THE ROCK GARDEN 139

July 2017

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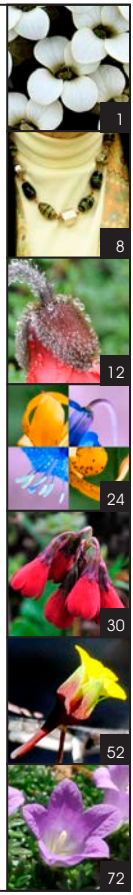

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Anton Edwards
Duguid's Wark
Manse Road
Caputh
Perthshire
PH1 4JH
01738 710774
editor@srgc.org.uk

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David Nicholson
7 Carter Road
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In Search of the Mount Cook Lily

Ian Christie

This exciting plant is well known to be difficult but it grows in abundance around South Island in New Zealand. My wife Ann and I have visited South Island several times; the landscape resembles Scotland, where mountains, lakes, rivers and endless open spaces await intrepid visitors. There are superb gardens, with Dunedin Botanics as one of the very best, wonderful private gardens and some of the finest people I have met on this planet.

On our first trip, we headed for Mount Cook in the Southern Alps. It is an awesome snow-covered peak rising to 1135 metres - quite a magnificent view as you drive towards it. We had several bright sunny days plant-hunting on the way, meeting up with our great friends Steve Newall, Dave Toole and Doug Logan. They had arranged accommodation in a farm hut - very basic but all we needed. The owner told us that if we fed his dog, cats, hens and sheep we could stay for free and were welcome to collect the eggs for breakfast. Who could refuse such an offer? Magic.

Following an early morning start, we caught glimpses of the mighty snow-covered peak. From the car park, we headed upwards, following a rushing river tumbling over big rocks. After about an hour, Steve found our first large cup-shaped pristine white flowers of *Ranunculus lyallii*, the Mount Cook Lily. Their rounded dark shiny green leaves surrounded the flower

Aciphylla aurea at Mount Cook

stems; this was something very special and we spent some time admiring this beauty. Steve prodded us onward and within minutes we came upon magnificent groups of flowering specimens all along the path, with several other notable plants that we admired from a distance: *Aciphylla aurea* with several well-established spiny plants growing amongst rocks.

A further adventure took us up over Arthur's Pass on a very dangerous twisting and twining road reaching 739 metres through the mountains. Arthur's Pass is a national park about two hours from Christchurch so we did not manage to see much on our first trip. Thankfully, the area has now changed and a superb new road on tall stilts gives easier access - another wonder of the world. Parts of the original roadway have been kept as great walking paths that stretch for miles, with boardwalks and steps making them very safe for all. Our stop here with Steve in 2015 was the star of our

Lake Tennyson

trip with very many *Celmisia*, *Ourisia* and *Aciphylla* (watching for the fierce spikes). The unquestionable highlight of this visit was *Ranunculus lyallii*; we were very lucky to see such a diverse population all the way along the track. Words are quite insufficient to describe these plants growing naturally and obviously seeding around with so many variations.

The next few days with Steve made yet another adventure to Lake Tennyson along Rainbow Road in the St James Range. Here, in a lost paradise many miles from anywhere, we climbed over a mountain with magnificent views to snow-covered peaks. *Raoulia* and *Haastia* were abundant. There was a range of plants such as could fill a whole book: a few very special were the Pen-wipers, *Notothlaspi rosulatum*, a very prolific colony of *Ranunculus insignis* with large luminescent yellow flowers and then – after a scramble over a spiky roadside shrub - wonderful yellow bells of *Clematis petriei*. However, we must return to Scotland and yet again try to grow this extraordinary beauty. We have tried from seed several times and – yes – it did flower then slowly diminished never to be seen again; at the moment, Ann has two plants that I am not allowed to approach but I live in hope! One eye-watering surprise at the 2016 Nairn show was to see several large flowering plants for sale in pots. Ardfern Nursery owner Alistair Sutherland told me that plants are sent by mail order, so I look forward to another attempt. Do visit this wonderful country if you get the chance; it is well worth the long flight and we are already planning our next adventure.

Celmisia in its habitat

Notothlaspi rosulatum

Clematis forsteri

Raoulia on the rocks

Ranunculus lyallii

David Lyall (1817–1895) MD, RN, FLS, was a Scottish botanist who explored Antarctica, New Zealand, the Arctic and North America, and who was a lifelong friend of Sir Joseph Hooker. He was born in Auchenblae, Kincardineshire, Scotland, on 1st June 1817. He graduated in medicine from Aberdeen, having previously been admitted a Licentiate of the Royal College of Surgeons of Edinburgh. Lyall entered the Royal

Ranunculus insignis

Raoulia bryoides

Navy in 1839 and was immediately appointed, on 6th June, as assistant surgeon on HMS Terror, one of the two ships forming Sir James Clark Ross's expedition to the Antarctic. The ships were the first to penetrate the Antarctic pack ice and to confirm the existence of the great southern continent. Hooker and Lyall made good use of their time botanizing on Kerguelen Island. Lyall had the rare distinction of having a whole genus, *Lyallia*, named after him by Hooker.

One of Lyall's most important discoveries was that of this king of all buttercups - the huge white-flowered *Ranunculus lyallii*. The species is otherwise known as the Mountain Buttercup, Mount Cook Buttercup or – rather misleadingly – the Mount Cook Lily, and is endemic to New Zealand's South Island, particularly around the Aoraki and Mount Cook National Park, and also to offshore Stewart Island, at heights from about 700 m to 1600 m. The flower has become something of a symbol of New Zealand identity and has appeared on postage stamps since the 1930s to promote conservation and scenery.

R. lyallii has stout rhizomes and is an herbaceous perennial that reaches as much as a metre or so tall. In this respect, it stands out as the largest species of buttercup; it also is the only one with peltate leaves. These leaves are glossy dark green, up to about 30 cm in diameter. The flowers that appear in late spring or early summer may be as large as 8 cm in diameter, with 10 to 20 white petals and many yellow stamens.

This special *Ranunculus* has some fascinating characteristics. The cup-like leaves may hold sufficient water after rainfall for passers-by to quench their thirst. But there is more to come. The plant often grows among rocks which become very hot in the daytime and the leaves' undersides become warmer than their tops. The plant has therefore evolved rather unusually, with stomata on each surface of its leaves. When the rocks are hot, the lower stomata close; when the rocks cool in the evening, the underside stomata reopen and the upper ones close. In this way, the plant reduces its water loss.

The plant is quite large for the average rock garden and other members' growing experiences are varied. It seems to need cool moist conditions to thrive so may not be suitable for the south of England. Ian McEnery recalls that Jack Drake recommended it be grown in deep soil to which had been added well-rotted manure at depth to aid moisture retention and to feed it. SRGC forumist Susan, living at about 300 m near Dunedin, managed to flower it for six or seven years. She wrote that it requires sharp drainage and may be best left alone in an open sunny spot, reflecting that in nature it often grows in quite open spots, perhaps in 'crevice garden' positions. It set plenty of fertile seed for Susan Band but she and others have found that the species tends to flower in its first year once at flowering size and then not again.

Ranunculus lyallii, a fringed form

The Honorary President Remembers

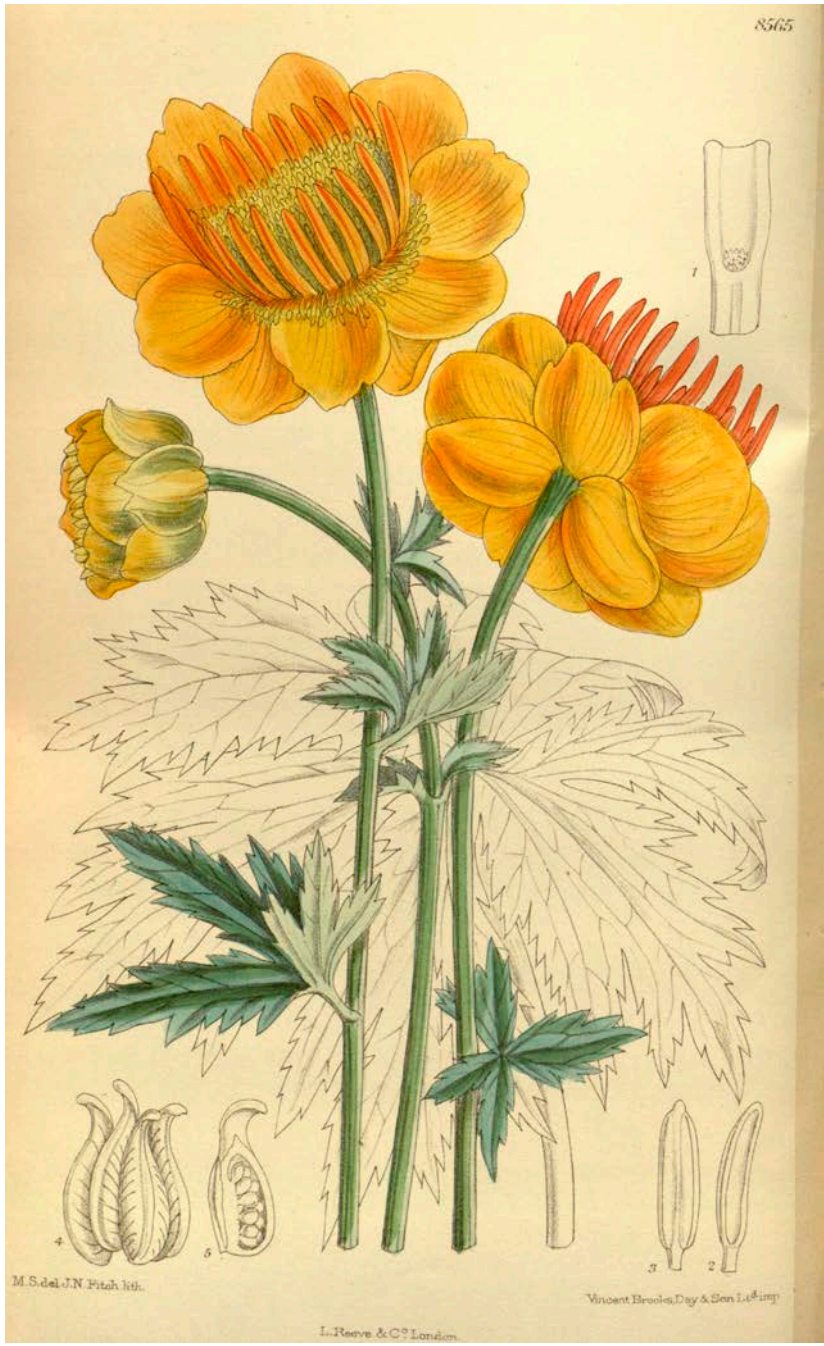
Bette Ivey

When I joined the Scottish Rock Garden Club in the late 1960s I received a letter from the county representative (Mrs Kelway Bamber) welcoming me but informing me that the local group was folding and that I would be made welcome at the West of Scotland group, which met in Glasgow; I went to my first meeting there. On return home, my husband asked me what I had learned. The speaker on this occasion was Dr H H Davidian from the Botanics and his subject was *Dwarf Rhododendrons*. I replied that, apart from the speaker's Maltese accent and my lack of botanical knowledge, I had enjoyed the slides. The club officials at that time were mostly retired military or naval men, or medical doctors, and the seat of government was decided as Edinburgh. In my early days there were numerous lady characters. In Edinburgh, Katherine Simson Hall, Betty Cormack and Sheila Maule made a formidable trio. In the West were May Lunn, Margaret Nicholson, Dr Lucy Dean and Margaret Thomson (Glasgow show secretary and another formidable lady).

I started exhibiting, encouraged by the former president, David Livingstone. On visiting his garden in Bearsden, he gave me six plants - which he expected to see on the bench at the Glasgow show the next year! In later years, he was my mentor and guided me to fulfilment as a trainee judge. I was eventually elected onto council and took my seat amongst the great and the good, feeling very insignificant. A lady who shall be nameless approached me and told me to move to the other side with the members from the West! I was unaware of the great divide that existed at that time and I wanted no part of it.

At my first Discussion Weekend in the Dunblane Hydro, the principal speaker was Reginald Kaye on *Ferns*. I knew I had a problem with the botanical names of the alpine plants but the fern names were the end! If it had not been for the support and encouragement of my husband I would have thrown in the towel. At that same week-end a couple asked to join us at the table for dinner, having realised we were new kids on the block. Afterwards, they invited us to see their garden near Lauder in the Scottish Borders. It was our first experience of garden visiting and I was speechless when we saw their set-up. The dwarf shrubs, particularly the ericaceous plants, rhododendrons small and large, south-facing rock garden and a magnificent alpine house complete with top-of-the-range shading and ventilation just took my breath away. Their inspiration and enthusiasm were just what I needed. They also encouraged us to visit the Dolomites for the true alpine experience; I worshiped seeing the masses of spring gentians there but I fell in love with the *Trollius europaeus* - it has

Facing: A favourite - *Trollius europaeus* (Wikimedia Commons; M.S. del., J.N.Fitch lith. Curtis's Botanical Magazine, 1914, Vol. 140, Ser 4, Vol. 10)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Trollius europaeus (from Wikimedia Commons. Photo: Friedrich Böhringer)

since remained my favourite alpine plant in the wild. When they died, they donated over eight hundred plants to the Edinburgh Botanics. This was a wonderful gesture which few members know about - I have lovely memories of Elsie and Bill Cairns.

When I started exhibiting, the Glasgow show was held over three days and was always opened by a celebrity. One year I particularly remember: Joan Stead won the Forrest medal with a beautifully flowered *Verbascum* 'Letitia'. Unfortunately, on the second day it had dropped all its yellow flowers but still had the Forrest medal on display – the non-members of the public must have been very puzzled. As members, we were – and are – free to visit other group meetings to hear speakers. I recall two of us from Ayrshire travelling to an Edinburgh meeting, being greeted by Jimmy Aitken as *intrepid travellers from the west*!

In the good old days there used to be a show in Dumfries. The ericaceous plants at that show were to die for, both from the competitors and in the magnificent display by the Crichton Royal Hospital gardeners. Norman Brown was the show secretary and I recall a wonderful *Daphne retusa* that had been lifted from his garden. I understood that daphnes did not like being disturbed. Seemingly, he did this regularly each year and he invited us to see his garden on the way home to see the hole where it would be replaced after the show.

In 1972 a show was held in Ponteland, one that was not sponsored by the SRGC or the AGS. They went ahead anyway and the best plant in the show was *Cassiope* x 'George Taylor' by yours truly who was awarded the NEEARG medal, the equivalent of the Forrest medal; a one-off triumph never to be repeated. I was thrilled to represent Scotland at that show and was called *the raider from over the border* by Eric Watson's wife Nan. My big Forrest medal moment came later at the Stirling show, which was held in the Guide Hut. I won it with a *Dionysia aretioides* almost 25 cm across. Its fame was short-lived, because Bill tried to help me by repotting it … and dropped it.

I was elected president in 1992 and I owe a tremendous debt to Alf Evans for the support and guidance he gave me in my period of office. Alf was a great encouragement to new members and made them feel special. In 1993 the club celebrated its 60th anniversary. Sandy Leven produced a wonderful list of SRGC members who opened their gardens for our enjoyment. I loved travelling all over the country visiting gardens big and small to see the variation of styles and the range of plants grown in different areas.

It was a privilege for me to be president over such a historic period for the club. Plants are the main reason for people joining us, but to me people are equally important. The website is well used and a great source of information, chat and photographs and the club has embraced it wholeheartedly but, for the groups to survive, they must explore ways of getting members and visitors to come along and feel welcomed - as it is our proud boast that we are *The Friendly Club*.

Bette Ivey, the SRGC Honorary President, enjoying tea at the Perth show

People, Plants and Places

Stella and David Rankin

How do you organise a plant-hunting expedition? That was the dilemma facing Chris Parsons, who had studied at Kew and won the Young Horticulturalist of the Year competition, with the prize including funding for an expedition. But where to go? Who with? How?

We were sitting round the fire after the first meeting of the 'Young SRGC' group. We ourselves had been on many expeditions. How about taking some of these young people and passing on something of what we had learned over the years? Out came the atlas and soon there was a plan. We would take five people to China: Chris, now working for Lord Heseltine at Thenford; Peter Edge, in charge of plant sales at Alnwick Castle; Ed Shaw, an environmental scientist working at Sheffield University; Graham Gunn, nursery manager at Kevock Garden Plants; and Ngaire Burston, a landscape student at Sheffield who had worked with the Kevock team in the regeneration of Whinfell Quarry rock garden. We would go to south-west China for three weeks in June, to Yunnan and Sichuan provinces, visiting the eastern part of the parallel ranges known collectively as the Hengduan Mountains.

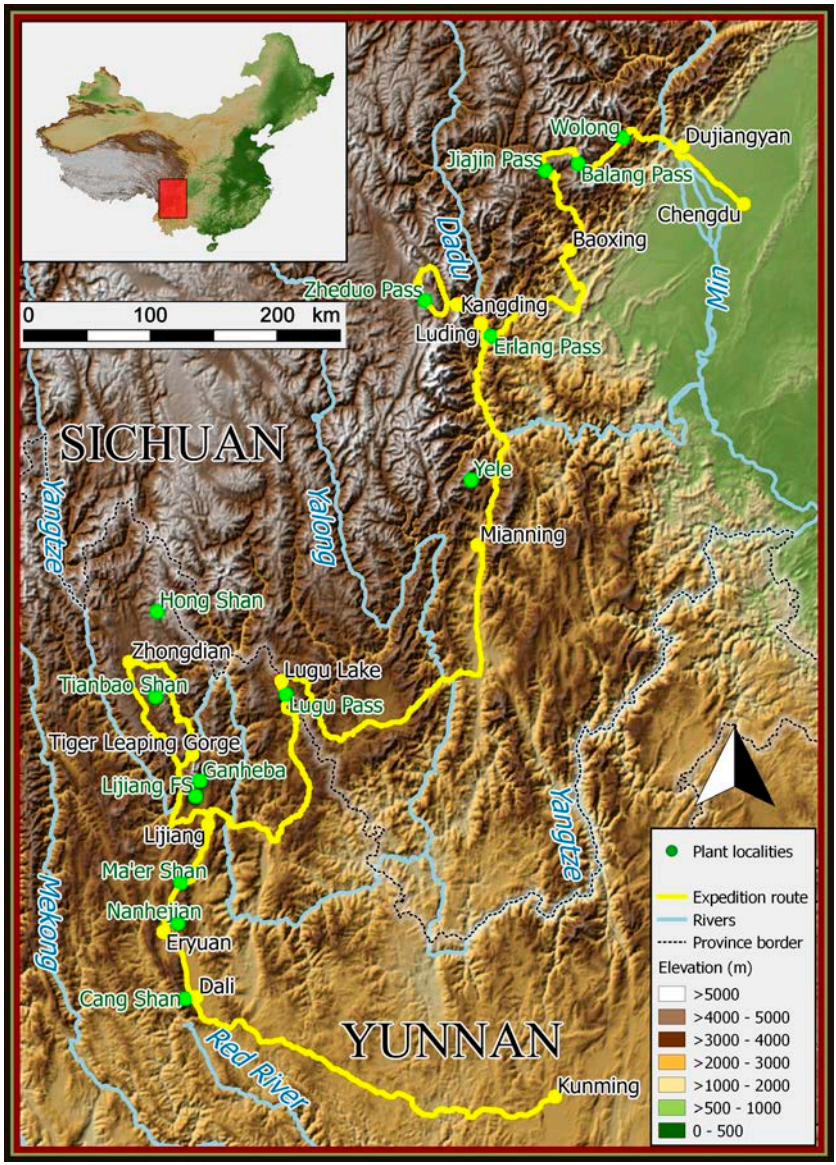
After a few exchanges of emails with friends at the Kunming Institute of Botany, we had two excellent drivers and their robust four-wheel-drive vehicles arranged. Our friends also found a Chinese student from Yunnan Agricultural University. Chen Kaiyun was keen to improve his English, had an excellent knowledge of mountain plants, and a sixth sense – able to find the nightlife in the quietest of places. We booked flights from four different UK airports, just when there were bargain offers, and soon we were into the detailed planning, including applications for support from the SRGC and other potential sponsors.

This expedition could not have taken place without financial support for the young people. The SRGC gave grants to each of them, the Stanley Smith Horticultural Trust gave a grant to the whole group for transport within China, and Chris had his Young Horticulturalist of the Year prize. Peter and Graham also had awards from the Merlin Trust and Ngaire was awarded a Blaxall Valentine bursary by the Royal Horticultural Society. For all these we are most grateful. We also want to thank our drivers, Yang Kun and Zhou Ming, our student Chen Kaiyun, Wu Zhikun – who showed us round Lijiang Field Station and introduced us to wonderful plants there and in the mountains, and Pam Eveleigh, who worked out in advance what primulas we might see. She then identified those that we saw and photographed, many of which were not on the advance list!

Each member of the group will tell their own story in this and forthcoming issues of *The Rock Garden*. Some focused on plants that particularly impressed them. Others concentrated on other aspects. All

emphasise the impact that the trip had on them. Seeing plants in multitudes in the wild can be literally life-changing.

Readers will be helped by having this map of the area that our expedition visited. It was prepared by Ed Shaw, whose first article in our series on the environmental changes affecting the region sets a general context for the four articles to follow in our later issues.



Environmental Change in South-west China

Ed Shaw

It is thought that for the greater part of two millennia China had the largest economy of any civilisation. The country's prosperity was, however, devastated in the 20th century by catastrophic wars, political turmoil and stifling communist policies. It wasn't until 1978 that the economy began to recover, kick-started by the reformation and the opening-up of the market to international trade. We all know what followed: explosive economic growth and industrialisation, massive engineering projects, the intensification of agriculture. Yet China is a vast country, containing not only densely populated lowlands but also great mountain ranges and vast areas of steppe and desert. Before our expedition began in June 2016, I found myself wondering just how the environment in out-of-the-way areas like the Hengduan Mountains is faring on China's tumultuous road to modernity. Have such areas remained untouched backwaters, or are they changing like the rest of the country? I was to find that change was very much apace in the mountains.

We began our expedition in Kunming, the provincial capital of Yunnan, nicknamed *The City of Eternal Spring* because of its benign climate. From this launching-pad our plan was to follow a long and meandering route to some of the best botanical sites in the Hengduan Mountains, before eventually concluding in Chengdu, over 600 km to the north. The first leg had us heading far to the west of Kunming to the Cang Shan mountain range. This long day of travel was the first chance for us young expedition members to gain an impression of the landscape and we were keen to absorb all

People gather to dance below our hotel in Luding, Sichuan. The place is typical of most towns and cities in China in that concrete multi-storey buildings and paved open spaces have completely replaced older buildings

A quarry mars the pastoral landscape near Zhongdian, Yunnan

that we saw *en route*. We were expecting to see plenty of construction, development and similar activity, and that indeed we witnessed. What we hadn't anticipated was the enormity of what was occurring. As we travelled north in subsequent days, visiting mountain after mountain, it became increasingly clear that development and civil engineering projects were ubiquitous, and that many places were transforming rapidly and profoundly. Towns and cities were being rebuilt with great tower blocks, imposing civic buildings, paved squares and boulevards. Traditional wooden housing in villages was being replaced by bigger concrete structures. New roads were being cut and older ones resurfaced, slopes were being reinforced with a lattice or cladding of concrete, and we travelled via countless new tunnels and bridges. In valley bottoms rivers were being straightened and channelled; particularly notable was the number of new hydroelectric dams, built wherever the valley was steep and the river large enough. Above us lines of pylons swept across mountainsides while communication masts perched on seemingly inaccessible crags and ridges. This scale of construction requires huge quantities of raw stone and mineral, particularly limestone for concrete. As a result, mountainsides were being excavated at the nearest convenient place, pockmarking the landscape with unsightly quarries and obliterating important calcareous habitat.

The ecological damage was very conspicuous and often painful to see but there is reason to suspect that it appeared worse than it really was. We travelled predominantly between localities along major regional highways, routes that serve as arteries for development. Despite the rapidly expanding road network, most of the region remains very remote and seems logistically unfeasible to develop. This view is supported by our noticing that when we did trek away from the roads, such as at Tianbao Shan or at Ganheba - both

Excavations had obliterated this section of valley bottom at the Zheduo Pass

Wandering at Ganheba, a high valley on the Yulong Xueshan

favourite places of Stella & David Rankin - we often came across stunningly beautiful landscapes. It is my guess, therefore, that only a small fraction of the region is being spoilt by intensive development, but this fraction is what you see from the road.

Nevertheless, even localised disturbance can pose a risk to biodiversity in the Hengduan Mountains. The region is estimated to hold more than ten thousand species of higher plants, a third of which are endemic. Many of these have surprisingly restricted distributions, as they have evolved in isolation on 'islands' of habitat cut off by features like mountain ridges and deep valleys. This was exemplified by the *Primula* species we saw on the expedition. Although we saw over fifty in total, we frequently saw species on single occasions, seeking them out at specific sites at which they are known to grow. *Primula melanantha* is remarkable for its strange near-black petals, and has a very limited known distribution. It was only rediscovered in 2006 after being initially collected in the 1890s. David took us to see the only population of the plant of which he was aware, on the bleak Zheduo Pass near the Sichuan city of Kangding. Although it took more than an hour to drive the ladder of a road that zigzags up the pass, on foot we could have bounded across the tiny *P. melanantha* population in seconds. Roadworks or some other common disturbance could easily wipe out this fragile colony of plants. Incidentally, later in the expedition we met a Chinese botanist who told us of another, rather larger, population elsewhere in Sichuan; we therefore hope the species is not as vulnerable as it first seemed.

China's natural resources have a long history of exploitation. Thousands of years of sophisticated, populous and resource-hungry civilisation have taken their toll on the country's environment. The Hengduan Mountains, being remarkably rugged and on the wild periphery of the empire, were largely spared from harm. This changed in the 1950s when logging the mountains became a government priority as a means of enriching this

An atmospheric combination of *Abies delavayi* and mist on the Cang Shan range

Evidence of damage to trees where Yele pasture slowly graded into forest

impoverished region and of supplying wood to the timber-starved lowlands of the east. After just thirty years of logging, old-growth forest was reduced by over 60%. As David had warned us, large swathes of the region now consisted of eroded red earth slopes covered with scrub. In fact, the hours of passing denuded hillside after hillside on the first leg of the expedition lowered my expectations about what we would find at Cang Shan, despite its reputation for botanical richness. Surely the mountain's forests would have been an important source of timber, extracted by the residents of the adjacent city of Dali, and so the celebrated plants would only be found in fragments of remaining habitat. When, the next day, we drove part way up the highest mountain of the range, I was pleasantly surprised as fields quickly gave way to scrub, then to plantation and - before I knew it - rich natural forest that had us glued to the jeep windows. Not the fragments I had imagined, but extensive and intact forest. We set out on foot to climb the last 800 m of mountain and it seemed that every corner revealed exciting new finds. Our repeated stops had Stella & David urging us on to see the excellent plants awaiting us further up. The preservation of this remarkable

The commercial collection of wild plants

forest is in part due to the great height and steepness of the Cang Shan range, presumably making it unattractive to cut because logs would need to be dragged along tortuous routes down sheer slopes. The lesson I took from this was that while the landscape through which you travel may be ecologically degraded, even as far as the eye can see, another world of amazing plants may await if you venture into less accessible places.

The destruction of forests in Yunnan and Sichuan forests had serious negative consequences, causing not only an increase in landslides and erosion, but also exacerbating flooding on the Yangtze river hundreds of miles to the east. In 1998, after particularly disastrous flooding, the Chinese government banned logging in the region and poured money into reforestation. Clues telling the story of the rise and fall of the logging industry were very apparent throughout the expedition. We often encountered stumps, decaying wood and saplings, creating a feeling that great damage had happened in the past, and that things were to some extent now recovering. As we drove we would pass great tracts of conifer monocultures, and we saw far less mature woodland. Undoubtedly the logging ban is a good thing, but there has been an unfortunate unintended consequence. Without forestry, locals now depend more heavily on livestock for an income, and pressure to graze forested land has increased. Woodland is being thinned to improve pasture, with fallen trees left to rot. Although this practice has gone on since time immemorial, the recent upsurge is very concerning when so little old-growth forest remains. We saw plenty of felled trees on the expedition, but it was hard to tell whether they were cut during the final days of the logging industry or more recently by locals hoping to improve grazing.

Another change that David & Stella had noted on their previous trips is the growing numbers of pigs, sheep and goats, adding to traditional

Some timber litter at Tianbao Shan, after the ban on logging was introduced

bovines. They believe that the combination of all four grazing together is particularly destructive, wiping out plants that would otherwise survive quite high grazing pressure. The widespread prosperity of the urban Chinese is contributing to this increase in livestock, as there is a flourishing culture of banqueting and a rocketing demand for meat dishes, which are an indication of affluence. Market forces are inflating demand for traditional medicines, which is driving the over-collection of some plants believed to have healing or therapeutic properties. Faith in the effectiveness of traditional medicines is the norm across all sections of society in China, and stalls and shops selling medicinal plants are commonplace. We sometimes saw numerous parallel trails traversing scree slopes, and we wondered if these were made by collectors searching systematically for plants like *Fritillaria delavayi*, a popular and valuable medicinal plant with a huge annual demand and, unsurprisingly, declining populations.

Environmental articles such as this focus on negative changes that threaten species or ecosystems. But, despite these problems, the Hengduan Mountains overwhelmingly remain a wonderland for the plant lover, the naturalist and the explorer. Even relatively degraded areas yield interesting finds. For example, one toilet break mid-drive through a young conifer monoculture led us to find *Paeonia delavayi*, and our only *Primula szechuanica* plants were found on Hong Shan growing on a bank of spoil built up to dam a stream. To maintain perspective, remember that while agriculture in the mountains may be intensifying, it is still a world away from the sad state of affairs in the UK, where many plant species have all but been wiped out by fertilisers, pesticides, ploughing, over-grazing and land drainage. In Yunnan and Sichuan there are great expanses of unenriched and unsprayed plant-rich grasslands, and many locals continue traditional farming practices.

On a toilet break at an unremarkable roadside spot we found *Paeonia delavayi*

Meconopsis sulphurea on the Tianbao Shan, June 2016

As someone drawn to wildness, a highlight at the end of the trip was a walk up a high river valley in Wolong National Nature Reserve, through forest that was as close to wilderness as I had ever experienced. People have lived in the Hengduan Mountains for thousands of years, doing what they can to exploit the environment to survive as well as possible, and there is little pristine forest left. Yet here and there in exceptional locations like Wolong, deep intact forest can be found where large mammals like the giant panda, black bear, leopard and golden takin persist. The dense ancient forest that cloaked the valley we walked through was thick, lush, and, exhilaratingly, it felt like we were the only humans in existence. *Usnea* (beard lichen) and liverwort festooned the trees, creating an otherworldly

Meconopsis punicea at Jiajin Pass, June 2016

primeval atmosphere. Many of the flowers we came across were adapted to gloom, moss and dampness, like the pure white *Pyrola* we found growing on a decaying log. Being a National Nature Reserve and holding many of China's cherished giant pandas, Wolong is afforded some of the best environmental protection in the country, and it really tells. It is hard to choose, but I would say that the wild forests of Wolong and the sublimely flower-rich mountain passes nearby made this spot my favourite of the places we visited.

Another aspect of the expedition that thrilled me was the exciting realisation of just how little is known about the ecology of the region. Tantalisingly, there are many discoveries waiting to be made, including the finding of new species. As China was closed to outsiders for much of the last century, and because the Hengduan Mountain Range is so large, rugged, and inaccessible even for Chinese scientists, preliminary surveys of plants and animals have been made only recently. Most of the Hengduan range remains unvisited by botanists; even easily accessible and frequently visited places throw up surprises, such as *Primula melanantha* at Zheduo Pass, unseen for a century despite growing a few metres from a main road. Indeed, before the expedition I had assumed that the taxonomy of a genus as well loved as *Primula* would have been settled long ago, but this turned out to be far from the case. David Rankin and Pam Eveleigh, well regarded *Primula* experts, are still unsure how some of the plants encountered fit into current taxonomic understanding, such as the flower from Tuowu that Graham Gunn will introduce in his forthcoming article, which may be a new species. Furthermore, some of the journeys that took early plant hunters such as George Forrest months now last a day, meaning the modern hunter can prospect over great distances. All this combined to give the expedition an exciting explorative aspect. It's quite addictive, and you quickly develop the urge to investigate every cliff face, stream bank, gully, or any other feature that catches your eye.

Cypripedium tibeticum, Balang Shan, June 2016

Meconopsis delavayi at Ganheba, June 2016

Our time in China also made clear how important expedition information is for conservation. Much of what we knew came from previous expeditions, and even the collection of basic data of what grows where is valuable. David & Stella have strong links with Chinese academics with whom they share intelligence, and such scholars increasingly use their impressive botanical knowledge to influence policy in a nation that is becoming progressively receptive to environmental protection. What does the future hold for the region's flora? It is difficult to predict because, as I have described here, there are both positive and negative trends. It is probable that future mass tourism will become very important and, if the ecological footprint is minimized, this could provide a livelihood to local people and an incentive to look after the environment. On the

Primula amethystina ssp. *brevifolia* on the Balang Shan, June 2016

Part of the meadow flora found on Balang Shan: *Lilium lophophorum*

other hand, there are also new ideas for the wide-scale exploitation of the region, such as the serious and disturbing vision of turning the area of Sichuan that contains Wolong into the *Bordeaux of China*, with plans for extensive mountainside vineyards. Yet whatever the future holds, the '*savage grandeur and wondrous scenery*' (as Ernest H Wilson put it) of the Hengduan Mountains will continue to make the development of the region tremendously difficult, protecting the area's ecosystems. My hope is that there will be plenty more botanical expeditions to the region like the one of which I was privileged to be a member, as I believe they will play a part in documenting and raising awareness of the extraordinary biodiversity of the Hengduan Mountains.

Part of the meadow fauna: Yang Kun, Zhou Ming, Ed Shaw, Ngaire Burston, Chris Parsons, Stella Rankin, Kai Yun, Graham Gunn, David Rankin and Peter Edge

Rare Plants and Dying Glaciers in the High Sierra

Michael Uhler

As I crest the massive terminal moraine at the northern base of Mount Darwin, the monarch of the so-called Evolution Region, I am stunned by the view. For years, I have dreamed of the day I'd reach this classic High Sierra peak. I've stared at photos as well as read various trip reports that I've managed to track down concerning this regal summit and the region in general. Despite this preparation, I am ill-equipped for the visceral blow delivered by the sight of Mount Darwin's dying - or technically dead - glacier. I guess it should come as no surprise that this scene lies before me, because the melting and recession of most of California's once-living glaciers has been well documented by science and the media. However, it is quite a different experience when confronted by the fact face-to-face. As I gaze at Mount Darwin's glacier, I notice that my planned ascent route requires no passage over ice.

In every historical report I have read about this route, I recall there being the caveat of ice travel and the need to use crampons and an ice-axe to ascend the glacier until the proper rock-filled chute is reached. This frozen portion of the scramble is conspicuously missing! It, in addition to the tell-tale glacial crevasse known as the *Bergschrund*, is no longer present. *Bergschrund*, a German word meaning *mountain cleft*, is the crevasse that forms at the head of a glacier as it moves away from stagnant or stationary ice above it. It is a profound and beautiful feature of living glaciers. It is safe to say that the so-called Darwin Glacier is no longer moving and therefore is by definition no longer a glacier; some may say it is a dead glacier.

I'm on day seven of a sixteen-day knapsack outing in the rarified alpine zone of northernmost Kings Canyon National Park with my wife Ellen and close friend Deanna. We're on an extended trip afoot, combining alpine botany with a rare plant treasure hunt to help the California Native Plant Society (CNPS) and National Park Service botanists document rare or uncommon plants in this remote region of the state. I am fortunate to have competent botanical companions.

Thus far we have mapped many populations of two uncommon plants that are deemed in need of more study: we've encountered several presumably undocumented populations of Congdon's Sedge (*Carex congdonii*) and Rosy-petalled Cliffbush (*Jamesia americana* var. *rosea*), both listed as uncommon in California by CNPS. My desire to find a third, rarer, species brings us to the north slope of Mount Darwin. It was here, high on the mountain, that the alpine-obligate Letterman's Bluegrass (*Poa lettermanii*) was recorded sixty-five years prior, in 1950. I seriously hope to find it.

South of Mount Humphrey, towards Alpine Col, gateway to the Evolution Region, Kings Canyon National Park

Nearing the summit of Mount Darwin along the west ridge route, an enticing view of Mount Mendel's east face

I debated bringing my ice-axe and crampons for this scramble but decided not to as my pack was already over 70 pounds (30 kg) and I thought that I'd ascend one of the snow- and ice-free west-facing routes, or not scramble at all. Alas, owing to Darwin Glacier's melt-out, it has become possible to reach the summit from the north side without ice-climbing tools. The inexorable melting of the glacier galvanizes my desire to search for the Alpine Bluegrass, as it seems that its cultural milieu is rapidly changing, like that of the glaciers, thereby imperilling its existence. However, it is too late in the day to start, and the disconcerting daily thunderstorms have dampened my zeal. The spectre of getting zapped or slipping on

Alpine Daisy (Erigeron pygmaeus) near the summit at the peak of 4030 m, a truly alpine denizen

Alpine Lewisia (Lewisia glandulosa) in a boulder-field seep. Red sepals have beautiful stalked edge glands

Kings Canyon National Park. Atop Alpine Col, the first cross country pass of the trip. An unnamed lake below with the lordly Mt Darwin and Mt Mendel in the distance

wet rock makes this already-risky solo scramble less inviting, so I decide to delay the event to the following morning and get a pre-dawn alpine start.

Tonight's camp is in Darwin Canyon, a suitable distance from the lowest of five unnamed lakes found in the canyon. Its surface elevation is over 3500 m. We entered this canyon, which is located to the north of Mount Darwin, after crossing the Glacier Divide and spending a couple of days botanizing below Mount Goethe. The Glacier Divide is the official northern boundary of Kings Canyon National Park, and it intersects the Sierra crest at roughly a right angle. As the name implies, its north-facing slope is home to the Goethe and Matthes glaciers, both of which are sharing the same fate as Darwin Glacier. In fact, the Evolution Region is home

At the beginning of our knapsack trip we encounter the sumptuously scented Kelley's Lily (Lilium kelleyanum)

A better look at the reddish stipitate glands of the Alpine Lewisia's sepals

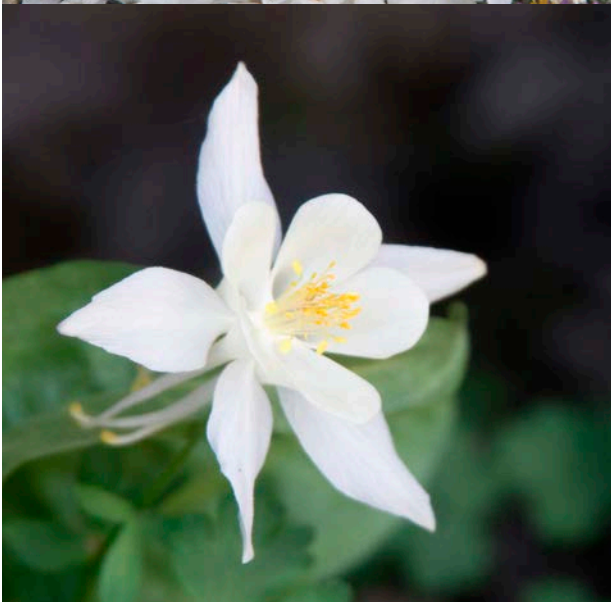
to four of the fifteen officially recognized and named glaciers in the Sierra Nevada, two of which, Darwin and Mendel, are at our Darwin Canyon camp's doorstep.

I'm up before five in the morning to sip some coffee

Condensed Phlox (Phlox condensata) found near the summit of Mount Goethe. This densely-compacted and scented cushion plant is typical and common in the alpine flora of this part of the Sierra Nevada

and on my way before six, heading towards the light in the eastern sky. The clouds are already starting to form all around, so I hasten my step towards Mount Darwin. I don't want to get caught on the exposed west ridge or summit plateau in the inevitable afternoon electrical storm.

The Alpine Columbine (Aquilegia pubescens) hybridizes freely with the Crimson Columbine (Aquilegia formosa), causing the flowers to bloom in a variety of attractive colours ranging from yellow to pinkish or blue. This nearly-pure white specimen is my holy grail of alpine columbines, because I rarely encounter such white forms



On my early morning ascent of Mount Darwin, nothing is more comforting than seeing Sky Pilot (Polemonium eximium), a strictly alpine species which is endemic to California's Sierra Nevada

At a bit after seven I reach the start of the third-class scramble at the base of the gully that leads to the west ridge. While pausing here, I enjoy the low-angle light exquisitely illuminating the Sierra-endemic plant Sky Pilot (*Polemonium eximium*) as it clings to its lofty perch. After an hour and a half of wet and loose scrambling, I reach the top of the gully at the west ridge. From approximately 4000 m in elevation, I am staring almost straight down 900 m to the beautiful Evolution Basin below, with large dark Evolution and Sapphire lakes as well as many smaller unnamed lakes punctuating the bedrock with their various shapes.

After a short respite to take breath, I turn left toward the east and the summit plateau of Mount Darwin. The top is relatively flat and easy to walk on but for the next half-mile or so the route requires a modest amount of focus to stay on course. After twenty minutes of this ridge-line ascent, at about 4100 m I notice a diminutive graminoid no taller than a few cm in full flower. Growing in the sandy and gravelly soil between the fissures of the large vertical columns and adjoining horizontal bench boulders are several small Bluegrass bunches that could very well be the rare-in-California Letterman's Bluegrass. This is extremely exciting!

Before getting too excited about the prospect of finding a species that hasn't been reported on Mount Darwin for over 65 years, I must take a more diagnostic look at the grass. This is the challenge, as there is another Bluegrass that grows at this elevation and has been collected on this mountain as well. Keck's Bluegrass (*Poa keckii*) is also a dwarf alpine Bluegrass, and to most casual observers it may easily be mistaken for the rarer Letterman's Bluegrass. Indeed, even close inspection might lead to a misidentification.

Alpine botany of dwarf graminoids is challenging, to say the least. In order to key this one out you need to make measurements that are less than one millimetre on the anthers. For Letterman's Bluegrass the anthers measure 0.2 to 0.8 mm, in contrast to 0.8 to 1.2 mm for Keck's Bluegrass. A micro-measurement of the lemma is also in order: less than or equal to 3 mm for Letterman's Bluegrass and 3 to 5 millimetres for Keck's Bluegrass.

Well, at least it's not thundering yet. I do my best to measure these characters and conclude that at least some of the individuals fall within the

The American Pika (*Ochotona princeps*). A key characteristic of the American Pika is its temperature sensitivity; death may occur after brief exposures to ambient temperatures greater than 25.5° C (77.9 °F). This cute little rabbit relative is at risk in the Sierra Nevada, owing to the changing climate

specified parameters of the species. This makes my morning. I am thrilled at the prospect of finding Letterman's Bluegrass.

I continue on to the summit plateau of Mount Darwin (4200 m) and then the famous summit block where the summit register is hidden from the elements. Atop the Evolution Region, on the highest point around, life doesn't get any better! I am privileged to be here. It is exciting to discover a wonderful Bluegrass that is veritably at the edge of its range, indeed of its existence.

Letterman's Bluegrass has a very limited range in California, only vouchered a couple of dozen times on the highest summits of the central and southern High Sierra above 3600 m. In the state of Nevada, it is found in only one location high in the Ruby Mountains. Letterman's Bluegrass then finds its preferred haunts in the Rocky Mountains from the states of Colorado, Utah, Idaho and Wyoming to northern British Columbia. I am always amazed by the plant kingdom: how is it that this smallest of Bluegrasses, which seems so delicate, survives in this severe alpine environment? Not only does it survive, but it requires these conditions!

I can't linger long on Mount Darwin's summit. The cloud cover is closing in and I must return to camp, as we've got to put some miles on to get to the next camp. While walking, I wonder how long Darwin Glacier will last as the climate changes. I worry about this little alpine Bluegrass on Mount Darwin and elsewhere in the Sierra Nevada, because it is stranded on the island-like top of this regal mountain, isolated with nowhere to go.

At the end of a long day, but all too short a trip, I am in complete awe of this landscape, its flora and fauna. It is in this moment that I vow to return as often as possible to document all of these features in a manner that may help to preserve them. If we cannot preserve them, I feel it imperative to acknowledge and track their waning days. I fear for the Pika, the Poa and all the icy couloirs of the high Sierra slopes. I feel both a connection and sense of responsibility to these denizens of the alpine zone and I yearn for the season when I can return.

A Return to Tsari

Anne Chambers and Pam Eveleigh

In 1998 and 1999 Anne Chambers was a member of two botanical expeditions to the remote area of south-eastern Tibet called Tsari. This is a significant area for the Genus *Primula* as it is the type location for several species, and extreme variations occur there. Pam Eveleigh uses modern technology to amass and study primula species data and documents her findings on www.primulaworld.com. Together they have joined forces to re-examine the primulas found in Tsari.

Famous plant-hunters like Kingdon Ward, Ludlow and Sherriff were fortunate in being able to explore the eastern Himalaya with only a few political barriers in their way and with time constraints of merely the seasons. They left us an invaluable and inspiring legacy through their diaries, field notes, herbarium collections, hand-drawn maps and books. Though nothing compares with seeing plants in the wild, we can use modern tools such as Google Earth to follow in the footsteps of these expeditions, look at scanned images of their herbarium collections online and see digital images of those same plant species taken more recently. However, much of the territory covered by these plant-hunters is still remote and inaccessible, including the Tsari valley of south-eastern Tibet. Anne Chambers was privileged to participate in two expeditions to the Tsari area and she reminisces here (in blue) about her travels at that time, enabling Pam to relate Anne's insights into the primulas growing there with historical data from Kingdon Ward, Ludlow and Sherriff, and a more recent 2013 Chinese expedition.

The Tsari area is politically sensitive and of great religious importance for Buddhists. The Takpa Siri massif on the south side of the valley is part of the MacMahon Line that, although disputed, effectively forms the boundary between China and India. Tsari is one of Tibet's paramount pilgrimage areas. The annual circumambulation of the Takpa Siri massif called the Kingkor goes south into Arunachal Pradesh (formerly Assam) before returning to Tibet. Sherriff was able to complete this journey in 1936. As many as two thousand pilgrims yearly may have undertaken the Kingkor before the Chinese took control of Tibet in 1950, but this free movement across the provisional border is now restricted by the Chinese and Indian governments, and pilgrims today must be few. Because Tsari's earth has such sanctity, agriculture has never been permitted; there is little habitation in the valley and only a few grazing animals.

To our consternation, about three weeks before our departure for Tibet in 1998, India announced that she had exploded a small nuclear device, Chinese border troops went on red alert, and our permits for the Tsari valley were rescinded! However, all was not lost. We were informed on our arrival that we could approach the Tsari area from the north but only as far as the Sur La and the Bimbi La and we were forbidden to cross these passes into the actual Tsari valley. The Chinese army base at Migyitun, the last Tibetan village before the Indian border, had been strengthened and there was much military activity and surveillance in the area. Perhaps there was, but it must have been in the direction of India and did not disturb us. The plants we saw near the passes confirmed our determination to return in the future during more favourable circumstances.

Anne Chambers on the Bimbi La

In 1936 Ludlow and Sherriff (L&S) planned an expedition which included the Tsari area and were dismayed to discover that Kingdon Ward (KW) had passed though the valley the previous year. Their arrangements were too advanced to be changed but Ward assured them that the flora was particularly rich and, as he had passed through quickly towards the Tsangpo, there were still many plants to be found. This certainly proved correct as L&S discovered nine new primulas in Tsari.

Ward's 1935 expedition is thoroughly documented in his book *Assam Adventure* and, similarly, Ludlow and Sherriff's expeditions are documented in Harold Fletcher's book *A Quest of Flowers*. Pam has used these sources (with the imaged original diaries, maps, and field notes) to trace the expedition routes using Google Earth and mark where primulas were found. Anne's routes of 1998 and 1999 have also been traced and the places where she took images of primulas are marked. This layering of data allows a new way of looking at the information – by location. In this way, Pam can determine where Anne's primula sightings correspond with historical findings and why Anne did not find some species. For example, *Primula flabellifera* was collected in areas inaccessible to Anne at the sacred Tso Kar Lake in east Tsari and on the Kingkor, so it is no surprise that she did not see it.

A 360° view of the Yartö Tra La in 2007

Yumbu Lakhang in 1999

Collections that are used to describe new species, called type specimens, have been scanned and made available online by many herbariums, including the Royal Botanic Garden Edinburgh, Kew and the British Museum, which contain most of the original material collected in Tsari. Pam has added links to the Google Earth markers for these *Primula* collections, allowing access with a single click to an image of the herbarium sheet of the primula collected there. Unfortunately, non-type herbarium sheets have yet to be scanned so all of the plant material collected at a location cannot be compared, but hopefully this will change in the near future. Of additional benefit is the *Chinese Virtual Herbarium* which has made scanned type and non-type herbarium sheets of both historical and recent collections available online, although the resolution of the scans is insufficient for detailed study and the location data, being in Chinese, can be difficult to interpret.

When Pam was in China in 2014, she recognised a picture of a Tsari endemic primula posted on the wall of a hotel lobby in Lijiang, Yunnan. It was from a Chinese botanical expedition to Tsari in 2013 and in this article we are privileged to be able to publish modern images of some Tsari primulas for the first time, courtesy of Wu Zhikun.

We flew back to Tibet the following year on June 8th and, after the prevarications and enforced delays of 1998, we were in no mood to stop for anything once the airport was behind us. But south of Tsedang we were brought to a halt in the late afternoon by the stunning sight of the hilltop fortress of Yumbu Lakhang, sunlit against the inky sky of an imminent rain storm. The airport altitude is about 3550 m and we

Primula calderiana

Primula strumosa

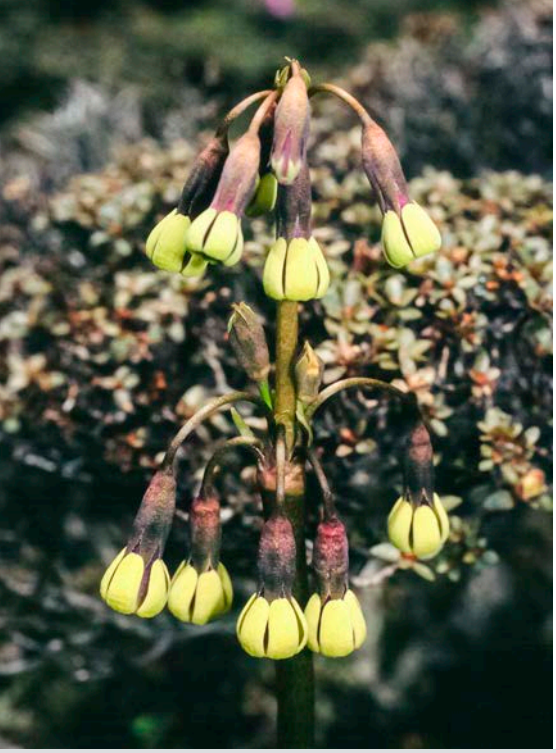
Primula walshii

were rarely below that height. Our camp that night was at 4250 m and next day the road south crossed three high passes: the Yartö Tra La at 5030 m, the Shobo Tu La at 5000 m, and the Bare La at 4800 m. By 2007 when Pam crossed over the Yartö Tra La the rough road had become a paved highway. The high rolling landscapes of Tibet with their vast skies are mesmerizing to drive across, and their barren appearance is a deception. At one point, we crossed miles of stony terrain dotted at intervals with a small, bright pink *Incarvillea*, probably *I. himalayensis*. On the passes are mounds of the dwarf alpines characteristic of the high Himalaya such as *Androsace*, *Chionocharis hookeri*, *Corydalis*, and no doubt there would be a succession of species of *Pedicularis*, *Anemone* and *Gentiana* as the summer progressed. We pressed on, gradually losing height, to camp overnight near Sanga Choeling monastery where Ludlow and Sherriff had made their base in 1936.

From Sanga Choeling the road turns north then east towards Tsari and gradually the landscape becomes more green and able to support a few nomadic yak-herders. We saw some primulas on the way. *Primula atrodentata* grew between the patches of *Rhododendron nivale* but colonies of the tiny, eye-catching *Primula walshii* preferred less competition. The herders' encampment was ringed by robust plants of *Primula calderiana*. Nothing is quite as good as a yak-pat to promote vigour in some primulas!

Primula calderiana has a strong, disagreeable smell. Sherriff thought he was down-wind of a colony of it in Bhutan but found instead the yellow-flowered subspecies *P. strumosa* which is more common in western areas.

Hybrids in Arunachal Pradesh



A comparison of flowers. Right: *Primula szechuanica*
Left: *Primula advena* below Cha La; first collected as *P. szechuanica*

Where both grow, oddly coloured hybrids often result and, although they have been observed before, we now have images to show this phenomenon. The primula expert John Richards considers *P. strumosa* a subspecies of *P. calderiana*, although the two occupy different elevations, have different geographical distributions and only where they rarely overlap do they hybridize. For these reasons they have been kept distinct by regional floras.

After some excellent yak-butter tea we continued, climbing laboriously to the last high pass, the Cha La at 5060 m. The temptation is always to leap from the vehicles and rush around looking for anything new – not a good idea at Tibetan altitudes! Below the Cha La, in moist ground between rocks, we found plants of the curious *Primula advena*, with pale yellow corolla lobes reflexed completely along the purple tube.

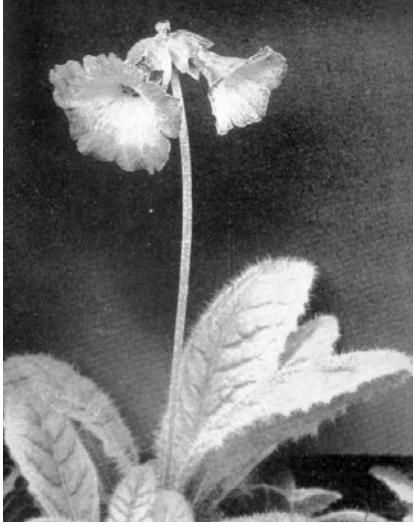
The wet Senguti Plain is traversed by the Tsari Chu (River Tsari)

A comparison of leaves.
Left: *Primula advena* Right: *Primula szechuanica*

Ward had collected this in the same location under the name *Primula szechuanica*, which is a very similar efarinose species from further east, but Ludlow and Sherriff's collection (*'The most fragrant Primula I have ever seen'*) was used to describe it as a new species, *P. advena,* which differs by having farina on the inflorescence and often on the leaf margin.

A short time later, we looked down at last on the broad expanse of the Senguti plain at the start of the Tsari valley. Its appearance is in stark contrast to the arid surroundings of Sanga Choeling as the Tsari Chu divides

Primula prenantha
(Photo: Bjørnar Olsen)



A rare image of *Primula sandemaniana*, from *The Rock Garden* 68, p192

into several channels which meander across the plain before merging as the valley narrows. The surrounding mountain slopes are forested with *Abies densa* and juniper. A little further along, we made camp on pasture at Yarap, 3670 m, squashing only *Primula prenantha* under the tents. Sherriff's comment on them was '*inconspicuous flower, but dainty for all that*'.

Ward describes the Senguti plain as the start of a '*sea of Primula sikkimensis*' and '*up to within a short distance of Chickchar, the riverside meadows were sunny yellow with huge drifts of P. sikkimensis, containing millions of flowers, with a few purple strands of P. alpicola and P. hopeana lost like drops of milk in a daffodil sea.*' Ward makes a further point that the *P. alpicola* was not the familiar *P. alpicola* var. *violacea* with flowers of a blue tone, but a violet form on the red tone. He added that hybrid plants were evident although rare. Anne didn't see this because she was a month earlier than Ward.

The primula we most wanted to find in Tsari, *Primula sandemaniana*, eluded us. It was initially listed under L&S collections from 1936, #2118, #2499 and #2796 as '*P.* aff. *cawdoriana*' but it was not until plants were grown at the Royal Botanic Garden Edinburgh from seed of L&S #2796 that it was confirmed as a new species. As far as we can determine, there is no image of it in the wild though we would be happy to be proven wrong. A photograph in *The Rock Garden* (April 1981) shows a beautiful plant in the *Soldanelloides* section. It is very similar in leaf and with the same distribution of meal inside the corolla as the smaller *P. wattii* of northern Arunachal Pradesh but has a flared bell and is generally more farinose. The plant pictured would have avoided the monsoon downpours by being grown in an alpine house!

Primula wattii

But we did find the other *Soldanelloides* species growing on

Primula cawdoriana, Tsari (Photo: Wu Zhikun)

Forms of *Primula alpicola* (Main photo: Wu Zhikun)

Primula odontica (Photo: Wu Zhikun)

the roadside bank - *Primula cawdoriana*. Although Ward first discovered it on the Temo La many years earlier it seemed to be unfamiliar to Sherriff, perhaps because his primary interest before Tsari had been in rhododendrons. Sherriff was much taken by it and recorded seeing it several times, including on the pilgrimage route. We are grateful to Wu Zhikun for his recent photograph of a Tsari colony at the peak of flowering and apparently growing in a sheltered site; plants on exposed cliff sites form much smaller, tighter leaf rosettes.

With the benefit of the detail in Sherriff's diary, Pam has determined that *Primula sandemaniana* grows in a side valley west of Migyitun, which was not accessible to Anne, even though she unknowingly would have passed by it near Podzo Sumdo where Sherriff's native collector found it. It may be that no plant hunter has seen this species in the wild since it was first collected. The Tsari population of *P. cawdoriana* differs in the more dissected leaves than the type population that Pam has seen, and a survey of herbarium collections shows that this characteristic varies. Apparently Tsari has many sites where *P. cawdoriana* and *P. sandemaniana* grow, possibly together, and they may be difficult to distinguish out of flower. In fact, the original description of *P. sandemaniana* also cites L&S #1708, which is actually *P. cawdoriana*.

Like Sherriff, we found another of Tsari's rarities, *Primula odontica*. It grew up one of the valleys south of Yarap, beyond Chickchar monastery.

Lower camp *en route* to the Bimbi La

Sherriff collected it on the Takar La in west Tsari and saw it in masses on the Kingkor circuit, but its apparent abundance seems to be confined to Tsari. He considered it the pick of all the primulas he had seen. It is a small species (9 to 12 cm) and, as is obvious in Wu's photograph, is closely related to *P. kingii* and *P. valentiniana* but its leaf margins are prominently toothed. From personal observation, images and study of herbarium material, there is some variation in *P. kingii* – some plants are compact and with a flared corolla, resembling *P. valentiniana*, and others appear leggier and the corolla is more bell-shaped.

Tsari seems to be the meeting point of these three species, with *Primula valentiniana* distributed to the east through to Yunnan while *P. kingii* is distributed further west in western Arunachal Pradesh through to Sikkim where it was initially described. Neither of these two species has been collected in Tsari. To date, *P. odontica* has only been found in Tsari. Just east of Tsari, at another holy site called Tsari Sarpa, Sherriff found a mass of *P. valentiniana* and *P. kingii* growing together, which was so unexpected

Variations in *Primula kingii* (Photo below: Margaret Thorne)

that he failed to recognize *P. kingii* although he had seen it previously in Bhutan. Despite the variation Anne has seen, the main distinguishing feature between *P. kingii* and *P. valentiniana* is the shape and length of the calyx, being shorter and broader in *P. valentiniana*.

There were several primulas in the high meadows south of Yarap that could be placed in section Sikkimensis but not more specifically. From the previous year's findings, I knew that more confusion awaited us on the Bimbi La. After three days in the valley we set off up the track north from Podzu Sumdo toward the pass. The weather was typically pre-monsoon and at no time did we get the wonderfully clear views of the jagged Takpa Siri peaks that Sherriff had been privileged to see, but it was exciting to follow the route so familiar from his photographs. Initially, the track ascends the stream, through mixed forest, hemmed in by cliffs on both sides. Here we found a vivid magenta-pink form of *Primula munroi* ssp. *yargongensis*. Also here was *P. alpicola* growing in various shades of wine-purple. When we stopped to camp, *P. sikkimensis* was so prolific it was impossible to avoid. Huge mats of the beautiful lilac-blue *Paraquilegia anemonoides* hung from the nearby cliffs and the view to the north was of plunging waterfalls and peaks – Himalayan camping is rarely so sybaritic! The next day, we pressed onwards to beyond the tree-line, through the rhododendron belt, past *Cassiope fastigiata* and *Androsace adenocephala* to camp on an extensive flat shoulder – more *P. sikkimensis*, more *P. calderiana* – beside the yak herders' summer shielings at 4414 m. We were looking down Sherriff's view of the lower valley to the south. Nearby we found *Primula*

Primula sikkimensis
Inset: *Primula munroi* ssp. *yargongensis*

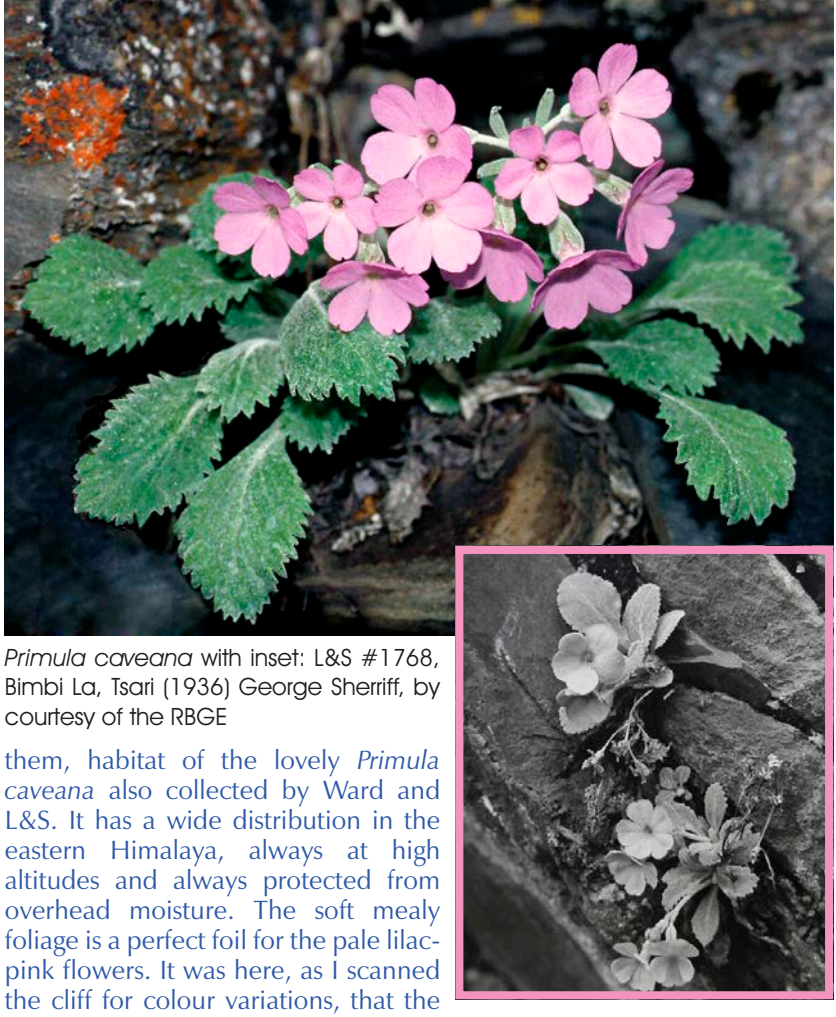
megalocarpa, an attractive small pink primula known to Sherriff as *P. macrophylla* var. *macrocarpa*, with the previous year's elongated flower stem and unmistakably large seed capsule still attached. *Primula megalocarpa* wasn't recognized as a distinct species until 1974 by H Hara and previous herbarium collections of *P. macrophylla* var. *macrocarpa* can be mixed between true *P. macrophylla* and *P. megalocarpa*.

Primula megalocarpa

Anne's *Primula munroi* ssp. *yargongensis* was seen at the same place and is the same species as Ward's *P. involucrata*, described as *'dark purple, almost crimson'*, and L&S's *P. yargongensis*. The name *P. involucrata* has changed to *P. munroi* as the name was first published in Wallich's catalogue, but the names in the catalogue are now considered *nomina nuda* (invalid) and the next validly published name for the species is *P. munroi* Lindley. It is almost certain that Anne's camp in the *P. sikkimensis* meadow below the Bimbi La was the same as L&S's camp in 1936. This is also where a single white plant was collected by L&S under #2106 and described as *P. alpicola* var. *alba*.

Although still two hours from the Bimbi La and 300 m lower, the meadow was a more comfortable option than the chilly boulder-strewn hillside that had been our campsite opposite the pass in 1998. Beyond the camp the track climbs through an area composed of vertically aligned slates, their edges razor-sharp, and as hazardous as the loose debris under

View with *Rhododendron agganiphum* from Bimbi La towards Podzu Sumdo



Primula caveana with inset: L&S #1768, Bimbi La, Tsari (1936) George Sherriff, by courtesy of the RBGE

them, habitat of the lovely *Primula caveana* also collected by Ward and L&S. It has a wide distribution in the eastern Himalaya, always at high altitudes and always protected from overhead moisture. The soft mealy foliage is a perfect foil for the pale lilac-pink flowers. It was here, as I scanned the cliff for colour variations, that the debris under my feet slipped and the vertical slate cut parallel gashes in my hand. In the same area L&S's collector, Tendup, cut his knee badly enough to need stitching. Fortunately, my own wounds did not require this painful method.

As the track turned towards the old 1998 campsite, we saw that the water level of the tarn under the Bimbi La was very low and few of the *Rheum nobile* plants had expanded into those extraordinary beacons that were such a feature on the hillsides. Generally, the flora was less advanced in 1999, perhaps because of less winter snow or precipitation, or lower temperatures.

Unknown to Anne, the head valley, just west of the Bimbi La, was the type location for *Primula jucunda* var. *ponticula*, found by Ludlow and Sherriff's collectors Danon and Tsongpen. It is a variation on *Primula jucunda* collected a week earlier in the same valley west of Migyitun as *P. sandemaniana* and then again two weeks later on the Kingkor circuit.

Primula glabra in turf by a track to the Bimbi La

This is another species that has probably not been seen by plant hunters in modern times. It belongs to a complex of yellow flowered species that includes *P. strumosa*, *P. hilaris*, *P. elongata* and P. *barnardoana*, and it requires further study.

There were broadly three primula habitats on the track to the Bimbi La: the rocks rimming the coire were covered in tight mats of *Primula dryadifolia*; below the rim the path zig-zagged through steep slatey screes with a near-level patch of consolidated turf which may benefit from the attention of pack-horses. This stabilized area had a colony of the tiny *P. glabra* whose characteristic flower colour John Richards describes as grey-slate; perhaps mauve would be more charitable. But two more robust purple primulas in the turf, competing together in a jumble with the silverweed *Potentilla*, were interesting and confusing. One was the magenta-purple *P. calderiana*, which we had often seen before as much larger plants in strong drifts and with more meal-covered leaves, the other lacked the magenta tone in the purple and proved to be *P. tsariensis*. As usual with primulas, there was a bit of colour variation within the plants themselves but the two species could be separated by colour alone - checking that *P. tsariensis* had orange roots

Primula tsariensis
(Photo: Wu Zhikun)

was not something I could do! In less vegetated areas of the screes delicate little plants of *P. ioessa* seem to predominate - in such variation of colour from palest pink to magenta, but also peach, orange, yellow tones and white too with a black calyx. I wondered what their relationship was to the more robust but very similar yellow- and white-flowered plants I saw on the other side of the valley.

Probably the most interesting and puzzling primulas in Tsari are members of the Sikkimensis section. Already mentioned, *P. sikkimensis* and *P. alpicola* both were abundant in Tsari but confusion reigns on how to separate the variations in colour and form. Ward, in 1935, noted that those species were common in the valley, but they were replaced on the Bimbi La with dwarf forms. These have yellow, purplish and white flowers which he discusses in *Assam Adventure* as having possible names of *P. pudibunda*, *P. prionotes* (now considered *P. waltonii*) and dwarf *P. hopeana*. These are the plants that Anne saw and named as *P. ioessa*. At Tso Kar Lake Ward collected dwarf plants with white (sometimes tinged purple or violet) flowers which were described as *Primula sikkimensis* ssp. *subpinnatifida*.

What is *Primula ioessa*? Ludlow & Sherriff's collection #2514 was found

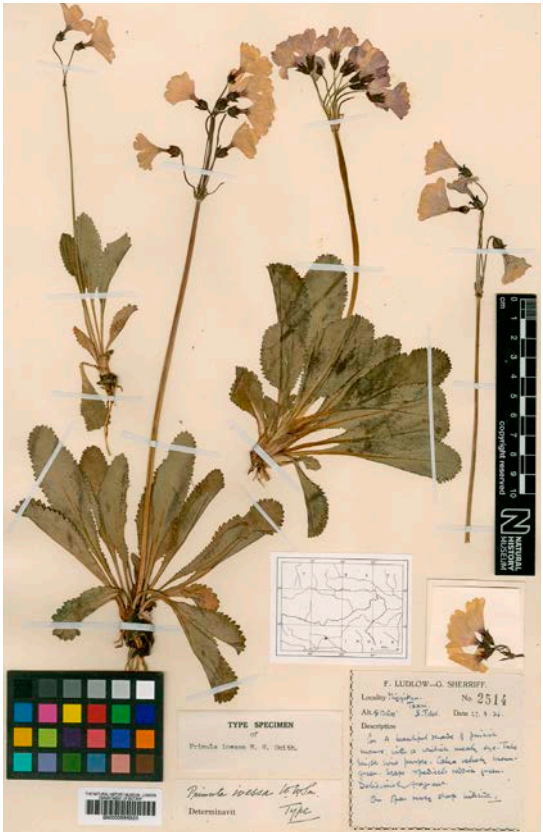
Primula hopeana, Tsan
(Photo: Wu Zhikun)

This page: section Sikkimensis, dwarf form variations, Bimbi La

in the same valley west of Migyitun where *P. jucunda* and *P. sandemaniana* were found, and was described as a new species, *P. ioessa*. Additional type collections of *P. ioessa* were made at the Tama La (on the Kingkor circuit) #2189, the Bimbi La #1791, and near Singo Samba (to the east of Tsari) #1868. *Primula ioessa* was described as a beautiful shade of pinkish mauve with a whitish mealy eye, a tube of bright

wine purple and a calyx of darkest green, almost black. However, the other collections listed as syntypes give the colour as pale violet, deep lilac and madder pink but all with a dark calyx. Sherriff commented that some of these collections did not resemble the *P. ioessa* type #2514 and thought perhaps they should be nearer to *P. vinosa* (now considered *P. waltonii*). In Arunachal Pradesh, meadows of yellow *P. sikkimensis* with a black calyx occur and they are mixed with forms indistinguishable except for having deep red flowers, so perhaps the black calyx should

Primula aff. *waltonii, Tsari* (Photo: Wu Zhikun)



not be considered as a distinguishing characteristic. Even Smith, in the *P. ioessa* description, thought that *P. ioessa*, *P. hopeana*, *P. waltonii* and dwarf *P. sikkimensis* may all be part of one polychrome species. Ward's *P. sikkimensis* ssp. *subpinnatifida* eventually became *P. ioessa* var. *subpinnatifida* and now is considered a synonym of *P. ioessa* according to the *Flora of China*.

Primula hopeana was described in 1918 from plants collected by R E Cooper near Wangdue Phodrang, in

Primula ioessa type L&S 2514 from British Museum under CC0 1.0

Primula hopeana (right) and hybrid (left), upper Mangde Chu, in Bhutan (Photos: Margaret Thorne)

Bhutan. It has creamy-white flowers and a dark calyx but resembles a smaller form of *P. sikkimensis* and so it is considered *P. sikkimensis* var. *hopeana* in the *Flora of Bhutan*. The type population of *P. hopeana* contains plants having white flowers with a red tube. Other Bhutan populations include hybrids between *P. hopeana* and dwarf *P. sikkimensis*, producing a variation with pink flowers, a darker pink tube, a dark calyx and which could easily be called *P. ioessa*. W W Smith identified Tsari collections from Takar La (west Tsari), Chickchar and north-east of Migyitun as *P. hopeana*. They are described as creamy white (mealy in the centre face), calyx a dull dark green and one collection with the slightest tinge of lavender (which may again overlap with *P. ioessa*). John Richards made the new combination *P. ioessa* var. *hopeana* in 2002, though *P. hopeana* was described prior to *P. ioessa*.

It is obvious that members of the Sikkimensis section hybridize readily, but it is difficult to determine which the distinct parent species are. Pam has seen this kind of hybridizing further east in south-east Tibet and the profusion of forms is amazing. Each plant looked at in isolation could be described as a distinct species. It will require a well-coordinated international study, perhaps using genetics, to fully understand the species in this section.

Primula tsariensis is closely related to *Primula griffithi* and *Primula tanneri* (both with acute leaf apex and farinose calyx, whereas *P. tsariensis* has an obtuse apex and efarinose calyx). More robust plants (to 33 cm) were described as *P. tsariensis* var. *porrecta* and the type collection was made at Taktsang on the Kingkor circuit by Sherriff, close to where he collected typical *P. tsariensis* (to 12 cm). Sherriff noted that plants of this species

were growing where conditions were particularly favourable for growth and that he did not regard it as being otherwise distinct from the typical species. Though John Richards reduced *P. tsariensis* to a subspecies of *P. tanneri*, both the *Flora of Bhutan* and the *Flora of China* keep them distinct. The *Flora of Bhutan* notes that the leaves of *P. tanneri* are dimorphic, being elliptic with an attenuate base at flowering and ovate with a truncate or cordate base later. The leaves of *P. tsariensis* are monomorphic remaining obovate-spathulate with an attenuate base (broadly cuneate to subcordate).

Unfortunately, we learned on reaching the road that the army at Migyitun had discovered our presence and had requested our speedy departure in a westerly direction. Next morning, after towing our support lorry out of the marshy Senguti campsite, we stopped at Sanga Choeling monastery for a last exciting find. Like most monastic and religious sites in Tibet it was demolished during the Cultural Revolution. In 1986 the abbot returned to start the rebuilding process and by the time of our visit several buildings had been completed. The abbot, who was by then 75 years old, welcomed us warmly, insisting on showing us around. He especially wanted us to see one of the precious objects draped with a *kata*, the Buddhist ceremonial scarf of respect, which was displayed in the entrance. The monks had

A hybrid swarm of Sikkimensis section hybrids near Yartö Tra La

taken it with them on their flight south to save it from otherwise inevitable destruction. To our amazement it was a large black and white photograph of the once extensive monastery, which he told us had been *'taken by two Englishmen a long time ago'*. Without doubt it was taken by Sherriff, who was an accomplished photographer, when he and Ludlow stayed there with the wife and daughter of the late abbot. He took photographs of the monastery and of the daughter too *'since she hung about all day wanting a photo taken'*! We were as thrilled to find this very tangible connection to him as we were to see his plants.

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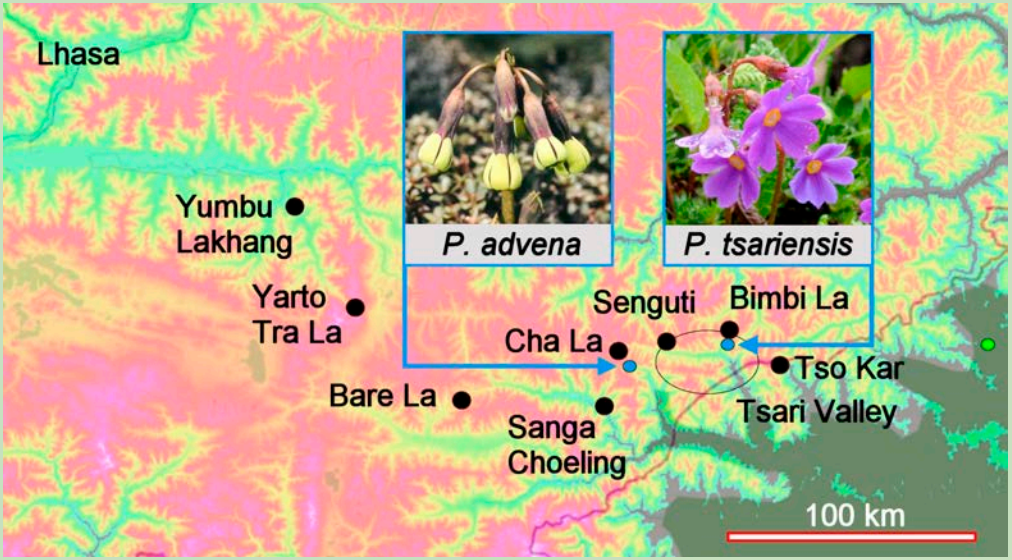
We are grateful to the Royal Botanic Garden Edinburgh for help and permissions for this article.

Places in the expeditions (topography taken from Google Maps/Google Earth)



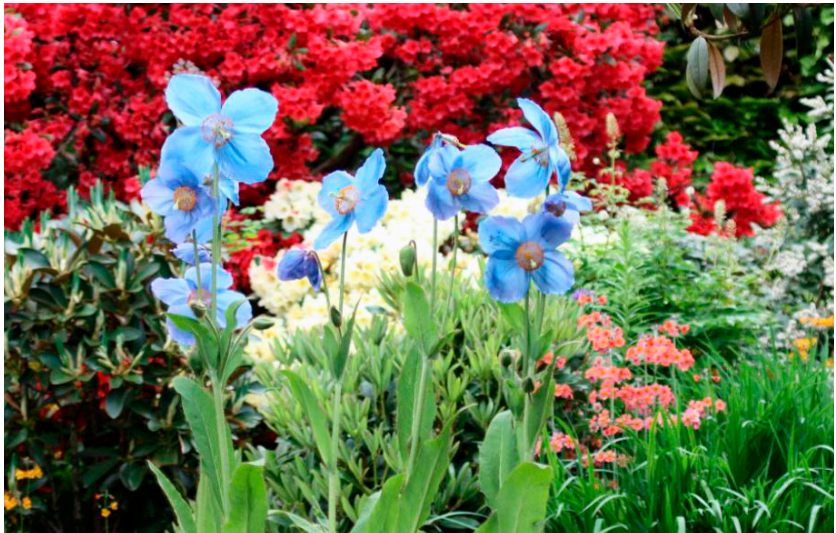
Meconopsis at Branklyn Garden

Steve McNamara

I arrived at Branklyn in early 1997, after working in Canada at VanDusen Botanical Gardens in Vancouver. In the Chinese section of this wonderful garden, I learned about *Meconopsis* and became fascinated by these remarkable plants. This is one of the reasons I wanted to work at Branklyn and I remember in my early years taking plants to Evelyn Stevens from the garden. That was the time the interest in the plants and the naming of the cultivars of *Meconopsis* started. As I was keen to find out about the plants at Branklyn, I joined the *Meconopsis* Group quite early in its inception. Most of the plants at the garden that were not species had been named *Meconopsis* x *sheldonii* because they were all viewed as hybrids, and so the important work of sorting the plants out began.

There was of course a great history of *Meconopsis* growing at Branklyn with seed of plants coming in from the Ludlow and Sherriff expeditions to Bhutan and Tibet. There seems to have been over the years an inbreeding depression. As I understand it, the plants become less fertile because of the lack of diversity in cultivation and they no longer produced seed. We therefore grew several clones at Branklyn that have since been named. The clones include *Meconopsis* 'Mervyn Kessell', named after one of the founding members of the *Meconopsis* Group. Another is *Meconopsis* 'Stewart Annand' named after the first head gardener at Branklyn who was appointed after the National Trust for Scotland was gifted the property by the owners, the Rentons. The last clone is *Meconopsis* 'Dorothy Renton' named after Dorothy Renton, who with her husband, John, built Branklyn in 1922. The couple made a good team, with John Renton having a good eye for landscape design and positioning, while Dorothy received

Meconopsis 'Mophead' at Branklyn garden



numerous awards for her work on the cultivation and introduction of new plants. Many of the introductions to Branklyn from the plant hunters of the time were new to cultivation, and it was only after lots of experimentation that the correct growing conditions were found. Branklyn is a great garden for such work in that all the types of growing conditions are here, from scree through to peat garden.

I was interested in finding out about the cultivar *Meconopsis* 'Branklyn'. I had assumed that it would be an easy job to find but unfortunately that was not the case. It turns out there were several clones from various sources that were vying for the title. About ten years ago, several members of the *Meconopsis* Group and I travelled to Northern Ireland to visit several gardens and to see what cultivars were growing there.

One grower we visited was Stewart Moore; he was over ninety at the time and unfortunately has since died. He had grown *Meconopsis* over many years. Only two cultivars, *Meconopsis* 'Slieve Donard' and *M.* 'Branklyn', had come from a reliable source – Jack Drake's nursery at Inshriach. Over that period, he had not introduced any other cultivars and consequently, with no likelihood of crossing, it seemed we had the closest to the correct plant. We now have plants that we believe to be *Meconopsis* 'Branklyn', but this needs to be confirmed.

Lastly, I want to use this opportunity to thank everybody in the *Meconopsis* Group, and especially Evelyn Stevens, for all the support you have given Branklyn over the years. I retired in March 2016 and I am sure that Jim Jermyn, the new head gardener, will be as enthusiastic and will love the garden as much as I have done.

Branklyn Garden, 116 Dundee Road, Perth, PH2 7BB, managed by The National Trust for Scotland, is a National Collection holder of the large blue poppies. The garden is open from 1st April to 31st October daily from 10 am to 5 pm.

Meconopsis 'Dorothy Renton' at Branklyn garden

Crosses and Noughts: more *Tropaeolum* Lowdown

John and Anita Watson

With nothing but positive intent, we'd like to add a smidgen of technical and historical gloss to the fascinating article on *Tropaeolum* hybrids by Emiko Tsujii and Jean-Patrick Agier in the January 2016 issue of *The Rock Garden*. The objective is to supplement, not eclipse, their account. These dainty vines represent the antithesis of what we might call 'cushion culture', the core of alpine plantsmanship. They illustrate just how healthily catholic and wide our interests are, as well as how difficult it is to pigeonhole them all in one box with an unambiguous label!

Forerunner Hybrids

Our attention was drawn over a decade ago to what we believe to be the first deliberate attempt at crossing wild perennial tropaeolums. Rosemary Wilson of Bury St Edmunds not only managed to achieve this feat, but was outstandingly successful. She kept in touch with us, as the parental introductions had resulted largely from our own then regular seed collections in Chile. Rosemary is, without doubt, the source of the hybrids from 2000 reported by Emiko and Jean-Patrick.

Although Rosemary's correspondence is not to hand as we write, she was kind enough to mail us a number of copies of the small annual *Tropaeolum News* publication. Our records are incomplete and our human memory banks too overloaded, so off the cuff we have no certain indication of which taxa she used in total. Nevertheless, there is no doubt *T. beuthii*, *T. austropurpureum* and *T. azureum* were core protagonists, and we believe *T. brachyceras*, *T. hookerianum* ssp. *hookerianum* and *T.* ×*tenuirostre* at least may have come into the picture too. *Tropaeolum News* №6 of 2007 contains a photo gallery of Rosemary's and Emiko's hybrids juxtaposed, both sets equally attractive, and some of the results remarkably similar, comparatively.

Fired by their commercial potential, Rosemary sought a professional opinion but was disappointed and discouraged to be told that, despite their undoubted aesthetic appeal, they did not fit into any practical saleable category. Not being in any way hardy, they could not be employed in the open garden like *T. speciosum* and their fragile, essentially dependent climbing habit made them too demanding to serve as as pot plants 'for the masses'. In no way, however, does this dismiss or detract from their allure and relevance for a considerable body of specialist growers. Happily, despite our own seed collecting days being over, we understand that Rosemary - like Emiko - continues with her enthusiasm.

Setting the Basic Science Scene

A little firm botanical background and backbone may be in order at this point. The genus *Tropaeolum* consists of over 90 species in two sections. The main and more numerous section *Tropaeolum* is tropical and largely annual. Apart from the hugely important garden nasturtium and the Canary Creeper, its main role has been to provide a few vigorous vines in need of much *Lebensraum* in heated glasshouses. As a possible exception, our recently introduced *T. argentinum* (featured by Jean-Patrick in *The Plantsman*, September 2015) has shown itself capable of growing out of doors. It might serve to complement the Canary Creeper – as a Goliath to the latter's David! First it will have to prove more cooperative in the matter of germination though.

Section *Chilensia*, the lesser of the two secondary groups, comprises 25 species and is almost entirely temperate, with a main centre of distribution in Chile and a sprinkling of species in Argentina. It descends down into the far reaches of Patagonia in the form of the remarkable dwarf *T. patagonicum*, which has found a bizarre niche by creeping along the mud cracks of seasonally dried-out salt pans. A veritable crazy paving nut! It hogs a subsection all to itself and would grace any alpine collection given it would respond to our tender loving care: correct seasoning maybe?

Tropaeolum patagonicum running along the cracks of a seasonally dry salt pan in Santa Cruz province, Argentina

Tropaeolum myriophyllum was until recently generally misidentified as *T. leptophyllum* ssp. *leptophyllum*. Here it is growing in scree with *Schizanthus hookeri* in central southern Chile

Of the other four subsections, the eponymous and largely Andean subsection *Chilensia* is particularly familiar to alpine gardening for containing *T. polyphyllum*, the only true high mountain species established in cultivation. Occasional others are known to have been flowered, in particular *T. incisum*, *T. myriophyllum* (erroneously as *T. leptophyllum* ssp. *leptophyllum*) and *T. sessilifolium*. The mouth-watering and very localised dwarf high Andean *T. nubigenum* deserves to be widely grown, but experience and evidence to date suggest a very intractable temperament, perhaps terminally so, alas. Oh well, in that respect it's far from alone among alpine *desiderata*.

Subsection *Gracilia*, the Bevy in Question

Emiko and Jean-Patrick are correct in attributing the hybrids they featured to our subsection *Gracilia*. It houses all the slender climbing twiners of the Pacific lowlands and Andean foothills, as exemplified by well-known *T. tricolor*. This is the largest of the subsections, with the nine species and one hybrid species they list, plus the recently rediscovered *T. reicheanum*: Chilean endemics the lot. At one time or another we have collected and listed seeds of them all bar the last mentioned and *T. nuptae-jucundae*. At its northern extremity, *Gracilia* has a final toehold in an Atacama coastal desert oasis just above the Capricorn tropic line, while the lowermost population occupies temperate Valdivian woodland 2000 km to the south. Remarkably, the most widespread and successful is hummingbird-adapted *T. tricolor* itself. It can be found in a salmagundi of habitats from one end of the subsection's range to the other, which explains why it is the predominant parent of all the subsection's wild hybrids, having passed on its blood (or sap!) to the five known crosses plus – as strongly suspected – one further. Curiously, we cannot recall offhand any cultivated hybrid involving this common plant.

High Andean *Tropaeolum nubigenum*, which we have had accepted as a universally recognized species. The flowers are very clearly distinctive (Main photo: Julio Martinich)

Of the ten pure species, we have neither encountered nor heard of wild crosses involving *T. austropurpureum*, *T. azureum*, *T. kingii*, or the type subspecies of *T. hookerianum*. This is assumed to result from distinct pollination syndromes of the first two, owing to their blue and purple flower colouring and their geographical isolation from other potential parent species in the case of the other two species with their respective pale creamy brown and bright yellow corollas. Chile's mediterranean and desert floras have evolved recently so, as Emiko and Jean-Patrick also speculate, there seems no reason to suppose that any species of subsection *Gracilia* might not be compatible with any other. So far as that goes, we already have proof from cultivation of *T. austropurpureum* and *T. azureum* crossing freely.

The four yellow-flowered species, which occur successively and separately along the entire longitudinal range of the subsection, are not always easy to tell apart when their provenance is unknown. To a degree they are distinguished by a combination of flower size and spur length, both characters diminishing from north to south. *T. beuthii* of the coastal Atacama Desert has the largest corollas and longest spurs, followed by *T. hookerianum* s.l. in the northern mediterranean coastal sector. *T. brachyceras* from central Chile bears the second most shrunken set of flower parts, while the pretty runt of the bunch, little *T. nuptae-juncundae*, signs off in the south.

One of the many forms of *Tropaeolum* ×*tenuirostre*, in the inland hills of central Chile

The water is muddied still further by the presence of the widespread and highly variable natural hybrid between *T. brachyceras* and *T. tricolor*, *T. tenuirostre*. This may be found in every intermediate combination of parental features, and blends so perfectly into each at its two extremes as to be impossible to tell apart from them at times. So you may be looking at what you suppose to be pure *T. brachyceras*, when it is in fact the sneaky progeny of a bit of naughtiness between that species and *T. tricolor*. If all this spitting imagery causes headaches for those of us familiar with these tropaeolums in their natural settings, it is not hard to imagine the confusions of identity that can arise in horticulture, as noted by Emiko and Jean-Patrick.

Tropaeolum ×*tenuirostre* was the first of the wild hybrids to be recognised and named. It is accorded the botanical status of nothospecies. Stearn's *Botanical Latin* tells us the prefix *notho* translates literally as *false*, but it would be better expressed in this instance as *not quite*. That is to say the entity has not yet stabilized into a full species, and still readily betrays its hybrid origin. The formal procedure in this case is to devise a specific epithet, which is published with the multiplication sign x in front (recommended without an intervening space, contrary to the conventions of this journal) denoting the hybrid

Tropaeolum brachyceras growing in the Pacific coast region of central Chile

origin, in addition to which the parentage, known as the hybrid formula, must be indicated. Thus our tropaeolum here has been christened *T.* ×*tenuirostre* (= *T. brachyceras* x *T. tricolor*). In fact, *The Rules* allow any wild hybrid to be designated a nothospecies, but spraying such names around for the odd cross or two lurking in a meadowful of its two parent species will not make you any friends in the world of taxonomy. Unless your hybrid is well established and on the way to becoming a genuine species, stick to the more down-to-earth hybrid formula, buddy!

Doing as we say, we can report having encountered

Long-spurred *Tropaeolum beuthii* growing over *Solanum brachyantherum* at a Pacific desert fog oasis near Antofagasta, far northern Chile

Tropaeolum beuthii growing together with its hybrid offspring *T. beuthii* × *T. tricolor* in a coastal oasis valley, far northern Chile (Photo: Anita Flores)

Anita's discovery: rare *Tropaeolum hookerianum* ssp. *pilosum*, showing the diagnostic hairy flower stalks. Northern mediterranean Chile

Tropaeolum beuthii x *T. tricolor* on its own in the far north of Chile

the following further rare and local natural crosses of the yellow quartet: *T. beuthii* x *T. tricolor* and *T. hookerianum* ssp. *pilosum* x *T. tricolor*. These two strongly betray their *T. tricolor* origin by way of smaller corollas than their yellow parent, and a long-tailed spur. This is usually also more or less tinged red, although not always so for *T. beuthii* x *T. tricolor*. Genetic input from the 'yellow' side has resulted in veined petals exceeding those of *T. tricolor*, whose own scarcely emerge from the calyx and are unmarked. Interestingly, our hybrids were found growing among pure *T. beuthii* and the *T. hookerianum* subspecies, which suggests hummingbirds transport pollen from *T. tricolor*, possibly when it runs out of nectar and nearby yellow-flowered plants offer an alternative supply. Certainly, these charming little birds (Green-backed Firecrowns) move freely between yellow *T.* ×*tenuirostre* and *T. tricolor* in our Chilean garden, and are always on the *qui vive* for any potential nectar-bearing flower, almost regardless of its shape, colour or other customers, such as white salvias and pink *Clerodendron bungei*. A probable third hybrid of the yellow

Tropaeolum hookerianum ssp. *pilosum* × *T. tricolor*. Note how the former's hairy stalks have been noticeably shaved during the hybridization process! North central Chile

alliance, *T. nuptae-jucundi* x *T. tricolor*, was reported by Sparre in his monograph with Andersson.

Two more of these wildlings complete our list of natural hybrids from subsection *Gracilia*. They are *T. rhomboideum* x *T. tricolor* and *T. reicheanum* x *T. tricolor*. Again, both carry indelible reminders of *T. tricolor* as their 'tail ends'. The first of them is not only attractively flowered with its hang-dog face, but is of particular interest for growing at 1800 m, close to the beginning of the Andean floral zone. We found it among an extensive tangle of *T. tricolor*, including a pure yellow specimen of the latter.

Tropaeolum reicheanum has for long been regarded as a yellow pigmented *T. azureum*, a judgement we have always considered more than unlikely. We even published that opinion shortly before it was found again in the wild and revalidated as a species. Without detracting from the fundamental value of their

Hasty snapshot of a Green-backed Firecrown supping nectar from *T.* ×*tenuirostre* in our Chilean garden. The white spot is not an eye. It advises other hummers not to blind it during aggression displays

Above: *Tropaeolum rhomboideum* on the edge of Andean levels in the Santiago Cordilleras, Chile

Right: *Tropaeolum rhomboideum* × *T. tricolor* in the Santiago Cordilleras, Chile

Below: *Tropaeolum tricolor.* The long-spurred sub-Andean morph, including a rare yellow form. Taken near *T. rhomboideum* and their joint hybrid cross in the Santiago Cordilleras, Chile

work, we notice that Sparre, who in his original monograph with Andersson synonymised it under *T. azureum*, begged to disagree, "*Tropaeolum reicheanum differs from T. azureum only in its yellow petals and is hardly worthy of taxonomic recognition.*" Well now, despite the equivalent flat faces of the species, one peep at the inordinately elongated peduncles and distinctive peppering of dark guide marks on the upper petals of Reiche's nasturtium gives that the lie (*T. azureum* is unmarked). We hope we can manage to get some seed back to Britain for trial some time.

This rare and restricted species from the intermediate central Chilean hill country between the coast and the Andes was recognised as a rediscovery by our friend and colleague Mélica Muñoz in 2008, even though it had also been collected again a few years earlier. She was kind enough to pass

This page: recently rediscovered *Tropaeolum reicheanum* in central Chile. The circled pale dot is not a flaw in the image; it is a large solitary grey furry-backed bee on a flower forage

on directions to its haunts when we had the opportunity to make the two day trip there and back in September of 2014. The last thing we expected, however, was to receive the bonus of finding a hybrid *T. reicheanum* x *T. tricolor* growing up through a waterside shrubbery beside our picturesque mid-day picnic spot. *T. reicheanum* itself was scattered sparsely thereabouts, with the nearest *T. tricolor* population not too far distant. Our luck augmented further still with the discovery during the journey of two new isolated small populations of *T. austropurpureum* which extend its range both to the south and well inland.

Facing: form and detail of *Tropaeolum reicheanum* × *T. tricolor*. Long peduncles and flat face of the former have been inherited. Central Chile

Subsection *Chilensia* Afterthought

Winding up the wild hybrid scene, we should just make mention of the two Andeans we know in subsection *Chilensia*. (Former) *T. jilesii* of Coquimbo Region has traditionally been considered a species close to the lankier (and thus aptly named) *T. looseri*. The discovery of a population with flowers of wildly variable spur-length, from about 1.5 cm to a mere stub, including on the same plant, caused us to conclude it must be a hybrid, as stable spur length is one of the key features of differentiation. We have therefore redefined it as a nothospecies, *T.* ×*jilesii* with one parent as *T. looseri* and the other perhaps *T. sessilifolium*, if not an unknown extinct species.

During the first few months that we two set out on our personal and professional life-partnership we explored around and above the western, Chilean, mouth of the historic Andean mountain tunnel at

Tropaeolum ×*jilesii* and its rocky habitat (inset), showing the characteristics that defined it as a natural hybrid for us – wild spur length variation and unevenly lobed leaves

One of many *Tropaeolum nubigenum* × *T. polyphyllum* variants we found at over 3000 m in the large hybrid population near the entrance of the road tunnel from Chile to Argentina

Portillo. It now carries the principal road pass into Argentina. The novel highlight of our sortie at rather over 3000 m was a large and extremely variable colony of tropaeolums, both in the size of all their parts and flower colour. Between them the plants displayed every possible combination of vigorous and extended *T. polyphyllum* with its flaring corollas, and dwarfish pulvinate *T. nubigenum* of the rich orange petals that scarcely emerge into the light of day. This population served to confirm for the doubting Thomases that *T. nubigenum* is no more than *T. polyphyllum* reduced at high elevations. We, on the other hand, struggled to find an explanation as to how what we were quite sure was a hybrid could be justified. The problem? One of its evident parent species, *T. nubigenum*, was confined to a solitary small area at over 50 km of rugged Andean terrain to the south. The dilemma was solved for us a year or so back by our late lamented great friend,

One of the albino forms of *Tropaeolum austropurpureum* at the type site on the central Chilean coast. A faintest touch of the standard purplish pigment is noticeable in this individual

Tropaeolum austropurpureum, tending to a pinker tone. At our new site for the species well inland and south of its previously known range. Central Chile

A good demonstration in habitat at the type site of the contrast between typical *Tropaeolum austropurpureum* and its white form. Central coastal Chile

Tropaeolum kingii flaunting its subtly unique colour scheme well inland in the pre-Andean foothills, northern mediterranean Chile

Seen during an alpine garden group tour: *Tropaeolum polyphyllum* moving *en masse* along the embankment of the now disused Transandine Railway at 3000 m in central Chile

Carlos Celedón, who encountered a population of pure *T. nubigenum* not too far from Portillo during one of his epic mountain hikes. So now we can confidently add *T. nubigenum* x *T. polyphyllum* to the natural hybrid list.

A related aside that illustrates the 'small world coincidence': in 1972, the year of our Cheese, Beckett & Watson first exploration of the Andes, the original - now alas extinct - rack and pinion Transandine Railway trains used to bang their way slowly and laboriously up the pass and through this very tunnel. The ballast and embankments of the abandoned track now host spectacular beds of *T. polyphyllum*. A few years later, while part-timing on government surveys to earn a crust, I (John) found myself interviewing an old, retired couple at Bexhill-on-Sea. I noticed a black and white print on their wall of a lot of navvies in Victorian working gear leaning on shovels at the entrance of what appeared to be a horizontal mine-shaft. Curiosity aroused, I asked about it. The pensioner replied. *"Oh, that was my grandfather over in Chile. He was the foreman of the gang who built the railway tunnel through the Andes, but I don't suppose you know where that is."*

Random divided leaflets on occasional specimens of *T. polyphyllum* hint at a possible touch of the *T. incisum* brush, but may well be no more than residual inheritance from a common ancestor.

Will *Tropaeolum lepidum* please stand down?

Returning to subsection *Gracilia* – the supposed focus of this ramble, one of our main motives for writing was to try to put the *Tropaeolum lepidum* red herring to rest. Until the turn of the millennium the only known temperate blue-flowered species, or anything remotely like it, was the renowned *T. azureum*. Throughout its taxonomic history it had gathered a few tropaeolaceous synonyms along the way, because of a degree of variability of leaf shape and flower colour. Sparre and Andersson list these as *T. azureum* var. *oblongilobum*, *T. azureum* var. *angustilobum*, *T. azureum* var. *grandiflorum*, *T. violaeflorum* and ... *T. lepidum*.

In the mid-1990s we were shown slides taken by Paulina Riedemann and Gustavo Aldunate of an exciting purple-flowered tropaeolum that had been found by their daughter, Margarita. It was utterly different from *T. azureum* and to our eyes clearly something undescribed. We were also given the exact location but, as with much else north of central Chile, it only flowered freely during the exceptional rains accompanying an El Niño climatic phenomenon. That happy moment arrived in 1997. Examination of the specimens we collected showed it to be so similar to *T. hookerianum* that only flower colour and geographical disjunction seemed to separate the two. We worried those factors might not be enough to convince sceptics that it was any more than a form, or variety at best. Equally perplexing was deciding what rank it merited. At last we settled for subspecies, and published our conclusion in 2000, for good measure giving the plant a name which indicated its purple colour and southerly geographical location.

Tropaeolum azureum colour forms growing on our nearby hill in central Chile

Colour forms of *Tropaeolum azureum* on our nearby hill in central Chile

Meanwhile, seed of it had been collected and distributed by others. Few growers will buy a plant with just a collector's number rather than a reassuring identity, added to which non-botanical collectors usually assume plants they encounter are more likely to be something known but obscure, rather than new to science. The redundant name *T. lepidum* had been coined for a 'bluish' flowered collection found in almost exactly the same general region as the purple plant, and considered originally to differ from *T. azureum* itself. So the erroneous epithet of *T. lepidum* was assumed to be the correct determination for what would first become *T. hookerianum* ssp. *austropurpureum*, then later just *T. austropurpureum*. The plant accordingly appeared as *T. lepidum* in seedlists during those early years before our epithet entered the public domain. Needless to add, having spread around areas of the world of British horticulture, *T. lepidum* stuck limpet-wise for a long time, and continues to do so marginally, not to mention debates that have raged since about the poor plant's true identity! These have included insistence on *T. lepidum* as the correct name without support of the mandatory scientific obligation to examine the original collection on which a name is based. In fact, the *T. lepidum* type in Santiago turns out not to resemble *T. austropurpureum* in the slightest. Attempts have also been made to justify *T. austropurpureum* as nothing more than a form or hybrid of *T. azureum*, when its flower shape in no way resembles that species, not to mention the former having petal veins and the latter none. No current botanical authority recognises *T. lepidum* in any role except as a synonym.

Recent molecular analysis has shown that this purple southern variant is not in fact as closely related to *T. hookerianum* as was supposed. We also noticed their patterns of flower veinings are quite distinct, so have raised it since to full species, as noted above.

Tropaeolum austropurpureum is its correct determination. As a postscript, the colour varies somewhat in the wild, tipping either towards pale slatey bluish or reddish. This phenomenon is nothing out of the ordinary, of course: *T. kingii*, *T. incisum*, *T. polyphyllum* and *T. sessifolium* all display an equivalent or greater range of flower colours. Rare pure albinos of *T. austropurpureum* occur too. These latter are dead ringers for Emiko's plant illustrated on her p.38 and captioned as "the white form of *Tropaeolum azureum*". From the shape of the flowers and foliage, this is unadulterated *T. austropurpureum*, without the least shadow of doubt.

Before we kiss the *T. lepidum* concept a fond(?) farewell, an idea or two come to mind on the nomenclatural aspect of the lovely hybrids produced by Emiko and Rosemary. So far as I know, Rosemary's are unnamed, and Emiko dubs hers "Forms of *Tropaeolum lepidum*", which clearly they are not. If considered worthy of formal recognition, as fully warranted in our opinion, two options are open. Any outstanding individual could have its own cultivar name, such as *Tropaeolum* 'Snowfield', *T.* 'Thundercloud', *T.* 'Sunset', etc., but that moniker can only be applied to specimens reproduced clonally from the original or 'type' plant. Quite apart from cluttering up the registration books with ephemera, a one-off named plant makes little sense anyway unless good enough to be toted around shows for years on end. So, the alternative is to lump them all together as a seed-produced group of crosses, in other words a mixed hybrid swarm of horticultural origin. Any originating from the two or several related plants involved may then bear that name, however superficially different they may look. A word of warning: individual cultivar names must be contained by single quotation marks and never be in Latin, while groups may be: for example, these might be called *Tropaeolum* Gracilia Group. This could even be extended to named individuals as, for hypothetical example, *Tropaeolum* (Gracilia Group) 'Sunset'.

The Coy Ones

With a lot of keyboard bashing spent mainly in discussing the crosses so far, what about the noughts then? If it is not already involved, as presumed, we can safely bet that *T. hookerianum* ssp. *hookerianum* would willingly participate in hybrid programmes. The same must surely hold true for *T. kingii*, whose rare and subtle tints might add a distinctive touch, if not everybody's dish. The largish corollas unfold petals of an almost indescribable palest coffee-and-cream – faintly tinged cooler greenish in some populations, and with a barely perceptible touch of warmer old gold in others, or even milky white at times. One more definitely yellow form was once recorded photographically in *Tropaeolum News*. This colour scheme comes accompanied by a long, curved, spur which can be chocolate-coloured, as also then the calyx. Almost good enough to eat ... or maybe drink. Unique longitudinal 'pyjama' stripes on the spur make it even more impossible to confuse with any others.

To round off with *T. azureum*, which in truth qualifies more as reluctant than unproductive. Emiko and Jean-Patrick enumerate it as one of three species they know to be involved in natural hybridization. If correct, in that role it has eluded us and all other authorities and sources we collaborate with or have read up, or as photos we have seen. The principal characteristic after its unique blue colouring is the 'flat face' coupled with very short spur, a combination only otherwise found in *T. reicheanum*. A cross involving *T. azureum* appeared spontaneously in cultivation during the 1840s, with *T. brachyceras* as the other parent. From Sparre and Andersson's account it hardly sounds enticing though, "*Petals (according to Dietrich) dirty blue. ... surprisingly, the hybrid has very small flowers.*" That was meant by comparison with both actual parents. Excellent photos and notes in *Tropaeolum News* Nº7 reveal without doubt that *T. azureum* is capable of producing attractive, flat-faced hybrids of rich purple to rather pale lavender-mauve shades, these either strongly yellow-centred or distinctly veined. Rosemary's were deliberately crossed. It was not stated whether Emiko's were also crossed or whether they were spontaneous.

Sparre was evidently unaquainted with *T. azureum* in the field because he describes plants with large flowers, including a distinctive white basal area, as garden modifications, whereas in fact these may be readily encountered *in situ*. An isolated hill just to the east of Los Andes where we live is domicile to a fair sprinkling of pure white forms among the regular blues, and we have also registered very pale pastel lilac-pink coloured individuals with a greenish yellow centre there, not unlike the picotees depicted by Emiko on her pages 36 & 37 of issue 136.

Unlike the other two noughts above, *T. azureum* is accompanied regularly by *T. tricolor*. You may drive for kilometres along some narrow country roads near us in early springtime and see the two alternating regularly every few metres

Prodigious parent *Tropaeolum tricolor* doing its spectacular thing in Central Chile

in the wayside hedgerows, and at times even intertwined. For long, our hope has been to find a hybrid between them one fine day but, despite searching meticulously for years, we have yet to hit the jackpot. You don't have to be a genius to recognise a breeding barrier when you see one like that. Yet the few recorded examples in cultivation prove that *T. azureum* is capable of compromising its specific purity. We have seen humming birds, long-tongued bee-flies and a white pierid butterfly feeding from *T. tricolor*, while *T. azureum* draws large, fast-flying, shiny black or grey-furry solitary bees and numbers of the ubiquitous introduced honey bee. It seems a case of ne'er the twain shall be induced to intimacy in the wild by their native nectar clients.

We have a Dream

Montane forests of the northern Andes between Venezuela and Ecuador accommodate one of several similar and remarkable tropical tropaeolums (excuse the alliteration) adapted to hummingbird pollination. *T. deckerianum*, a tall vine, was cultivated in the mid-19th century at least, and a few photos of living plants as well as historical prints may be found on the Internet. The leaves look like a mix between a *Calystegia* and the common garden nasturtium but attention, ours and the hummers, is riveted by the flowers. They consist of a bright red spur 4 to 4.5 cm long, its calyx opening out at the mouth to reveal small inky blue petals terminating in 6 to 8 teeth apiece, each tipped by a long hair, the whole looking like a fine pick comb.

The mythical *T. azureum* × *T. tricolor* hybrid we have been seeking fruitlessly all these years in the field seems in our fevered imaginations to look like a temperate, growable version of this exotic. Ours will be yet more perfect, with daintier leaves and bluer, more exserted entire petals to contrast with the long red spur, the flower as flat-faced as its *T. reicheanum* × *T. tricolor* equivalent. Any hope now surely lies in nothing less than a product of cultivation resulting from skilful water-colour brush cross-pollination by hand. Is anyone out there who grows both latent parents willing to rise to the challenge?

Tropaeolum azureum near our home in central Chile.
Wanted – a matchmaker to introduce it successfully to *T. tricolor*

Edraianthus owerinianus 'Ruprecht', a New Introduction for Rock Gardening

Pavel Křivka

In communications among rock gardeners, including the traditional plant and seed exchanges, there occur many mistakes. People believe themselves to grow species that they in fact do not have. The errors originate from different sources, from the commercial seed and plant lists to quite serious-looking books. For instance, in the book *The Caucasus and its Flowers* (2006) that Vojtec Holubec and I wrote together, I later found some mistakes, so I now regret that this may also be the start of a specific mistake tradition in the species concerned. Even new names have sometimes been created without any respect for the botanical rules for describing novel species. I believe this is the case with so-called *Androsace bayanharshani* alias *Androsace neuwirthii*. Neither name is based on published description and the respective type material; they were created only for commercial reasons. There is a certain obstinacy in the case of an another often repeated mistake concerning *Pedicularis przewalskii* from Chinese high mountains. Its beautiful bi-coloured variety from Sichuan once appeared in time gone by even on the wonderful web pages of *Jansalpines* as *Pedicularis variegata*, probably because of an association of bicoloured flowers with the epithet *variegata*. *P. variegata* is often confused with *P. przewalskii* var. *cristata*. Although pictures of the bicoloured variety of *Pedicularis przewalskii* with its correct name have appeared elsewhere (even in this journal), the mistake continued into the book *A Guide to the Flowers of Western China* (Grey-Wilson and Cribb, 2011), exemplifying how easily mistakes and errors can propagate onwards.

Pedicularis przewalskii, bi-coloured

2014: after one year in the garden.
Seeds were collected in July 2013 and sown in the winter

The name of *Edraianthus owerinianus* has been circulating incorrectly in the rock garden literature for more than twenty years. Even during 2014, I saw it in the plant list of one German nursery. This mistake originates from a Czech exhibition of rock garden plants in Prague, where a compact form of *Edraianthus pumilio* from Dalmatia was incorrectly denoted as *Edraianthus owerinianus*. By means of repeated publications in the Czech Rock Garden Journal *Skalničky* this slip-up was eradicated from the seed list of the Prague Rock Garden Club but it still continues an independent life in other countries such as Germany and Belgium.

The true *Edraianthus owerinianus* found by Owerin and described by Ruprecht is an endemic plant with a small area of distribution in Dagestan in the eastern Russian Caucasus. It is a very compact cushion plant resembling the compact saxifrages of the porophylla group but instead bearing quite big bell-shaped sky-blue flowers. It grows mostly on vertical limestone cliffs in a broad altitudinal range from 500 m to almost 2500 m. In the most easily accessible locality near Gimry it grows

The canyon of the river Andiiskoe Koisu in Dagestan

2015: plants in October after the second year of cultivation

at low altitude together with sub-mediterranean and xerophytic species like *Paliurus spina-christi*, *Teucrium polium*, *Salvia canescens* var. *daghestanica*, *Matthiola daghestanica* and others. The picture of flowering *Edraianthus owerinianus* seen at the end of this article was taken by Ramazan Alibegovich Murtazaliev, a Dagestani botanist from the Russian Academy of Science, Botanical Institute in Makhachkala. Until 2012 probably not a single picture of a flowering plant of this species was published in western gardening and botanical literature, and until 2013 the species was not in cultivation. In 2013 Ramazan and I harvested the seeds for the first time for cultivation and they were also made available to growers outside Russia. Among others, the Botanical Garden in Gothenburg in Sweden now successfully grows this plant. Because the germination rate of the 2013 seeds was excellent, other European rock gardeners now enjoy their flowering plants as well and the first flowers appeared in cultivation by 2016.

The reason why this excellent rock garden plant was not in cultivation until now lies in its small distribution area in Dagestan. This part of the Caspian Caucasus was for various reasons known in the past as a wild corner of the world. One reason might be the long-lasting war (1832-1859) between Russia and the local rebels led by Imam Shamil. Shamil was, incidentally, born in the same village near which Owerin first found the *Edraianthus* named after him. Other reasons to consider Dagestan as wild

Ramazan climbs in search of seeds

2016: flowering after three years in the garden of Petr Němec, Hradčany

and inaccessible are the landscape with many deep gorges (the Kojsu river has the deepest canyon in the whole Caucasian area), and the linguistic diversity of the local people. More than fifty languages were documented in Dagestan and more than twenty are still spoken; in one valley there may be three different languages. The local people could not understand each other without using Russian as a common language. Dagestan was in 1999 involved in the second Chechen war and since that time there have been occasional terrorist attacks or kidnapping of foreigners. In recent years Dagestan and Chechnia have become quieter, perhaps one of the successes of Vladimir Putin. Nevertheless, the British Foreign Office denoted almost the whole Russian Caucasus as dangerous territory before the putsch and citizen war in Ukraine in 2014. This is probably a main reason why an area that offers unique nature and many endemic plant and animal species is still extensively avoided by western tourists.

Edraianthus owerinianus 'Ruprecht' clearly differs morphologically (but not ecologically) from other representatives of the genus distributed mainly in the western Balkans. Perhaps this was the reason why some botanists use another name, being *Muehlbergella owerinianа* (Rupr.) Feer. However, the relevant volume of the *Flora of the USSR* rejects this and advocates the original Ruprecht´s name. There is another argument to retain the original: the name *Muehlbergell*a created by Feer in honour of the Swiss teacher Muehlberg from Aarau can be easily confused with the name *Muhlenbergia*, quite a large genus of grasses (Poaceae) mainly distributed in America. In this case, the honoured recipient was a German botanist and Lutheran pastor living in Pennsylvania, Gotthilf Heinrich Ernst Muhlenberg (1753-1815).

Plant taxonomy and systematics are, and will be, to some extent burdened with subjectivity. One author considers some feature of a plant or

group the reason to create a new species, genus or even new family, whereas another author considers this insufficient. From the gardener´s point of view the plant system should be as simple as possible, well-arranged and easy to understand. Perhaps even the genus *Edraianthus* should be taken back into the genus *Campanula* so as to simplify the number of genera (compare *Iris*/*Juno*, *Gentiana*/*Gentianella*). Recent attempts at an objective plant taxonomy by chemical (molecular) methods have caused only more confusion. For a gardener, the historical evolution of plant diversity (phylogeny) constitutes redundant and largely uninteresting information, whereas modern molecular taxonomists consider it to be the Holy Grail of biological systematics. There is a similarity with some university language courses where the student wants to learn the language but is instead harassed by ancient literature, poetry, history and other unnecessary and primarily impractical ballast. The molecular taxonomists assert that they represent a modern approach and are not 19th century hobbyists counting hairs under the lens somewhere on sepals or petals. However, I understand that according to rough estimations at least one third of these papers in molecular biology are not reproducible, at least at the level of species and genera. All name changes based only on molecular analysis may therefore be suspect compared to the old well-proved botanists of the 19th century. We should proceed cautiously.

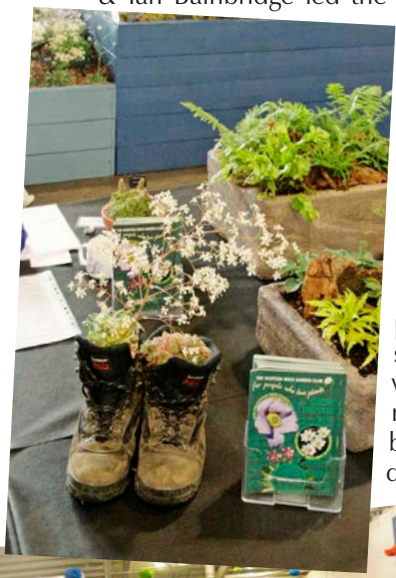
Edraianthus owerinianus (Photo: Ramazan Alibegovich Murtazaliev)

Gardening Scotland 2017
Stan da Prato

Achieving a premier gold award in 2016 was another milestone in the SRGC's support of Scotland's national gardening show. Some of that team were not available this year and the organizing group decided to shift our emphasis from building a miniature mountain and woodland to a more educational display still showing the public some of the wide range of rock and woodland plants our members grow but using much less material, with consequent reduction in wear and tear on our ageing persons! We decided to go for a smaller stand but to add more information about the plants. Two big free-standing wooden boxes from the set of three originally made by Glassford Sprunt were brought from storage by Ian Christie to Binny Plants, where the club has a hut, and were checked over by Rob Graham who brought them to the show ground on Tuesday 30th May. On Wednesday we set up the bulk of the display. Ian Christie brought most of the plants, notably *Meconopis* cultivars, several large *Anemone trullifolia* and some orchids. Other plants came from members in Ayrshire, Glasgow and the Lothians. We acquired some white saxifrages from Kevock, purple roscoeas from Hartside and more orchids from John

Amand to add to the overall flower power. Ian gradually filled the boxes with plants while Richard Green and Peggy Anderson added top dressing. One was a woodland mossy habitat, the other sunny and gravelly. Besides the blue boxes, which stood on the floor, Sandy Leven had filled a series of seven beautifully adapted polystyrene troughs – apparently originally for meat rather than the usual fish - with plants. Some featured specific groups of plants such as sempervivums, dwarf ferns and hostas, some had colours such as white flowers or foliage effect, and some showed habitats like slate. Each had an informative illustrated card.

Those who saw the early shows will recall that troughs were an important part of these club displays. We also added a pair of Richard's walking boots in which a saxifrage was growing. Trina Rogerson again sorted out the plant labels that are so important to a successful stand. On Thursday, Carole & Ian Bainbridge led the customary thorough tidy which makes such a difference to the final award. Club treasurer Richard Green was present throughout and organized the members who staffed the stand on the three days the show was open to the public. We won a gold medal and feedback from the judges was very positive, as was the response from the public. The combination of two displays, together with our pop-up banners, leaflets, seed sales and advice from knowledgeable members all made for a very professional effect. The only time show-goers seemed unhappy came at 4 pm on Sunday when nurseries stands sell off their plants. We do not, as most belong to members who want them back! On Sunday evening it was much easier to dismantle than before. Sandy removed his troughs for use at other SRGC events – the summer one in Dunblane perhaps? Rob returned our boxes and labels to the Binny hut on Monday morning. Financially, Richard reports good news: he banked just over £1000 which comprised trough leaflets, £570 for fine seeds, and £428 for somewhere

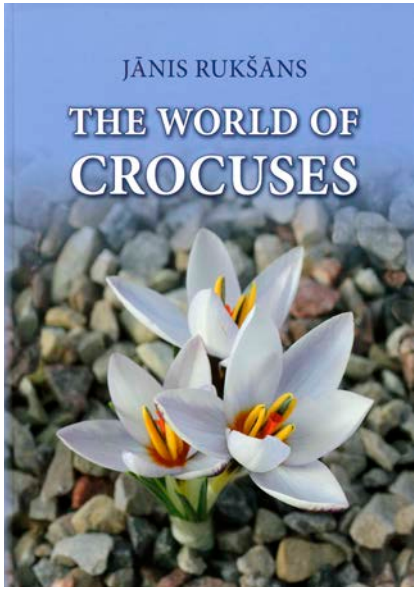


between 2100 and 2500 surplus seed packets. This compares with £643 in total for 2016, £768 for 2015 and £805 for 2014.

So what about 2018? The show group will have a meeting over the summer to consider this. As SRGC has exhibited at every *Gardening Scotland* we would hope to continue. However, many now wonder over the future of the event in its present form. There were markedly fewer floral exhibitors in 2017 despite a good turn out by the public. The overlap in preparation and dismantling times with the new RHS Chatsworth show has not helped. Some Scottish-based nurseries choose to show in Derbyshire as sales are likely to be better there. It may be that *Gardening Scotland* needs to change its emphasis to secure its future.

Members who helped were: Peggy Anderson, Carole & Ian Bainbridge, Ann & Ian Christie, Willie Campbell, Helen Donald, Kenneth East, Carley Epping, Rob Graham, Richard Green, Ingrid Jacobsen, Sandy Leven, Carolyn McNab, Sheila & Neil McNulty, Liz Mills, David Millward, Stan da Prato, Ian Pryde, Trina Rogerson, Anne Steele, Jackie Tomlinson and Maureen Wilson.

The World of Crocuses
Jānis Rukšāns



The publication of this excellent book was supported financially by the Scottish Rock Garden Club. Because of the importance of the author and his book we offer readers two independent reviews. Copies may be ordered by emailing Jānis at: janis.bulb@hawk.lv

When I became interested in crocuses in the late 1980s, Brian Mathew's *The Crocus* (1980) was the enthusiast's bible. Expertly written, beautifully illustrated, well laid out and cogent to understanding of the genus at that time, it was a book that gave knowledge and understanding to expert and novice alike - a hard act to follow.

As a gardener, I have found it very difficult to keep up with the proliferation of new and altered names. My enthusiasm for the genus has been challenged by the very fine distinctions between many of the new species, and of details hard to resolve for the gardener. Many species are presently unobtainable by amateur growers. And there are questions: Can they be maintained as pure stock in cultivation? Will the changes stand the test of time?

This new A4 format book is an impressive and weighty tome. To start, in 35 pages of distilled wisdom, Jānis covers cultivation, propagation, pests and diseases, classification and identification, botanical characters and, finally, species. This is all packed with useful, practical and relevant information, largely based on the author's personal observation and experience but drawing in knowledge shared between experts around the crocus world. There is a very honest discussion of the problems that genetic analysis has brought to nomenclature. Amongst other observations, the author muses "*I wonder if, when we purchase plants in the future, they will come with a certificate of authenticity with a DNA analysis attached. Because that will be the only way to identify them ...*" This is perhaps said tongue in cheek but it acknowledges the difficulties that developments in our understanding will bring.

The meat of the book is 500 pages that describe the 235 species recognized by the close of 2016, listed in alphabetical order and copiously illustrated to show detail and variation. Jānis acknowledges

that the new phylogenetic system is not complete; this makes it difficult to group the species by their relationship to each other. Similar species may be far apart in the book but alphabetical ordering makes it very easy to navigate. The descriptions and the comprehensive discussion of each species make this a superb reference work.

In summary, I return to my comments about Brian Mathew's book. Jānis has produced an outstanding volume, expertly written, beautifully illustrated, well laid out and cogent to current understanding of the genus. It will appeal to enthusiasts new and old. I congratulate the SRGC on sponsoring this excellent book. I recommend it unreservedly.

Tony Goode

The World of Crocuses
Jānis Rukšāns

If any work could be described as a magnum opus, then *The World of Crocuses* is that work for Jānis Rukšāns. The culmination of a lifetime dedicated to their exploration, research and study, Jānis had a battle to get this book published. Monographs are not seen as profitable but through a combination of his own resources, donations and sponsorship (including the SRGC) the work was made possible. It was not plain sailing thereafter, with printing problems, but finally a mountain of boxes containing the published work was delivered to a happy smiling Jānis.

In his previous book *Crocuses* (2010), Jānis dealt with 144 taxa; the present work contains more than 200. There continues to be a proliferation of new *Crocus* species named in recent years, through the efforts of many authorities, including Jānis himself, who has published many new taxa in the SRGC's I*nternational Rock Gardener*. Whether or not you agree with all of the taxonomic changes, the increased profile and understanding of this genus of most beautiful plants must be welcomed. Jānis clearly highlights the new taxa and their previous affiliations, so it is easy to follow the recent changes. Any necessary duplication of content from *Crocuses* is kept to a minimum. The essential facts, including morphology and cultivation, remain the same; freed from the constraints and severe editing of publishing houses, this book also contains a huge quantity of new, useful and interesting information.

The book is roughly A4 size and is arranged simply. Part 1 is short and contains information about the genus, aspects of its cultivation and the species keys. Part 2 holds the species accounts and runs to 500 pages - this is not a field guide. What pages they are! Most species accounts are allocated two pages, longer where there are many subspecies, and very few with a single page. They are arranged alphabetically because the classification of the genus is still in flux but I prefer this, as any species of interest may be located quickly and easily without having to refer to an index, which is omitted from this book.

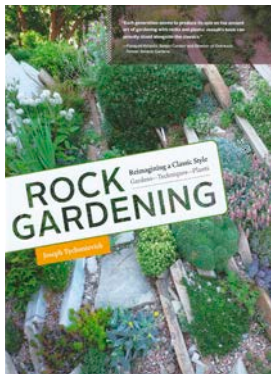
Within each species account the key information is presented first - taxonomy, ecology and morphological characteristics are clearly set out in a bullet list. Descriptive paragraphs follow, distilling Jānis's understanding of the species, covering up-to-date information on their occurrence in the wild, ecology, taxonomic history and relationships and experience of the plants in cultivation. Where this book really surpasses previous work is in the arrangement of the plates. Rather than presenting them in separate sections, the photographs are embedded within the species accounts, easy to refer to when reading. The plates are copious, presenting views of the plants in their habitat, the range of variability within the species, detail of the corms (often critical for accurate identification) as well as maps indicating their distribution.

This is a fine and well produced work that cannot be faulted. It will provide hours of enjoyment to all, from those starting out with the genus to die-hard croconuts. It should be on your shelf.

Matthew Topsfield

Rock Gardening: Reimagining a Classic Style
Joseph Tychonievich

Timber Press
Hardcover 296 pp. 243 colour photographs
ISBN-10: 1604695870



Recently appointed as the new editor of the NARGS journal, Joseph is a young man who is making his mark in the horticultural world in the United States and beyond. This book is his second published work and has already been winning accolades and awards.

The book is divided into three sections, covering plants, techniques and plants. The garden profiles feature creations in the US and UK, from the well-known and traditional (Aysgarth and Branklyn) to the more domestic and avant-garde (UK readers may not be so familiar with the US trend for 'fairy gardens'). The introduction to rock gardening techniques provides accurate and useful advice on all aspects of cultivation, from factors contributing to hardiness, through growing media and techniques to planting and design advice. Joseph's advice on drainage is spot on. The plant profiles deal with groups and genera of plants, and give an overview of some of the best species and cultivars, with Joseph highlighting some of his favourites.

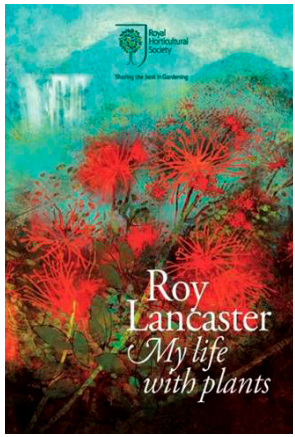
The lively and accessible text is clearly written from direct experience, Joseph studied horticulture and was nursery manager at Arrowhead Alpines. However, a highlight of this book is the set of beautiful photographs, many full page, from expansive garden shots to detailed images of plants. Production quality is high.

This book approaches its subject from a fresh perspective, with an overview of styles to suit all tastes. As such it is superb introduction that will provide a useful guide to anyone starting out with rock gardening. For old hands the book gives a sneaky peek over the fence at the gardens of other growers as well as challenging some of the received wisdom that abounds within the subject of rock gardening.

Matthew Topsfield

My Life with Plants
Roy Lancaster

Royal Horticultural Society
Filbert Press
ISBN-10: 0993389252



"Are you the nipper who wants a job?" "Yes, Sir." So began the career at the Bolton Parks Department of a truly remarkable man in the botanical and horticultural world. Every page of this book is imbued with Roy Lancaster's boundless enthusiasm for his subject, beginning with his childhood near Bolton, which was dominated by his developing and eventually all-consuming passion for plants. His chance spotting of "*a strange plant growing as a weed in a potato patch*", which was later identified by the British Museum as Mexican Tobacco (*Nicotiana rustica*), set him on his life with plants.

Innumerable and accurately remembered plants are at the forefront as Roy traces his career through Bolton Parks, National Service, Cambridge University Botanic Garden, Hillier's Nurseries - when he was instrumental in the development and publication of the *Hillier Manual of Trees and Shrubs*, and on to radio, television and free-lancing. He acknowledges warmly his colleagues and mentors and the influence of his family. The empathy and humour that typify his media performances also abound in his book: plants dried under his mother's carpet; choosing to do National Service in Malaya because of its rich tropical flora and fauna; and ammunition pouches used as collecting bags. Interesting anecdotes include the Norwegian taxi driver who refused to stop in a storm when Roy spied an interesting saxifrage, ambushing thieves at Hilliers, and presenting the world's first black daffodil on television on April 1st.

Roy describes his travels with infectious enthusiasm and wonder for all the plants he encounters. He draws on these in developing his own garden and gives a warm-hearted account of the friends and their associated memories. Here indeed is the story of an outstanding plantsman who has had "*good fortune in having spent my life in the company of plants*".

Elizabeth Harrison

We next review two books that deal with recent effort in classifying and describing some of the most beautiful plants in the alpine pantheon - *Meconopsis*. But, sadly, we must start with a warning to all lovers of this wonderful genus.

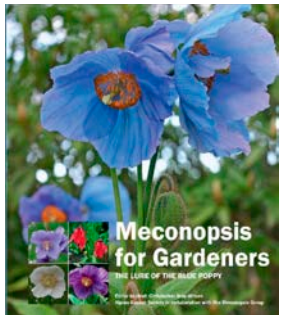
A Meconopsis Alert - Golden Root Mealybug

Golden Root Mealybug is a sap-feeding insect that feeds on the roots of a wide variety of plants, although it has mainly been found on *Meconopsis* and *Primula* in the UK. Unlike most other mealybug species found in the Britain it is able to survive the winter outdoors.

This pest is a recent arrival in the UK; it has so far only been found in Scotland and northern England. The RHS wants gardeners finding this insect to let them know by sending samples to the Entomology Team, RHS Garden, Wisley, Woking, Surrey GU23 6QB. Please include the postcode of the house or garden where the pest has been found , along with the identity of the host plants or - if unknown - a sample of the foliage and flowers. Detailed information with pictures can be found on the RHS web site (https://www.rhs.org.uk/Advice/Profile?PID=830)

On under-performing plants you may find small (2-3 mm) insects covered in a golden yellow wax attached to the roots. Other sap-sucking root pests such as root aphid or other root mealy bugs are usually white.

Meconopsis for Gardeners
The Lure of the Blue Poppy
Christopher Grey-Wilson (ed.)
Alpine Garden Society
ISBN 978-0-90004-899-9



Himalayan Blue Poppies have attracted gardeners since they were first introduced to cultivation in the middle of the 19th century - with the irresistible appeal of their large clear blue flowers, who would not want to have them flowering in their garden? Over the years certain vigorous forms and hybrids started to emerge, a number of which were named and shared around until eventually some confusion and overlap occurred within the naming. That was what stimulated a number of enthusiasts to form the *Meconopsis* Group, whose mission was to look into, assess and try to put some order into the named plants that were being successfully cultivated. A chapter states the purpose and achievements of the *Meconopsis* Group, followed by the chapters that detail the results of the group's efforts to classify and group most plants known in cultivation. All are beautifully illustrated and described.

The book covers all aspects of *Meconopsis* which are in or have been in cultivation, starting with chapters that introduce the reader not only to

blue but the full range of colours found within the genus. Details of the major plant hunters who collected seeds in the wild adds to the history of these plants; a subject that is further explored by a fascinating chapter on the history of *Meconopsis* in the Royal Botanic Garden Edinburgh, dating back to 1842, which is beautifully illustrated by period black and white photographs. Cultivation is extensively documented, giving an excellent general guide, as well as a number of essays written by growers from Tromsø in Arctic Norway to the South Island of New Zealand, detailing their individual experiences.

From the moment that I picked up this weighty volume of 384 pages and flicked through the pages, I was captivated by the quality and number of full colour photographs, appearing next to the appropriate text, illustrating all facets from groups of plants growing in gardens down to the details of the flowers, leaves, seed capsules and so on, used to identify the various forms. The differences between the forms are also clearly pointed out in the descriptions as are any lookalikes and the availability in cultivation. I also appreciate that in some chapters the essential details are summed up in panels with colour wash highlight, making it very easy to check the key points quickly. It is an advantage that this book is not the work of a single author but brings together the knowledge and experience of the *Meconopsis* Group, all delivered to gardeners in a very accessible and well-illustrated presentation.

Being the work of multiple authors under the editor Christopher Grey Wilson, this book delivers an impressive depth of knowledge and experience that will encourage and provide gardeners with all the information they need to understand, name and grow these wonderful plants and, even if you live in a hot dry region where they cannot be successfully grown, you will be able to enjoy the beautiful Blue Poppies through the many pictures that lie within.

Margaret Young

A Pictorial Guide to the Blue Poppies
Evelyn Stevens

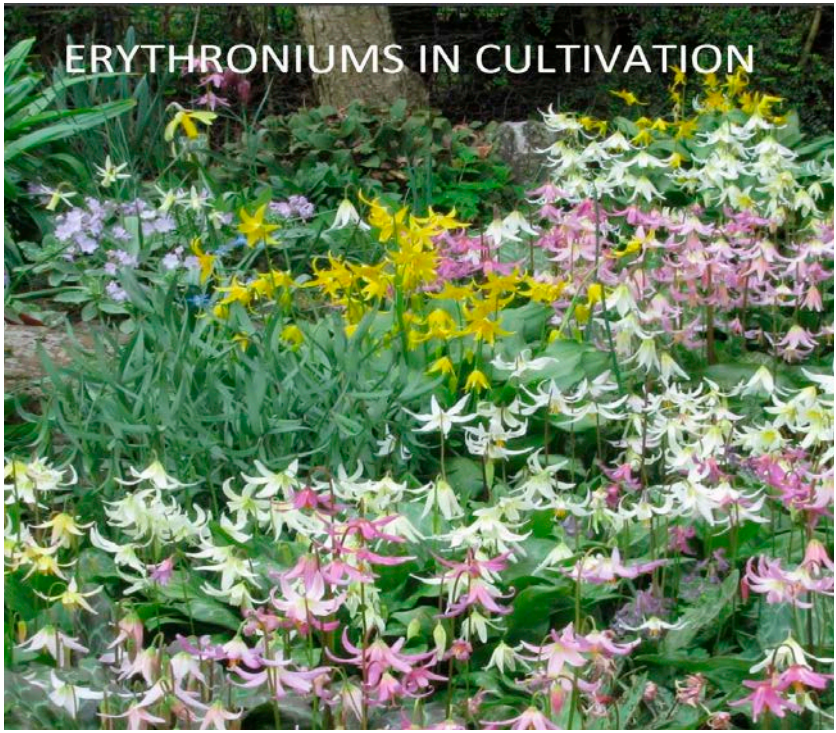
Dander Publishing
Hardcover 100 pp. ISBN-10: 0956216811

When I first came to Branklyn in 1997 there were many clumps of the large blue poppies and all but a few were called *Meconopsis* x *sheldonii*. The idea was that any plants that were not species were hybrids, and *M*. x *sheldonii* was thought to be a generic name for all the hybrids. This was not a good situation as there were obvious differences between the plants. The *Meconopsis* Group was

formed later in 1998 specifically to sort out the naming of the hybrids. Evelyn Stevens was one of the founding members of the group that was set up to work on the naming of the plants. I had been on the *Meconopsis* Group committee from an early stage and witnessed the huge amount of Evelyn's time and effort that has gone into research on the plants. The book records the history of all the cultivars and places the plants into three main groups. The groups are the 'George Sherriff' group, largely derived from the *Meconopsis grandis* GS600 plants collected by Ludlow and Sherriff. The other two groups are the infertile blue and the fertile blue groups; these are artificial groups but they help in identifying the plants. The sections on propagation and cultivation of the plants are very useful. This book is an essential guide to the *Meconopsis* cultivars, with good photography and information on the history of each cultivar, a culmination of Evelyn's many years work.

Steve McNamara

Erythroniums in Cultivation
Ian Young
(an e-book for download from the front page of www.srgc.net)



Published in parts in *The Bulb Log* throughout 2015, the chapters were compiled, edited and re-published in 2016 as an e-book. No more leafing through pages for hours trying to find something you only half remember; it is easy to find what you're looking for by using the search function on Adobe Reader. You can magnify the pages to get a closer look at the images and text, especially useful for those with visual impairments. An e-book is also 'future-proof' in that it can easily be updated or added to in a way that a printed book cannot.

Another advantage is that the author is freed from the cost constraints of a printed book. He is free to create a work, as Ian has done here, that is lavishly illustrated with glorious, full colour and detailed photographs. An electronic publication with copious images has to make a compromise between file size and quality of the images, but the resolution used here has not affected the impact of the photographs. It is possible to zoom in to images to get a better look at small features of the bulbs, flowers or seeds whilst maintaining clarity and detail.

The e-book comprises three main sections describing the plants, their cultivation and the species accounts. Ian starts by helping us to understand the *Erythronium* plants - their structure from bulbs, through growth to flowering. Advice throughout the e-book is dispensed with Ian's usual clarity and is well illustrated with photographs for all to follow.

Cultivation starts with the seeds, Ian's favoured method of maintaining plants, and moves onto the treatment of flowering plants. Starting with the different seed dispersal methods, he goes on to explain the tried and tested methods that work for him, including potting mixes, growing in pots, plunged mesh baskets and different contexts in the open garden, feeding, repotting and plant combinations.

Wisely, Ian only includes in species accounts those plants of which he has first-hand experience, 23 species and hybrids. Each provides a description, morphological characteristics of the flowers, leaves, bulbs and seeds to identify the species, variation within the species, its forms and cultivars, requirements and foibles in cultivation and many photographs of the parts of the plant and different forms. Finally, a wide range of hybrids is depicted, including some of Ian's own raising.

I cannot sum up this work any better than the following quote from forumist, Mark McDonough (*TheOnionMan*) who says of it: "*a treasure trove of information, meticulously organized and illustrated*".

I dearly love my groaning shelves full of garden books and, although Ian is happy for folk to print a single copy of this work for their own use (many have already), I'm just as happy to refer to this e-book quickly and easily on my laptop time and again.

Matthew Topsfield

Perth 15th April 2017

This year the show fell on Easter Saturday; the previous night was jolly cold with a temperature of about 1° C. Numbers were slightly down on the door, perhaps because of Easter, but plenty of plants and teas were sold. The weather stayed beautiful and sunny. Six nurseries exhibited, providing customers with a fantastic range of alpines and other unusual plants. We had plenty of rock gardeners arriving with exhibits of the highest quality. Standing out from the crowd were a couple of large luxuriant pots with *Tropaeolum tricolorum* and *Cypripedium*, *Calanthe* and some nice *Tulipa* and *Erythronium* species. Several large pans of dwarf rhododendrons looked as though they might contend for the Cox Trophy. Julia Corden, our show secretary, presided over the judges (Ron McBeath, Anne Chambers, Sandy Leven, David Millward, Jens Nielsen, Ian Christie and Nick Courtens from the Betty Ford Alpine Gardens at Vail in the States). We also had wonderful stewards and helpers to help collect and check the results sell plants and serve teas. It takes a team to organize a show!

First and foremost, the Forrest medal was awarded to Cyril Lafong's *Jeffersonia dubia* 'Alba', a lovely compact and upright example, which must have had fifty or more flowers. Cyril also won the bulb trophy with an equally neat nineteen-flowered *Fritillaria glauca*, the dark brown spotting inside the flowers being very attractive. Another trophy that was presented to Cyril was the Dundas quaich for class 2, where he had *Lewisia tweedyi* 'Alba', *Trillium grandiflorum* f. *roseum* and *Jeffersonia dubia* 'Alba'

Jeffersonia dubia 'Alba' (Cyril Lafong)

(the Forrest plant). The Joyce Halley award for the best plant grown from seed was for Cyril's *Saxifraga aretioides*, which had grey-green silvery leaves contrasting with its lime-yellow flowers.

Stan da Prato was the exhibitor who

Saxifraga aretioides

Seeds sown December 2007, germinated April 2008. Seedlings are initially very tiny and very slow growing. They were left in the seed pot for two years before pricking out.

S. aretioides occurs only in the Pyrenees and the Cordillera Cantabrica. It is not an easy plant to cultivate. Grown in a very gritty loam-based compost in the alpine house, given weak liquid feed Spring to Summer and shading during the summer months. It grows slowly and has only been potted on three times. The flowers are not often produced.

Arisaema lobatum 'Mount Emei' (Anne Chambers)

gained most first prize points overall in the whole of Section I, with 570 first prize points. The benches would have been empty without these excellent plants! The Alexander Caird trophy for class 1 was also won by Stan da Prato with *Lathyrus vernus* 'Albo-roseus', *Trillium chloropetalum*, *Andromeda* 'Niko', *Cassiope tetragona*, *Cassiope* 'Randle Cooke', *Phylliopsis* 'Askival'. There were numerous great dwarf rhododendrons, contenders for the E H M Cox trophy, but in the end Stan was the winner with dwarf *Rhododendron* 'Swift', appropriately one of the bird hybrids bred at Glendoick. This one has a creamy yellow-coloured flower with darker red-brown spotting within. According to Glendoick, *"We wanted to produce a later flowering version of the ever popular 'Curlew' that would avoid frost in April. This is the result, a similar flower about 2 weeks later"*.

The Major-General Murray Lyon trophy is probably the most coveted amongst Perthshire members. It has an ibex standing on it (not a chamois as I may have mis-identified in a previous show report). The trophy was awarded to Margaret & Henry Taylor of the Perthshire Rock Garden Club for their lovely bright pink *Lewisia cotyledon* with crinkly dark green leaves. Sun-glasses may be mentioned but it was a very cheery plant indeed. Another interesting trophy, the Perth trophy, is made up of a cluster of

Caltha x 'Moonshine'
(C. polypetala x C. leptocepala)
Seed sown in July 2011 from C. polypetala having been, unknowingly, open pollinated with C. leptocepala. The sterile hybrid shown, flowered in 2013, the only seedling to differ from all others which were true Caltha polypetala. Caltha x 'Moonshine' starts to flower in late February through till May each year.

three silver alpine Gentians, possibly *Gentiana acaulis* – this trophy was awarded to the Caudwells for the most points in show by members of the Perthshire group.

Jane & Alan Thomson won the R S Masterton memorial trophy with a *Primula aureata* that had formed a multiple rosette with unusually upright habit. This is not an easy one to keep growing so these two growers well deserve their prestigious award.

It was good to see plenty of entries for the 'Plant Native to Scotland' class with fantastic *Primula vulgaris*, *Salix reticulata*, *Paris quadrifolia* and *Loiseleuria procumbens*. Among the *Narcissus* classes, *N. pallidiflorus* & *N. moleroi* stand out, also a very nice *Narcissus* x *cazorlanus* from Carole & Ian Bainbridge. The orchid entries were much admired – a *Calanthe brevicornis* (pink) from Carole & Ian, and a *Calanthe tricarinata* from

Narcissus x *cazorlanus*

A fine display of narcissi

Watt Russell. Brian Brocklehurst brought a *Cypripedium formosanum*. This species buds up in later December, is grown in a mix containing Perlite, Seramis and 15% John Innes, and is kept moist and frost free. Orchids that we once thought almost impossible to grow are now easy to obtain from Dutch nurseries, and some of the new media enable them to be cultivated more successfully than in previous times.

Primula 'Finney's Moonlight'

Primula aureata

Pleione in Class 60 *Crassula socialis*

In Section 2 we had some excellent plants. The bronze medal, the Perth salver and the John Duff prize were awarded to Hamish Mackintosh, who had fortunately made the journey to Perth from the Nairn area. We were extremely glad to have his entries in this section. Cordial thanks go to all our exhibitors, our catering members, the nurserymen and all who made this show such a success.

Cathy Caudwell

Primula 'Gold Lace'

Edinburgh 8th April 2017

To us, it still seems rather strange to get up early and drive over 100 miles to go to the Edinburgh show, but we'll have to get used to it, having moved to Galloway and handed over the reins to Dave Millward. Still, it gives us time to think *en route*, and it was nice to realise we could enjoy the show more as we don't have the show secretary's duties any more! Warm sunshine, early spring - we wondered what unusual goodies would greet us this year. Plenty of entries boded well….

It's intriguing to see what arrives in number at a show. This year there were very few fritillaries; a genus going out of fashion perhaps. In contrast, for the first year in many, cassiopes were well represented. Alan Furness won the Alf Evans trophy for the best Ericaceae (excluding rhododendron) with *Cassiope lycopodioides* 'Suzuki', but the judges had to choose between that, *C.* 'Randle Cooke', *C.* 'Beatrice Lilley', *C. wardii* x *selaginoides* 'Snow Wren' and *C. wardii* 'Buchanan's Form'; the judges and the public had good chance to assess the finer points of a genus seen rarely on the benches in recent years.

Erythroniums were also out in force. Cyril Lafong won the Henry Tod trophy with *Erythronium helenae* but folk had the chance to compare and contrast *E. howellii, E. californicum, E. multiscapoideum, E.* 'Citronella' and *E.* 'Pagoda'. It was more than helpful to see several side by side in the magnificent display of 37 pans of lovely bulbs put together by Elspeth Mackintosh and her crew at RBGE, which rightly won a gold medal again. As well as erythroniums, the display featured *Narcissus, Ipheion, Iris* and *Dicentra*, and its scent permeated the entire show hall.

Asiatic primulas were also well to the fore, with examples of all three subspecies of the *Primula bullata* group, *bullata, bracteata and forrestii* to be examined in detail, as well as *Primula henricii*. However, Jim Watson's *Primula kisoana* 'Noushoku' won the Bhutan drinking cup for the best Asiatic primula. The best European or American primula, which won the

Meconopsis pseudintegrifolia ssp. *nova* (Photo: Liz Cole)

K C Corsar trophy for Sam Sutherland, was a superb pan of *Primula rusbyi*, which rightly won the Forrest medal for the best plant in the show. Sam only brought one plant to the show – quality rather than quantity!

At every show there are stand-out plants. Peter Semple's huge *Ranunculus calandrinioides* and an enormous *Arisaema lobatum* 'Mount Emei form' from Anne Chambers stood in some contrast to the Bainbridges' diminutive *Arisaema auriculatum*. There were also Cyril's lovely *Hymenoxys acaulis* var. *caespitosa*, which helped him win the Archibald rose bowl again, and the *Saxifraga quadrifaria*, which won the Bill Mackie quaich. Exceptionally, the miniature garden was won by an exhibit including only a single species: Margaret & Henry Taylor showed a *Paraquilegia anemonoides* that was simply exceptional. Other plants to covet included *Haberlea rhodopensis* 'Virginalis', a crystal white that won the 'Best in Section 2' for Mala Janes, and Cyril Lafong's clearest pale pink *Pulsatilla vulgaris*.

It was also good to see three different *Calanthe* species in the show: Watt Russell won this class with his *C. tricarinata*, and that and *C. brevicornu* were both in consideration for the medal. An orange-yellow *C. sieboldii* hybrid completed the threesome, and for good measure the Thomsons' *Pleione* 'Britannia Doreen', a previous show winner, also graced the benches.

Pulsatilla vulgaris behind the judges

Primula rusbyi won the Forrest medal for Sam Sutherland

Cyril Lafong's Class 2 entry (*Hymenoxys acaulis* var. *caespitosa* is at front left)

Faced with a wonderful array like this, folk had to resort to buying future show-stoppers from the six exhibiting nurseries, as well as clearing the club plant stall and eating much cake by way of commiseration or celebration. It was a great day out, and congratulations go to Dave Millward and his team for another excellent Edinburgh show.

Ian Bainbridge

Miniature garden winner: *Paraquilegia anemonoides* (Margaret & Henry Taylor)

Hexham 1st April 2017

For many years the Northumberland show has been held in the spacious Wentworth Leisure Centre on the edge of Hexham. This is a very busy venue and car park spaces are at a premium. I have at last mastered the system - which probably will now be changed! Seasoned rock gardeners mix in the café with ten-pin bowlers and mothers of young gymnasts. The Perth show is similarly held in a sports centre and I think it is very appropriate that our hobby is catered for in towns' leisure centres. Rock gardening is indeed a leisure activity, as is visiting our flower shows. Perhaps we should extend an invitation to other users of the facilities and we can hope that they may join in our hobby. It is only as we age that I have come to realise gardening is a strenuous activity. As we get older we get weaker and tasks that once we could accomplish easily now take more time. At least gardening keeps us active.

In my report on Hexham on the club website (www.srgc.net) I have described the show in some detail and recounted the many deserving plants belonging to their enthusiastic and extraordinarily competent owners, together with the various awards and prizes that add to our club's hall of fame.

In the following pictures, Mike Dale has picked up on some of the beauties and gems that were inevitably missed from my report. There is also some information about the plants gleaned from our own club web forumists and from elsewhere.

Sandy Leven

Iris pumila (Yellow & Gold); Class 77; 1st; Tim Lever

Soldanella is part of the Primulaceae. However, they only seem to win in classes excluding primulas, androsaces and dionysias, which are all very showy genera. That may be why demure soldanellas are few on the benches these days. Perhaps they always were? They are difficult plants to show, because the flowers are small and the stems must be straight. Sometimes they flower so well that flowers are dying while others are just opening. The leaves need to be dressed and any brown or damaged ones should be removed. Tips from forum members include:

I keep my soldanellas in a north facing frame that only gets the evening sun in the summer time, I cover it with glass in the winter and it flowers very well. I don't think they like greenhouses, much too hot in the summer. I have one in a raised bed facing south that is shaded by the house all winter, but full sun in the summer. It grows slowly but no flowers. (Republic of Ireland)

When I grew soldanellas for selling it was no problem getting them to flower in pots, but take one for the garden and you never again saw a flower. I think it was partly because the ones in pots were covered over the winter, the flower buds are formed in the autumn and something makes them abort and never develop in the garden. (Perthshire)

Soldanellas flower for me in troughs and raised beds in cool, leafy and gritty soil rather than open garden. We have minimal snow compared with Scotland or middle Europe, a few days of alternating thaw and snow rather than consistent snow cover. (New Zealand)

We can grow soldanellas quite readily here in Moray - but getting them to flower is an entirely different matter! (Morayshire)

Soldanellas do well here and flower despite winters that are very cold and often snowless. I think it is not quite cold enough to lock them into dormancy in N E Scotland. The problematic ones here are those we lust

Soldanella alpina 'Alba'; Class 55; 1st; Trevor Harding

after most - S. pusilla and S. minima - as they can be heaved out of the ground in our frequent freeze/thaw cycles. (Nova Scotia)

While some soldanellas grow in the wild on top of limestone rocks, this is something they tolerate, not require. (Holland/Austria)

Soldanella montana: unlike S. carpatica, it does not like to have high soil humidity, just a little bit and never let it dry. It also likes a lighter site, perhaps with a a bit of sun, but not southward exposure. In Nature I have found them in full, west sun and they had a slightly yellowish leaves. I have also found that they like light soil, maybe with some small bark, peat and sand. The pH does not matter; they can grow from acidic to alkaline soil. I know one thing for sure, that this species likes less humid soil than Soldanella carpatica. In full sun S. montana grows poorly, but it can survive, when S. carpatica would die for sure. (Poland)

Berneuxia thibetica; Class 102; 1st; Cyril Lafong

Iris warleyensis; Class 88; Barry Winter

Iris warleyensis is in the *Iris* subgenus of *Scorpiris*. It was found in 1899 in Bokhara in Eastern Turkestan by Michael Foster, a plant collector on behalf of the Van Tubergen nurseries in Haarlem. He named it for Warley Place, the Essex garden of the prominent gardener Ellen Ann Willmott, and published it in 1902 in the *Gardeners' Chronicle*. It is hardy to USDA Zone 3 and consequently, in the UK, is best cultivated in an unheated greenhouse, alpine house or frame. Nevertheless, it is reported to grow in sunny sheltered well-drained soils. Where *Iris bucharica* is also grown, the two will cross freely to produce vigorous offspring.

Pleione Hekla gx 'Locking Stumps'; Class 19; 1st; Don Peace

Salix retusa; Class 29;1st; Alan Furness

Viola jooi, the Transylvania Violet, is a species about which there is little published information. It is perennial and as such may be good for ground cover. It occurs in a few high limestone alpine areas in the Carpathian Mountains in Rumania. At the Northumberland show in 2004, John Richards thought to be rarely shown, perhaps because it is often treated as a woodlander rather than the high alpine it really is. It is reported to like sun to partial shade Although it resembles other species such as the common *Viola adunca*, the Dog Violet, it has a peculiarly attractive feature, which is its remarkable fragrance.

Viola jooi; Class 44; 1st; Clare Oates

Viola spathulata; Class 88; K & R Lever

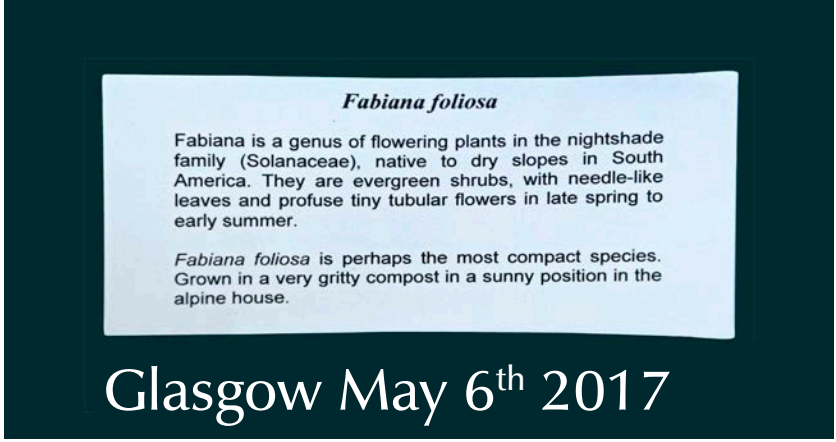
Viola spathulata is found in Iran, where it is a cliff dweller. It may be grown in an alpine house in two parts John Innes No 2 and three parts grit. It may be necessary to spray it frequently to protect it from Red Spider Mite and aphids but care should be taken with young plants, as they may collapse when sprayed.

Muscari macbeathianum

Podophyllum delavayii; Class 37; Bob Worsley
Primula farinifolia; Class 100; Cyril Lafong

The habitat of *Pteridophytum racemosum* is deep shade among mosses in the sub-alpine forests of Honshu, where it often grows in quantity. Hisayoshi Takeda, in his *Alpine Flowers of Japan*, recommends the use of sphagnum, always keeping the plant in the shade, applying regular fertilizer and giving plenty of water, commenting that it is hard to grow in a pan but is amenable to the rockery. SRGC forum growers largely concur with this view, although one Swedish member noted that the shade requirement is less in more polar climes. Another found John Innes No 1 rather unsuitable and recommended good drainage, high oxygen level and moisture retentiveness.

Pteridophytum racemosum; Class 87; Alan Newton

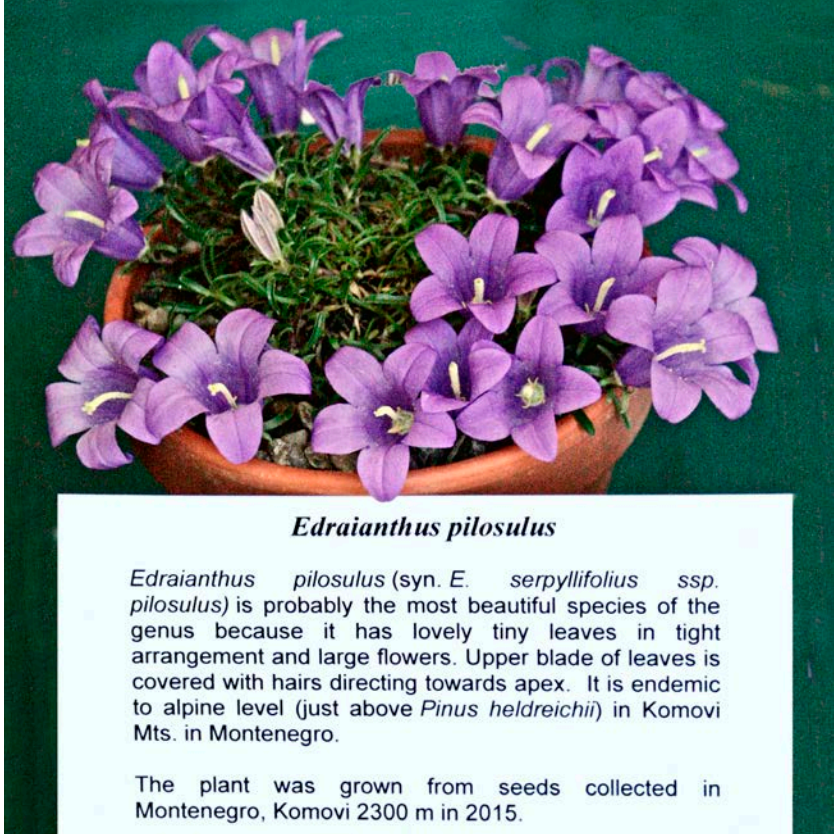


Glasgow May 6th 2017

Weather in spring 2017 had again been distinctly changeable with occasional late and damaging frosts in what was generally seen as an early spring. However, the Glasgow show benches, as always, presented an impressive spectacle. Show secretary John Lee reports that 26 exhibitors benched 201 entries in the open section while seven exhibitors benched 32 entries in Section 2.

To universal acclaim the Forrest medal went to Sue Simpson's *Junellia coralloides*, one of a very good two pan entry that won the American species class, the other being an impressive *Benthamiella patagonica*. *Junellia* is a very low growing shrub from Patagonia. Finding it dislikes root disturbance, Sue has successively re-potted this one so it now appears as the centre of three pots. The judges tell me its nearest rival for the medal was her fine pan of *Calceolaria* 'Walter Shrimpton', which was given a merit certificate. Sue also won the Crawford silver challenge cup for most first points in Section 1.

Below: *Junellia coralloides* (Forrest medal) Above: informative labelling



She has been bringing increasingly impressive plants to shows and it was only a matter of time before she won the top award, which is almost certainly not going to be her last. I do feel we should refer to this talented plantswoman as Susan Simpson-Watt to acknowledge the practical support she receives from her husband Mr George Potlifter-Watt.

As usual Cyril Lafong brought some good exhibits so won the Buchanan challenge cup for Class 3, three pans of rare plants, with his *Fabiana foliosa*, *Edraianthus pilosulus* and *Dicentra gothoburgensis* 'Gullefjun Strain' (*peregrina* x *formosa oregana*) and a merit certificate for his well-known and increasingly large *Daphne calcicola* 'Napa Hai'.

The timing of this show is attractive to many skilled growers from the north of England who prefer to travel to Glasgow rather than make the longer journey to the AGS show in Norwich and who always bring some notable plants.

Successful entries from across the border started with class A for six small pans won by Tommy Anderson from Kendal, including a well flowered example of *Silene hookeri* that was given a merit certificate. His

Benthamiella patagonica

Androsace villosa

other plants in a very varied entry were *Narcissus* 'Solveig's Song', *Allium nevskiana*, *Lewisia rediviva*, *Pinguicula grandiflora* and *Lamium armenum*. Brian & Shelagh Smethurst from Bury did not win a trophy themselves this year – they often do – but received the Charles Simpson memorial trophy for best orchid in the show on behalf of Edward Simpson for a fine pot of *Cypripedium* 'Emil' that they had brought north for him. Lionel Clarkson from Blackpool took the Henry Archibald rose bowl for class 2 for three pans from different genera with *Leontopodium alpinum* ssp. *nivale*, *Allium shelkovnikovii* and an *Iris*. From Ebchester, Ian Kidman's *Primula henricii* was the winner of the Joan Stead primula prize. George Young from

Cypripedium 'Emil'

Andromeda polifolia 'Nikko'

Stocksfield received a merit certificate for a particularly good ericaceous plant, *Leiopyhllum buxifolium* 'Nanum'.

Back with Scottish-based growers, Watt Russell from East Lothian again won the Ian Donald trophy for the best Scottish native plant with his large *Paris quadrifolia*. Also from East Lothian, I received the Edward Darling trophy for three dwarf rhododendrons and the Don Stead prize for most bulb points. Glaswegian John di Paola took the 75th Jubilee prize for best plant in a small pot with his *Clematis marmoraria*. Anne Chambers from Killearn received a merit certificate for an impressive *Arisaema griffithii*.

Section 2 had fewer entries but some nice exhibits. Our club treasurer, Richard Green, took the James Wilson trophy for most points, and a bronze medal. Tony Taziker came north from Thornton by Blackpool with some good plants, his South African *Lachenalia latimorae* being particularly impressive. Young Ben Willett won the award for a first-time exhibitor with *Sempervivum arachnoideum*.

Many fine plants were not trophy winners. Notable sections included the primulas with several good Asiatic species, including forms of *Primula forrestii,* contrasting with European hybrid auriculas. White was the predominant colour for saxifrages, with good examples of 'Snowcap' on display. By contrast the *Lewisia* classes had varied and vibrant colours. The trilliums and classes for geographical areas also impressed. They are never likely to win a Forrest medal, but conifers and ferns make a contribution to the show and Glasgow has two classes for each of these groups. This extensive show also has three classes for hardy succulents so there was a wide range of sempervivums and sedums on view; most are grown for foliage effect, although *Sedum humifusum* and *S. furfuraceum* provided splashes of floral colour. The most striking plant among the foliage classes

Primula henricii

was a purple form of *Podopyhllum* that some now say should be called *Dysosma*. The catch-all class for plants not otherwise on the schedule is an important one and was particularly strong this year with entries as varied as *Rheum alexandrae* and *Phlox* 'Chatahoochee' alongside that impressive *Calceolaria*.

The Glasgow catering team served up their customary first-class fare. It was good to see a former stalwart of that team, Anne Bush, back to visit. We were all pleased that long serving assistant show secretary Bill Robinson, who has been bravely fighting cancer, managed to come along with help from Marion. Sadly, Bill's funeral took place as these notes were being finalised for the printer; we remember him with great affection.

Stan da Prato

Trillium luteum

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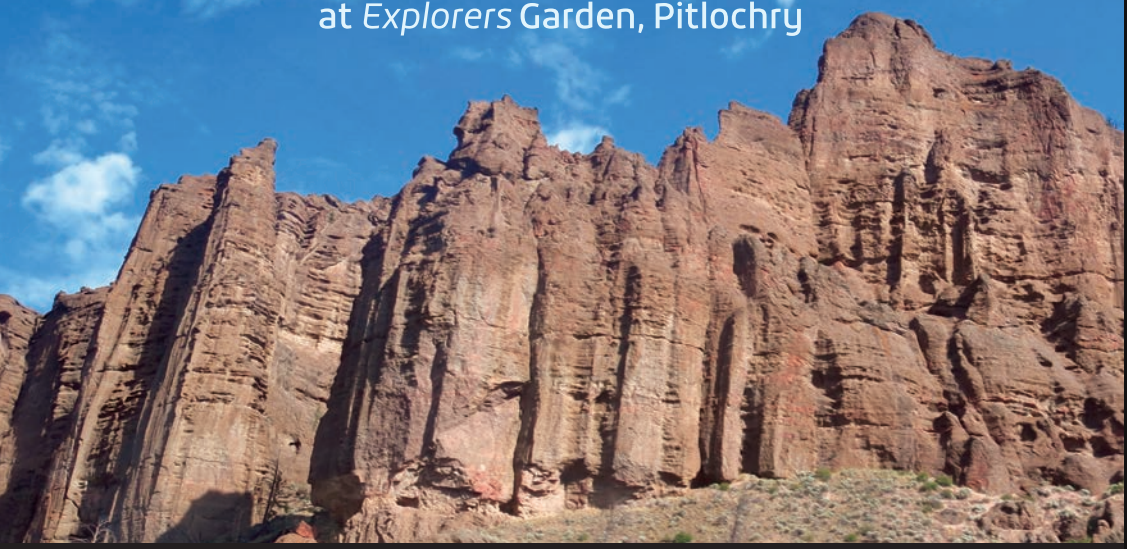

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