completed and the cavity filled, we placed eight small drippers in the top of the sand as an irrigation system. However, when tested, water poured out everywhere and it became obvious that the tufa joints would have to be pointed. To make life easier, we used pre-filled mortar cartridges that, although expensive, are available in a sand colour, less intrusive than ordinary mortar. We drilled planting holes in the tufa with a 25 mm masonry drill. The problem was dust: Sue, ever eager, had pleaded to have all the benches installed and these were by now jam-packed with plants, some with sticky leaves, some with hairy leaves and of course, all potential show plants. My popularity distinctly dropped!

The holes sloped slightly downward and penetrated to the sand. We filled them with a compost of John Innes No. 2 with added perlite, grit, small limestone and tufa chips. It was essential not to leave any cavities when filling these holes because they would have blocked the upward capillary movement of water from the irrigated substrate.

In 2013 when the wall at RBGE was first planted staff were disappointed at the considerable plant losses. There was no provision for shading in the new alpine house and, unfortunately, in the early part of that year there was a prolonged period of hot and sunny weather. Establishing very small plants under such conditions is never easy and it is a credit to Elspeth and her colleagues that their wall is now maturing nicely with many good-sized plants and it will not



Physoplexis comosa



Paraquilegia anemonoides
12/4/14 ABER

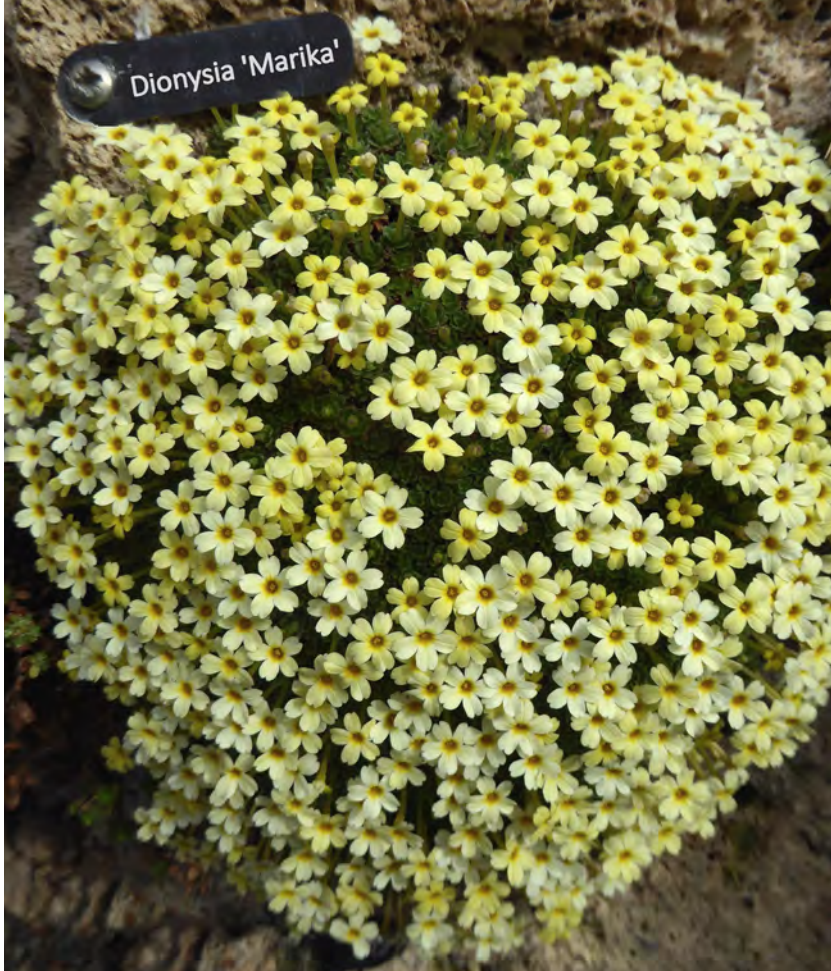


Dionysia aretioides 'Bevere'

Inset: *Dionysia tapetodes* at the RBGE



be too long before they finally realise their vision. Having witnessed the Edinburgh experience, we wondered if we might improve our plants' chances by using drinking straws, of wide diameter with flexible ends. Our idea was to cut them into short lengths, insert them with each plant and thus supply water locally until such times as the roots were properly established, at which point the straws could be withdrawn. The straws were to be filled using a standard laboratory wash-bottle. Planting proved a very fiddly challenge and we pressed various items into use, from a curved piece of flexible plastic to forceps, small spatulas and so forth. Our plants were very small, and it was difficult to avoid damage, especially with the straw alongside. To prevent the compost from falling from the exposed hole we followed Edinburgh's example and covered the ends with thin discs of clay, which – unfortunately – we have in abundance!





Before I go further and write of some success, I admit that we have lost many plants. One of the main challenges is to apply the correct amount of water, especially in the winter. There are also pests. Aphids are particularly bad, with fungal problems a close second, and there are those apparently healthy plants that simply decide to die – but we all know of those! The other water-associated problems owe to variation in the degree of absorption of the tufa rocks and to a considerable dampness gradient from the top of the wall to the bottom. The lower part is shaded by the surrounding benches and is always too wet, making it difficult to grow successfully there. Currently, *Pinguicula grandiflora* is flourishing and moss cover is increasing, but little else. Should you have any planting suggestions, Sue and I would be happy to hear from you.





Our most successful plant was *Cymbalaria muralis* (Ivy-leaved Toadflax). It appeared spontaneously, having survived that initial pressure-washing! It had to go but we have it elsewhere in the garden. *Asperula boissieri* has been successful and may end up labelled as a thug. We have two good *Paraquilegia anemonoides* and two of the spectacular favourite, *Physoplexis comosa*. On the upper reaches of the wall we planted four species of daphne. The lowest died and, of the remaining three, *Daphne* 'Kath Dryden' is the most successful. It is at the very top. *Draba ossetica* and *D. rosularis* have done well but we have struggled with saxifrages, two exceptions being *Saxifraga sempervivum* 'Aphrodite' and *S. longifolia*. *Clematis marmoraria* is extremely slow growing but delighted us by first flowering in 2019. Of the several dianthus species, the Bosnian *Dianthus freynii* always looks the best.

Dionysia is a difficult genus here in the ever-damp west despite our many vents and fans but we have several alive, including *Dionysia bazoftica* and *D. aretioides*. They light up the wall when in flower. *Primula allionii* and its countless cultivars are grown in their thousands but there is something rather special when a couple of tiny and barely visible leaves suddenly produce very large flowers. When several of these plants are present they bring much satisfaction. A rogue foxglove, *Digitalis purpurea*, appeared by magic in the sand layer at the top of the wall this year and we had the good grace to let it flower, incongruous as it was. However, it gave us another planting idea. Sue has had some success with *Clematis columbiana* var. *tenuiloba* 'Yvla' and the species itself grows in the limestone barrens of the Rocky Mountains. We planted one where the foxglove had been, hoping that it will eventually create a beautiful fringe along the top of the wall.



As for the future, we shall always be replacing dead plants – an opportunity for something new, but as a challenge I would love to try *Jankaea heldreichii*. Harry Jans has great success with this in his tufa wall but it is almost impossible to find a source. In its absence we will experiment instead by sowing directly into the wall and should be able to source several suitable species via the seed exchange.

Tufa

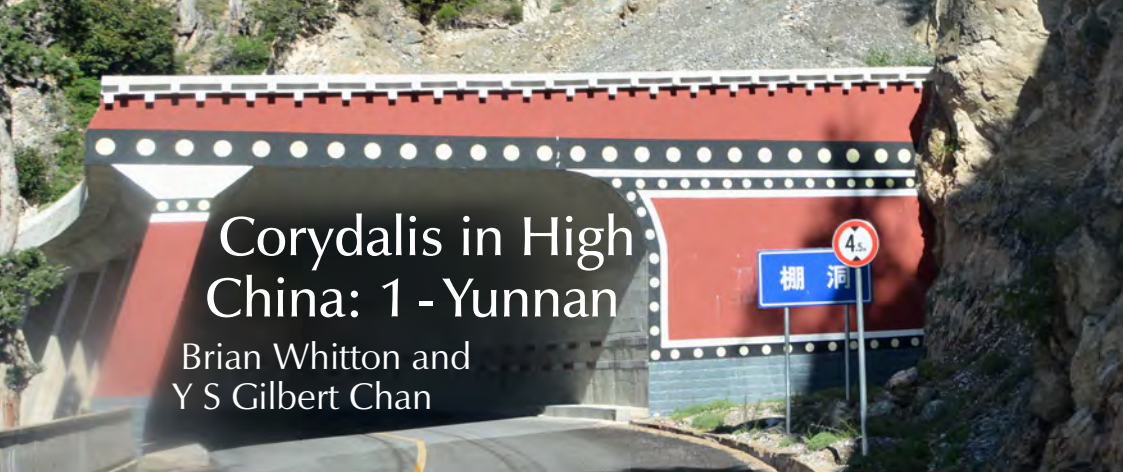
Tufa is formed when carbonate minerals precipitate from water at ambient temperature. This process forms a very porous calcareous rock. Precipitation from warmer water such as hot springs produces a similar but much less porous rock, travertine, much used by the Italians in building construction. I mentioned earlier the difficulty of acquiring natural tufa, but it is possible to make artificial tufa. In our yard there is a trough that I created thirty years ago and it still grows saxifrages very successfully. I urge you to try.

Artificial Tufa - 'Hypertufa'

Here is one of the many recipe variants for making hypertufa. Mix 1 cement, 1 coarse masonry sand, 1 small gravel (only if you wish an extra texture), 1-2 crumbled sphagnum peat moss. Add an appropriate amount of water to the mix and the rock may be shaped by whatever method you choose. Perlite or vermiculite may be used to replace part of the coarse sand and peat may be replaced by another suitable organic material. If using perlite, be aware of the real dangers of dust inhalation.

Not wanting to build a Wall?

Try placing a few rocks together on a sand bench, drill a few holes and experiment with a variety of plants.



Corydalis in High China: 1 - Yunnan

Brian Whitton and
Y S Gilbert Chan

Ten years ago, Shangri La in northern Yunnan seemed the place to start when we first talked of searching for *Corydalis* in China. The city lies at about 3400 m and had become an important tourist centre. Friends had sent photos of *Corydalis* in other provinces and we had seen *C. edulis* not far above sea level at the Lingyin temple near Hangzhou. However, north Yunnan and west Sichuan have the largest number of the three hundred species found in China and this article tells something of what we have seen during the seven visits there since the first in 2012. Although we noted many other plants and have memories of vast areas of *Pedicularis* species on flatter parts of high Yunnan and various species of *Meconopsis* on slopes in Sichuan, we focus here on *Corydalis*.

A few practical matters: none of our trips was with an organized tour and, after the first two, we relied on finding a small hotel every evening not too far from where we had been exploring. Fortunately, Gilbert's wife, Grace, joined all the later visits and she is skilled at convincing hotels to charge less than the price shown on the counter. Everywhere we stayed was clean and had good Wi-Fi, but not always soap, towel or toilet roll. Gilbert arranged drivers and transport in advance, and this worked well, especially with the local drivers from Shangri La and from Four Maidens City in Sichuan. Both soon learned to recognize *Corydalis* plants, sometimes

Wooden walkways helped on first experiencing altitude shift at the summit

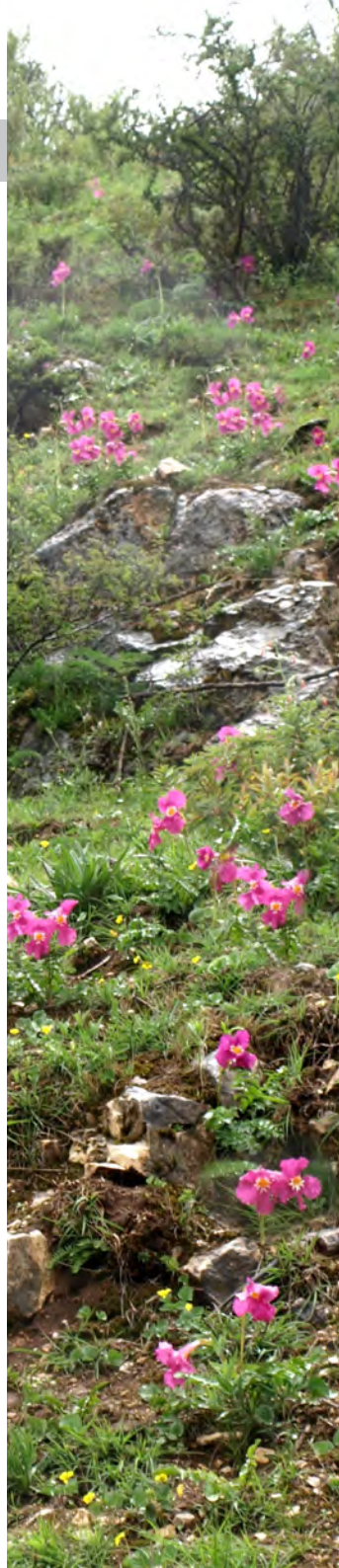


Incarvillea was frequently found on the lower slopes of Shika Shan. 6 August 2013

noticing them on a hillside before we did. Driving in northern Yunnan requires particular care because of the risk of rocks fallen onto the road, and the many long tunnels. Every tunnel entrance in northern Yunnan has its own distinct colour and pattern, attractive in bright sunlight but important for drivers in dense mist or monsoon rain.

We must explain a little of our backgrounds. Brian holds a Plant Heritage collection in his garden at Durham (England). There were fourteen Chinese species in the collection before the first of our trips to high China. Some came in 2005-9 from Chen Yi Plants in China, though it needed help from Magnus Lidén in Sweden to sort out Chen Yi's names. It was never clear where most had been sourced, but many certainly came from Yunnan. During two visits to the Kunming Botanic Gardens we saw some, but far from all, of the species in her lists. Gilbert retired recently from Hong Kong Polytechnic University, where his research permitted plant-related visits to western China. Since the major earthquake in Sichuan in 2008, most have been to Shifang near Chengdu, where many small farmers grow the fungus, *Auricularia*. *Corydalis* have been seen nearby (about 500 m altitude), but without the ripe seedpods needed for identification.

Corydalis was easy to find in two areas within an hour's drive from Shangri La. Shika Shan (Shika Snow Mountain) is the main nearby attraction for alpine plant enthusiasts. There are two stretches of cable car, with the upper getting almost to the top, and then wooden walkways to reach the 4500 m region. In late May 2012 we spent most of a day exploring near the base (around 3600 m) of this limestone mountain, where *Corydalis* were few but there was much else to see, such as abundant yellow-flowered *Daphne* shrubs (most, if not all, *D. aurantiaca*) and *Incarvillea* in many shades of pink and the occasional white. These ranged in form between *I. mairei* and *I. zhongdianensis*, making us wonder whether there was a need to separate the two species. We frequently found *Incarvillea* near the base of limestone mountains in situations where several *Corydalis* might also be expected if conditions were moister. Much seems





Corydalis pachypoda was frequent by the walkways near the summit. 6 August 2013

to depend on moisture conditions at depths where the deeper roots of *Corydalis* can reach. Both genera tend to be favoured by high nutrients, with yak droppings often important, especially for *Incarvillea*.

The following year we did get to the summit and were not too worried about the altitude, because we had already been travelling for two weeks. However, even on the sunny sixth of August, warm clothing proved essential. At the mid-way stop we hired a local Tibetan to guide us on the path down from the top. Yellow-flowered *Corydalis pachypoda* grew near the wooden walkways and further down the slope, where soil was forming, together with *C. kokiana*. Still further down, *C. calcicola* became increasingly abundant. Although it grew among dense mixtures of other plants, at many locations it is an early colonizer on bare rocky soil. The species shows an especially wide range of purples and reds and we have not yet decided on an explanation.

It was fortunate that we had hired a local Tibetan to guide us on down Shika Shan, because the main path went direct to the foot of the mountain and we had to cut across country to return to the mid-way stop. Once back on the foot of the mountain, we visited the shop selling dried fungi. Such shops, with dozens of species, were very popular with tourists, and the huge amount collected from forests every year must surely have a serious ecological impact.

For local Tibetans, Tiansheng Qiao (3100 m, 15 km south of Shangri La) has the attractions of a racecourse and a pool warmed by a hot spring, but for us it was the blue of *Corydalis kokiana*. Late May 2012



Corydalis kokiana near upper part of the track



Corydalis calcicola at 4350 m on recently exposed bank by the road north of Shangri La. 7 August 2015

was the first time we had seen this species, though we saw much more of it at the same site in late July 2013 and many times since elsewhere. We soon learned how variable this and many other species of *Corydalis* can be and how forms or dimensions sometimes fall outside those in the *Flora of China*, showing the need for more plant exploration. At Tiansheng Qiao in early June 2012 many of the flowering stems of *C. kokiana* were coiled loosely part-way round dead stems of other species, but in late July 2013 this form had all died down and distinct plants of another form with strong upright stems were flowering.

A track down Shika Shan, showing yellow flowers of *Ligularia lankongensis* 3800 m. 6 August 2013



Another *Corydalis* of particular interest was that growing on the upper part of the soft limestone cliff above the track at Tianshang Qiao. We failed to find a way of getting close, but it first caught our attention because of its glaucous leaves. However, flowering plants emerging from crevices were dark green rather than glaucous, probably because they had started to grow under lower light. Quite likely the plants in crevices get their nutrients from drainage through the limestone, although that would be a challenge to study. Magnus Lidén identified this plant as *C. latiloba*, a species closely related to the *C. tomentella* and *C. wilsonii* grown in British alpine houses. It should make another excellent greenhouse plant and perhaps even grow outdoors on limestone rockeries.

During the first visit to Shangri La, we also took a long day's drive to the West to see the Mekong (Lancang). Although many other plants were flowering along the route, the only *Corydalis* was



Corydalis latiloba on sunnier area of cliff. 31 July 2013



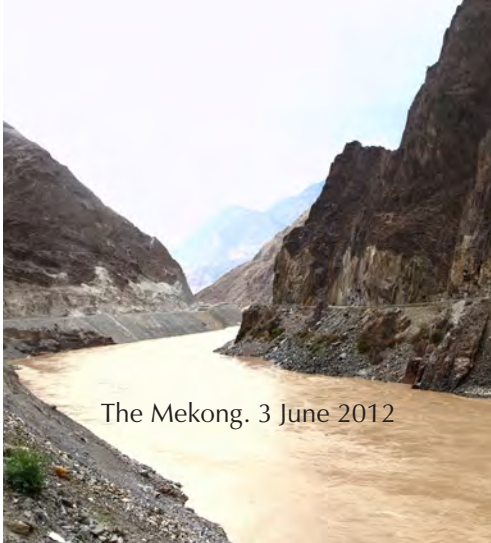
Flowering *C. latiloba* emerging from a crevice. 31 July 2013



Track at Tiansheng Qiao just beyond main stretch of limestone cliff. 31 July 2013

C. adunca, which could often be seen on slopes of coarse scree. This proved to be one of the species we saw most frequently on travels during following years, but it also proved one of the most variable. Seed collected on this visit and sown in a greenhouse immediately on return to Britain grew rapidly, with complete germination success. Plants now grow as a perennial in the greenhouse, but only as annuals when planted outside in well-drained pots.

In 2013 we started at Kunming, where we met our driver, and then spent four days *en route* to Shangri La. This gave the chance to see *Corydalis* on the way, starting with a large area of *C. taliensis* in Kunming



The Mekong. 3 June 2012



Corydalis adunca on steep slope. 3 June 2012

Corydalis taliensis in Kunming Botanic Garden. 27 July 2013



紫堇科 Fumariaceae

五味草

Corydalis taliensis Franch.

别名：金钩如意草、水晶金钩如意草、水黄连、断肠草、大理紫堇
产地：云南
功效：清热、清肝



Butterfly Spring, with rock paving where *Corydalis moupinensis* grew inside gaps. 28 July 2013

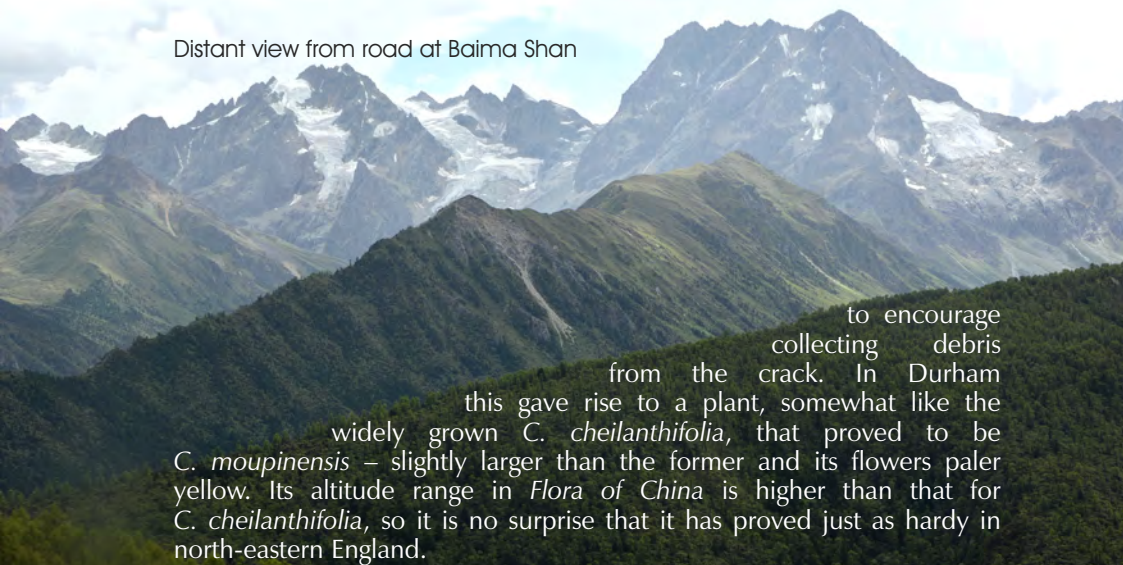
Botanic Garden. Although there had been plenty of pink flowers in late May 2012, there were none in early August 2013, even though the plants were still growing vigorously. The *Flora of China* gives March to November as the flowering time for *C. taliensis*, the longest for any *Corydalis*, so perhaps the Kunming plants flower again in late summer. Most forms of *C. taliensis* in the Durham collection flower towards the end of the season, although some do so intermittently from spring until mid-autumn.

The next day our mid-day stop was at a famous tourist site about 30 km north of Dali, Butterfly Spring Park. Many notices told tourists the romantic legend of the spring (check Google if you enjoy such tales) but the butterflies are real and abundant, although only in April. Nevertheless, it seemed a likely time to find *Corydalis*, although we had found none by the time we sat by the spring for a snack. Then, in a gap between the slabs of rock at the edge of the spring, we noticed some leaves that looked sufficiently like *Corydalis*

Corydalis moupinensis in Durham. 18 April 2015



Distant view from road at Baima Shan



to encourage collecting debris from the crack. In Durham this gave rise to a plant, somewhat like the widely grown *C. cheilanthifolia*, that proved to be *C. moupinensis* – slightly larger than the former and its flowers paler yellow. Its altitude range in *Flora of China* is higher than that for *C. cheilanthifolia*, so it is no surprise that it has proved just as hardy in north-eastern England.

While based in Shangri La, we explored many sites in the region in addition to Shika Shan. One of these, Baima Shan, is well known to alpine visitors, with photos of plants on the scree in at least three publications. *Corydalis kokiana* was scattered widely among shrubs on the slope west of the road (4400 m), where thin shoots straggle among the shrubs to reach sixty cm. Looking upwards while crossing the road to the other slope provided the chance to stare into the distance and wonder about the plants in remote valleys.

Corydalis hamata growing on lower scree at Baima Shan. 2 August 2013



C. calcicola inflorescences forcing through scree. 4300 m. 2 August 2013





Corydalis densispica at Daxue Shan. 5 August 2013: and seed pods

Corydalis were much more obvious on the scree east of the road at Baima Shan. *C. hamata*, *C. calcicola*, *C. melanochlora* and a bright blue plant identified as a different form of *C. kokiana* all occurred quite near the road, with long stems winding their way through the rocks to the surface, and their roots deep in the wet scree. All these species, but particularly *C. calcicola*, have inflorescences that are more compact when much of the stem is below the scree surface. All four have fleshy thickenings of the roots, albeit different in each case. The roots of *C. hamata* were actually in slow-flowing water, despite no hint of water at the surface.

Corydalis gracillima on disturbed area by road at Daxue Shan. 5 August 2013



The day we chose to go to Daxue Shan – another mountain visited by plant enthusiasts – proved to be wet and cold, so we failed to explore widely. Nevertheless, lower down the mountain several familiar plants such as *Epilobium angustifolium* and *Clematis tangutica* were obvious, and further up several *Corydalis*. In addition to *C. kokiana* growing among shrubs, there was bright-yellow *C. densispica* on steep banks, sometimes fully exposed to sun and in other cases with inflorescences emerging from dense masses of other plants. Scattered plants of the annual *C. gracillima* occurred on disturbed areas near the road.

Deqin, where we spent a night, is only two hours south of the Tibetan border and our driver talked about visiting an old salt mine in Tibet an hour north of the border. Although Brian’s visa only permitted entry to Tibet by road with a proper tour guide, there was nothing to stop us at the border and our driver was convinced he could get permission from his brother in the police. Unfortunately, the brother also had to get permission from someone more senior – and they were away at a long lunch. As a large tourist board at the border had a heading in English saying “... tea horse salt tourist road scenic map”, we were confident enough to continue to the first village, but here two police in the middle of the road made it clear that was as far as Brian was going. Although stern outside, inside they were chatty and enjoyed practicing English. Gilbert and a Chinese woman on this trip continued to the mine, while Grace stayed with Brian until their return. The police provided a film to watch, all about Chinese going to Africa to save the wild animals!



Entering Tibet. 3 August 2013

Our travels in 2015 again started in Kunming, followed by a few days stay in Shangri La, with visits to other mountains, especially Tian Bao Snow Mountain. Here near the base of the main scree slope was a wide range of forms of *C. kokiana* in shades of blue and purple, together with a compact form of *C. gracillima*; *C. calcicola* became frequent on the lower parts



Corydalis on a bank by the road to Shangri-La Village.
10 August 2015

of the slope. The scree higher up was tempting but to search properly would have taken several hours more than we had. Hopefully, future plant hunters will have the time for a proper check.

After this day visit we set off for Sichuan, with a three-day drive to the North-East. A southward diversion on the second day took us to a small town that, confusingly, had renamed itself Shangri-La Village. A great deal of building and road construction was underway, and the locals were clearly hoping to attract some of the huge tourist trade visiting the now famous Shangri La in Yunnan. Nearer Shangri-La Village there were conspicuous masses of yellow-flowered *Corydalis* among the rocks deposited on the bank during road construction.

Corydalis pseudosibirica seedpods. 11 August 2015
Below: our newly constructed hotel





After a night's stay at the newly constructed hotel, we returned to the main road, heading further into Sichuan and taking time to look more closely at the yellow-flowered species on the bank. *C. pseudimpatiens* and *C. pseudosibirica* were the two most abundant and, because the plants formed such obvious clumps, we assumed they were perennials. However, following identification by Magnus Lidén, we now know they are annuals. Both of the other two species, *C. adunca* and *C. densispica* are perennials and occasionally occurred inside the clumps as well as by themselves. There were many more *Corydalis* species to be seen in Sichuan, but these are in a further account.

C. pseudimpatiens, one of the main species on road bank. 11 August 2015



Tian Bao scree slopes. 5 August 2015



Hexham March 30 2019

This year's Hexham spring show was a new experience, as the venue had moved to Hexham Auction Mart from the Wentworth Leisure Centre that had been its home since 1992, but where parking for exhibitors and visitors had become more problematic over recent years. The spacious venue and free parking proved show secretary Angus Thompson's decision to move to be a sound choice and the venue was especially popular with the public, with around five hundred paying visitors in addition to SRGC and AGS members. The lighting in the hall had been improved by the local group, but may require further tweaking, while the catering facilities for such large numbers were first class.

What of the plants? The entries were well maintained in a difficult season with almost 450 plants displayed by exhibitors from north and south of the border. Cliff Booker had travelled to Hexham from East Lancashire for what I believe was the first time at this show with just one plant. A bold move that paid off, as his perfectly grown *Shortia uniflora* won the Farrer medal (the show was held under AGS rules this year) and had around thirty pristine flowers held erect above the foliage. At first glance they appeared to be pure white but close inspection revealed that most were very delicately suffused with very pale pink, most noticeable on the outer halves of the reverse sides of all the petals.



Another noteworthy example amongst the award plants was Dave Millward's *Narcissus obesus* 'Lee Martin', which was awarded the Sandhoe trophy for the best plant in a pot under 19 cm, with its densely packed blooms rising above a spreading fan of grass-like leaves cascading over the pot edge. A larger (and much heavier!) pot of *Saxifraga* 'Bridget' was covered in flowers rising from rosettes scrambling amongst large granite chippings; it won a certificate of merit for David Charlton who had travelled north from Derby to exhibit this stunning specimen. As if to prove that you don't have to travel great distances nor have a plant in flower to be awarded a certificate of merit, Don Peace's *Woodsia* species was grown locally in Cleveland, a delicate fern perfectly presented in a smaller pot.

Facing and above: Cliff Booker's fine Farrer medal winner: *Shortia uniflora* 🌸



Away from the award-winning plants, it is often young plants that are still too small to be class winners that catch my eye when looking for photographic subjects. Fred & Pat Bundy exhibited a number of trilliums and a couple of their garden hybrids caught my eye: a *Trillium simile* cross had just one flower that was a delicate pale plum colour with all of the veins on the petal delicately delineated by a darker shade. They also showed a *Trillium chloropetalum* 'Album' x yellow in which the pale lemon flowers were veined in a similar plum tint and – just to show that their hybridization is not limited to trilliums – a fine example of an *Erythronium citrinum* x *hendersonii* of theirs had attractively-veined leaves and delicate shell-pink flowers. Erythroniums generally feature strongly at the Hexham show, and Carole & Ian Bainbridge's *Erythronium helenae* was a worthy winner in its class.





Ophrys tenthredinifera

Shows often give the opportunity to compare similar plants and on this occasion class 6 for large pans of Asiatic primulas had both *Primula elatior* ssp. *meyeri* (White Form) - a lovely kind of this normally deep pink to purple subspecies - and *P. elatior* ssp. *pallasii*; both are from Turkey and were exhibited by Graeme Butler and John Richards respectively. Another pairing of similar plants, albeit in different classes, was Lionel Clarkson's *Pulsatilla styriaca* - a five year old seedling of a fine rosy-pink colour which faded towards the petal tips - and a superb *Pulsatilla ambigua* hybrid from Fred & Pat Bundy that combined a delicate soft pink in the flowers with the bright green of the fresh new growth.

Facing: *Erythronium helenae* (top) and *Narcissus obesus* 'Lee Martin' (below)



Orchids have always been an interest of mine; we normally expect pleiones at Hexham and the best of these this year was Don Peace's potful of *Pleione* 'Ueli Wackernagel', which received an award of merit from the Joint Rock Committee. More difficult to grow well was a fine pot of *Ophrys tenthredinifera* from John Richards, with two flower spikes, each carrying a pair of flowers in perfect condition. Another of my favourite genera, Iris, was well represented and two forms of *Iris suaveolens* were on display. A fine example of the dusky purple form was shown by Peter Hood, with a healthy mat of foliage from which rose the large and well-spaced purple flowers. In contrast, a potful of the yellow form of the same species shown by Bob Worsley had vastly more flowers in a deep and smaller pot; to my mind they were rather too crowded, and the flowers were unable to open properly. For me, pride of place amongst the irises had to be given to a group of seed-grown (sown 2009) *Iris sari* JJA596601 presented by Ann & Michael Morton. Admittedly the rather tall stems



Iris sari JJA596601 🍁



Pulsatilla ambigua hybrid

had a slight lean which I suspect had arisen during the exhibitors' long journey up from Surrey but the flowers were certainly striking – a dusky grey ground colour with indigo veining in the standards, while the falls were suffused with a mid-brown that also extended into the veining. It is one of those plants that arouses strong opinions in onlookers both for and against its aesthetic qualities.

Before ending this personal view of some of the many excellent plants on display, I must also mention two displays that enhanced the show immensely. RBG Edinburgh brought a wonderful range of plants from their

Trillium simile cross





collection and were awarded a deserved Gold award, while the local group staged an educational photographic display about woodland plants entitled *A Woodland Wonderland* for which they received a large Gold award.

We enjoyed another extremely successful show thanks to the hard work of show secretary Angus Thompson and members of the local group; the move to a new venue, which had been a cause for anxiety, proved to be most successful, so much so that the autumn (Newcastle) show was destined to be in the same venue in October 2019.

Peter Maguire

Trillium chloropetalum 'Album' x yellow





Aberdeen 18 May 2019

The weather for the 2019 show was wet and miserable but all the visitors were treated to a colourful and well-presented range of exhibits. The show was held again in the Victorian corridor of the David Welch Winter Gardens at Duthie Park, Aberdeen. This location, with its abundant natural light even on such a wet day, allows the plants to be shown at their best. Our thanks go to all the staff at Duthie Park for their hard work in providing the bench space for our exhibits, and additional tables for the nurseries. In section 1, many familiar names arrived with





A Forrest medal went to Dave Millward's *Ramonda nathaliae* JCA 686, in class 53 1 pan Gesneriaceae, seen here with our president Julia Corden some superb plants. Among them was Stan da Prato, who came first in both the six pan classes, class A and class 1. Stan was additionally awarded a certificate of merit for his *Rhododendron* 'Glendoick Starburst' in class 1. In class 2 (3 pans distinct). He continued his winning streak with a first that included *Rhododendron* 'Arabesk'.

Nick Boss with his *Silene acaulis* gained a first in Class 5 (1 pan raised from seed) and the Gothenburg trophy. Class 7 (1 pan new or rare in cultivation) saw Ian Christie with a first for *Dicentra* x 'Gothenburgensis'. Nick Boss exhibited *Lewisia sierrae* in this class, also providing a small magnifying glass so that visitors could actually see its rather small and insignificant flowers. In class 24 (1 pan *Daphne*), *Daphne aurantiaca* grown by Ian Christie came first. His dwarf rhododendron class 27 brought him another first with *Rhododendron* 'Sarled', which was also awarded the Simpson salver. The other entries in the class included

*A Holistic Approach to the Cultivation of *Lewisia sierrae**

The main objective here is to grow a healthy plant. Priority has therefore been given to studying the plant's requirements, those that enable it to function generally, remain healthy and in character. The traditional methods of cultivation required for show perfection, to suit an ordinary garden or greenhouse, were not considered, neither was the plant's garden value.



Essential requirements:

- (i) *Growth: starts about March, so normal watering commences, but from below only. This continues until around the beginning of June*
- (ii) *Summer: plants can tolerate 80% less moisture than in the Spring; therefore, do not overwater*
- (iii) *Compost: acid, no less than 4 parts granite to 1 part loam*
- (iv) *Winter: beginning of October. Plants need slight moisture at the roots, also Tomorite. The plants remain outside wherever coldest but with overhead protection.*

Miscellaneous: these plants are the result of natural regeneration from an original sowing in 1992.

Growing *Lewisia sierrae* (Nick Boss). Try it yourself to see what it looks like!

Azalea 'Adonis' from Helen & Bill MacGregor, and *Rhododendron* 'Arctic Tern' from Stan da Prato. Class 28 (1 pan Papaveraceae) had a first with *Meconopsis quintuplinervia* from Ian Christie. The Craig cup for the best primula was awarded to Ian for his *Primula sieboldii* (class 36 1 pan *Primula*, Asiatic). Class 44 (1 pan *Saxifraga*) provided a first for Dave Millward's *Saxifraga pubescens* 'Snowcap'. In the class 46 (2 pans *Lewisia* distinct) Mike Hopkins was awarded a certificate of merit for his excellent *Lewisia* 'Joyce Halley'.

Section II displayed a good selection of exhibits. Class 60 (1 pan rock plant of generally easy cultivation) gave Isobel McWilliams a first for her *Dicentra* 'Queen of Hearts'. The Aberdeen quaiach was awarded to Adrian Banks for a ten-year-old specimen of *Salix x boydii*.

Dwarf rhododendrons in class 27





Cheilanthes lindeheimeri



Primula sieboldii

An entry in class 96 exhibited by Ian Chapman, utilising a redundant ash pan, displayed a novel and entertaining use of rock plants.

Unfortunately, the weather on the day of the show was poor so not many visitors were tempted to visit the rock garden in Duthie Park. This garden is beginning to mature after planting up in the last couple of years and in more clement weather it is well worth visiting.



Adrian Banks

Salix boydii

Saxifraga pubescens 'Snowcap'





Glasgow 4 May 2019

The Glasgow show day is usually fine and this one was no exception, although chilly. Many exhibitors had set off before dawn, Scottish members converged on Milngavie from all directions and our English friends sallied northwards. It had been an early spring, with previous shows benefiting from plants in flower several weeks early, but there were still flowers to see with some very full cars jostling for parking spaces outside Milngavie Town Hall. The result was a busy show, with 31 exhibitors benching a total of 318 pans as part of their impressive total of 217 entries.

Our stalwart supporter Stan da Prato lifted the Crawford silver challenge cup for the most points in section 1, as well as the Edward Darling memorial trophy for the best exhibit of three pans of rhododendron in Class 4 and also the Don Stead prize for the most points in the bulb classes. Sue Simpson is well settled in section 1 and she received an award card for her first place entry in the jubilee class A.. She also gained two certificates of merit for her *Anisotome imbricata* var. *imbricata*, and *Benthamiella patagonica*.

The "big six pan" class 1 was won by Stella & David Rankin, and their selection of great plants gave them the William Buchanan memorial rose bowl. They also won the three-pan class 3 for new or rare plants, including a nice *Primula henrici* x *bullata* to gain the William C Buchanan challenge cup.



Primula henrici
Primula henrici x bullata





Saxifraga pubescens 'Snowcap'

The best primula in the show was judged to be Ian Kidman's nice pan of *Primula henrici* in class 17, gaining him the Joan Stead prize. Watt Russell's *Paris quadrifolia* was considered the best Scottish native, which allowed him to take the Ian Donald memorial trophy back to Tranent, and George Young brought the best orchid up from Stocksfield in the form of several spikes of a lovely rich purple *Anacamptis morio*, which earned him the Charles M Simpson memorial trophy.

The judges had little difficulty in awarding the George Forrest memorial medal to Dave Millward for his stunning pan of *Saxifraga pubescens* 'Snowcap', which was the best of several examples of that taxon on the benches. It was also one part of his class 2 three-pan *Paris quadrifolia*



Anacamptis morio

entry that won him the Henry Archibald challenge rose bowl. One pan of two separate entries of *Saxifraga pubescens* 'Snowcap' in class 12 was judged the best plant in a pan less than 17.5 cm, and the plant gave local Glaswegian John di Paola the 75th Jubilee award card.

Section 2 of the show was well represented with eight exhibitors entering a total of 35 pans as part of 30 entries. The James A Wilson trophy for the most overall points in the section was taken home to Haddington by Peter Moore, who entered plants in nine classes, the first time this trophy had left the west coast of Scotland for a number of years. Sheila McNulty from Hurlford in Ayrshire was close behind, gaining the most first prizes in the section.



Facing: a collage of Peter Maguire's photographs
Nassauvia lagascae ssp. *lagascae*; *Iris kirkwoodii*;
Iris reichenbachii; *Menziesia silicicalyx*;
Lewisia cotyledon hybrid; *Ranunculus seguieri*

Several non-competitive displays generated considerable additional interest for show-goers. We always look forward to the Royal Botanic Garden Edinburgh (RBGE) mounting their excellent alpine displays, and this year was no exception. However, Graham & Hilary Butler from Rumbling Bridge Nursery also staged an eye-catching display of auriculas. In addition, Alex O'Sullivan, a student at RBGE, produced a whole table of South American alpines, many potted up in black volcanic sand, accompanied by very welcome informative and explanatory notes on their habitat and cultivation.

In my first year as show secretary I must thank the West of Scotland Rock Garden Club team of stewards and all the other helpers who ensured that the day ran smoothly despite my inexperience. It was reassuring that the retiring and long-standing show secretary John Lee was behind me all day offering advice where needed, so the judging was completed in the allotted time. The RHS Joint Rock Committee held an open meeting so that attendees could observe its workings. It was good to show visitors some real Scottish hospitality, and the excellent tearoom and members' plant stall did brisk trade throughout the day, as did the four trade nurseries in attendance. Overall this was an excellent show.

Richard Green (Photos: Peter Maguire)

The Rumbling Bridge Auricula display

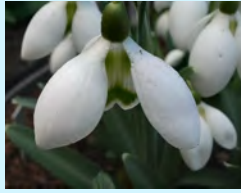




*Ranunculus
sequeri*

*Leucis
Saxifraga
1993*

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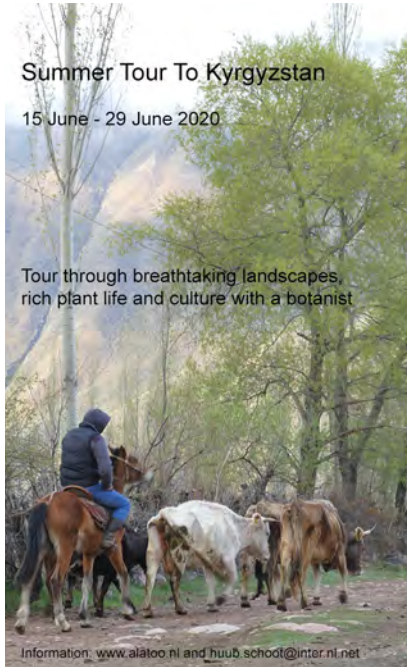
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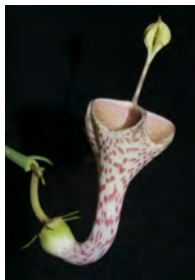
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