



THE ROCK GARDEN

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Number 99

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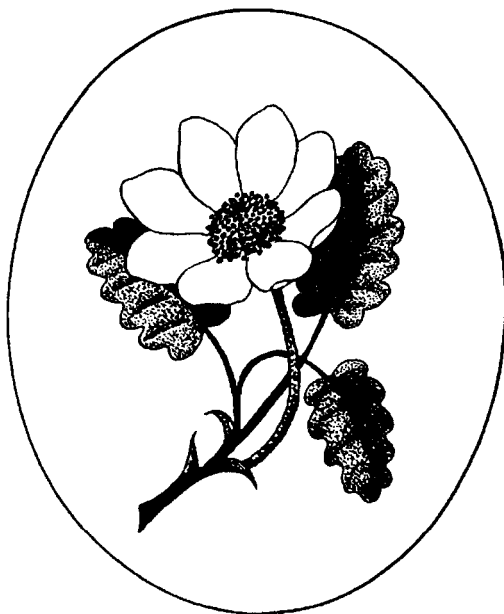
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THE ROCK GARDEN



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THE ROCK GARDEN

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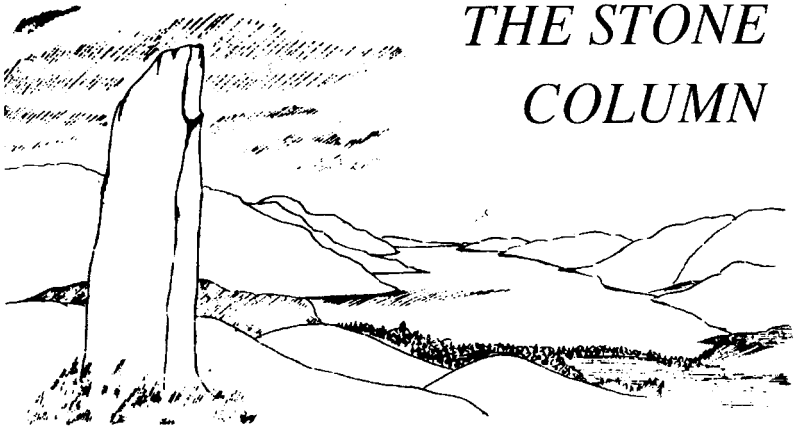
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THE STONE COLUMN



DAYS OF SHINE AND FREEZES

Yes, I know that it's a dreadful pun, but the title very accurately describes those last two weeks or so of 1995 as the year went out more like *T. rex* than a mere lion. Having been lulled into complacency by a succession of relatively mild winters, it was perhaps inevitable that we should, sooner or later, be caught out by a really hard one. Just to make really sure that we were unprepared it started innocently enough with a good snowfall of some 15-20 cm to blanket the garden, but as the sun shone from a cloudless, brilliant blue sky for day after day so the mercury dipped ever lower, eventually reaching around -25°C overnight with daytime maxima (!) below -10°C for over a week. Old hat I know for those readers living in continental climates, but this temperature regime is most unusual for most of Scotland where the maritime influence is normally strong. It is worth noting, however, that paradoxically one of the predicted consequences of global warming is a weakening of the North Atlantic Drift. Scotland may end up with a future climate more like that of Newfoundland. With everything freezing absolutely solid, losses there had to be especially amongst containerised plants and evergreens. In retrospect, we should have covered our pots and boxes with fleece or bubble plastic and closed down the frames, but the excessive cold just sneaked up on us.

As a result, a number of bulbs appeared to start into growth as normal, only to collapse as the weather warmed up in Spring, their roots having been destroyed by the cold. It was also at this time that the damage started really to show on many evergreen shrubs, as their foliage turned slowly but remorselessly brown. Even Arctic-alpines such as *Loiseleuria procumbens* were not immune from damage. Planted to grow down the south side of a trough where the

heat encourages free flowering, one had its vertically hanging growths killed right back whereas the part on the top of the trough under snow was undamaged. With the plant unable to take up water from the solidly frozen compost, the sun desiccated any exposed shoots. We have seen something of the same effect on a number of American mountains where the upper parts of some of the krummholz conifers were dead or damaged. Protruding through the protective snowpack their foliage had been similarly winter-killed by dehydration while the roots and lower stems were still frozen but unharmed. On the other hand, at these upper limits for tree growth too much snow can also be detrimental. In hollows where snow accumulates and lies long, the growing season, when the ground is exposed, may be too short for seedling trees to establish. This is why one often sees groves of timberline trees on exposed ridges and outcrops.¹ Naturally, the more foliage a plant retains in the winter, the more prone it is to desiccation. Our *Eucryphia x nymansay* was killed right back to the trunk and lower main branches, whereas three plants of the deciduous *E. glutinosa* were quite untouched and flowered beautifully this August. Similarly, Peter Cox' high altitude, fully deciduous form of *Clethra delavayi*, now 3 m high and showing wonderfully patterned bark, was undamaged; and his *Pieris forrestii*, from the same mountain top near Dali, only slightly touched. All our other forms of *P. formosa* and *P. forrestii* were cut to the ground, as were other Himalayan shrubs such as *Gaultheria hookeri*. Some of our rhododendrons had various degrees of damage, but all mahonias, including several Californian species, were unharmed, as was *Berberis sargentiana*, the only fully hardy evergreen barberry here. Many New Zealand herbs such as aciphylla and celmisia are evergreen and suffered accordingly. Some of the smaller species in troughs, like *C. argentea* could not withstand the prolonged and severe root freezing, while the larger tufted ones which protruded through the snowcover, such as *A. aurea* or *C. semicordata*, along with its relatives and hybrids, later collapsed as the weather warmed up. The intermediate mat-forming species of celmisia which have always here been by far the best garden plants in the genus, *CC. angustifolia*, *dureitzii*, *haastii*, *incana* and *viscosa* for example, were safe and sound under the protective blanket. Even the tiny self-sown seedlings of this group, which often appear, were quite

¹For a full and readable account of this biological boundary see 'TIMBERLINE : Mountain and Arctic Forest Frontiers', by Stephen Arno with illustrations by Ramona Hammerly, pub. by The Mountaineers, Seattle, WA

unharmd, an appropriate positive note upon which to conclude this brief account of a winter best put behind us. After 25 years at Askival and well over 10,000 taxa grown, the loss of a few hundred is but a short dip upon the way up the trail. Reascent will not take long, which analogy leads me nicely into the next item.

MOUNTAINS, REAL AND METAPHORICAL

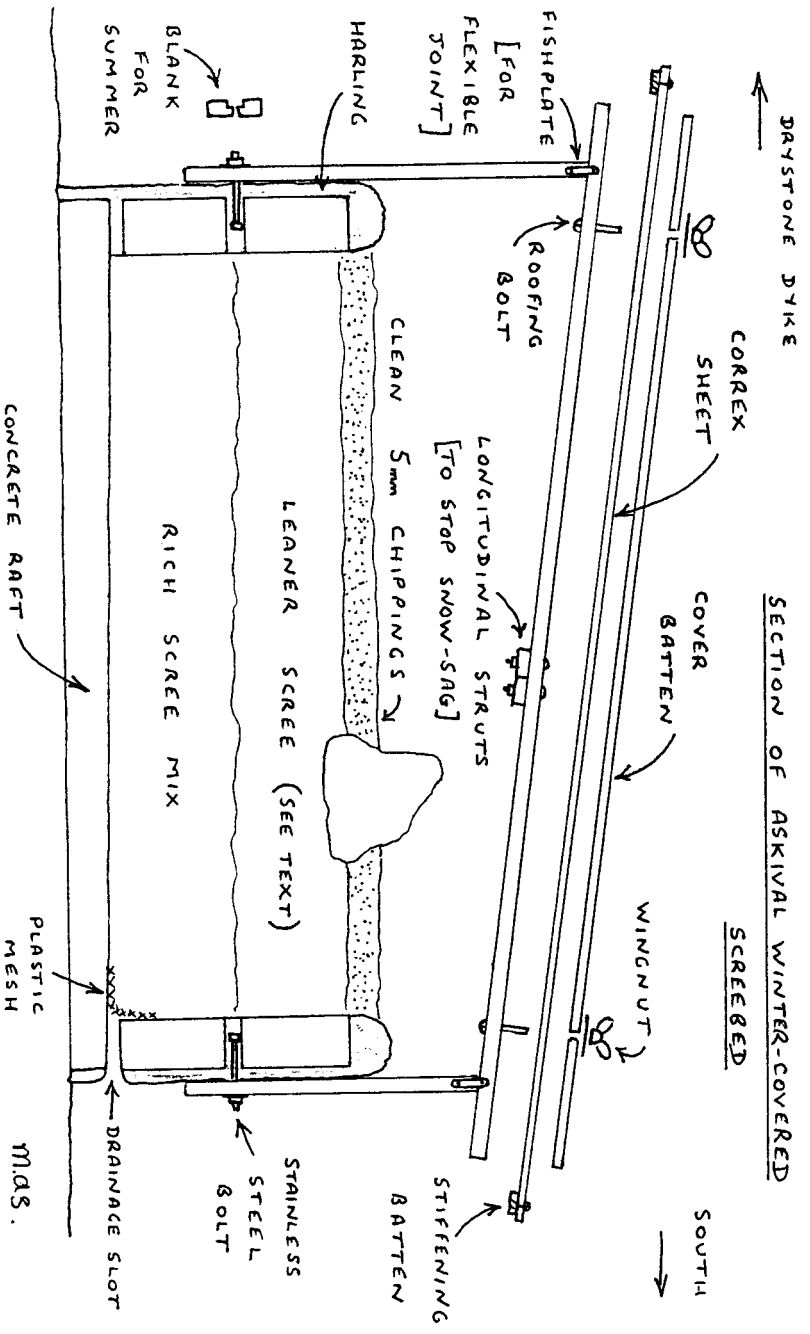
Hiking mountains in search of alpinism a point is often reached when, breaking out onto the summit ridge, most of the real effort lies behind, and the time has come to reap the rewards, be they flowers or views. In the three years since I had to retire, the garden at Askival has had to become a major part of our livelihood as well as of our lives. The necessary changes to, and expansion of, the infrastructure are now largely complete; we are up on that ridge, and can start to look around at the garden proper and decide where we go from here. Some of the original plantings, particularly in troughs, are becoming a little old and tired; our thoughts about what we want to grow and how we want to integrate various plantings into the overall plan have evolved over the years. Many ideas for constructions and reconstructions are being considered and many are the arguments about priorities now that extra frames are no longer the pressing need.

A year ago I described how a start had been made with the addition of the Snake bed; since then much has happened. Back in January, Chris, the young guitarist and Stevie Ray fan next door, put up a new fence along our mutual boundary to the south of the lower garden. They very kindly allowed us to take in a strip of their garden tapering from 3 m at the 'Wendy Corner' (our children once had a playhouse here and the name has stuck) where the Nun's old track turns a right angle into the upper garden, to 1.2 m by the old compost heaps. Apart from straightening our boundary, this had three benefits: space for another frame, Orchard 5, on the south side of the windbreak, for calochortus, fritillaries and other sun lovers; room for a wheelbarrow ramp up from the orchard frameyard to the Wendy Corner track, and finally it also enabled us to fit in a much larger toolshed by the aforementioned compost heaps. This last is phase four of our delegations to 'Shorty' McKinnon, local joiner and part-time firemaster. In early March, once I had cleared the site, he started by laying a 3 m square base, complete with tiebars, over a plastic membrane. Nothing happened for ten days or so, this is the Highlands, then one evening a borrowed lorry appeared next door. The prefabricated walls, 2.5 m high, were carried across Chris' garden, and put over his new fence by helpers who had been roped in on Shorty's way up through the

village. The walls fitted the base exactly, and were soon bolted together and roofed. Apart from the size, our specification had been simple: a door wide enough to take the concrete mixer, many ventilators to keep cement and fertilisers dry, and no window to waste storage space. Poll was at last able to evict the mower, various sprayers and chemicals, and most of our tools from her potting shed. Proper organisation of the inside is still awaiting wet days in the coming winter, for last spring I was fully occupied elsewhere.

Poll's bulb boxes generate masses of spent compost each autumn, and this had been accumulating for several years in unsightly and crumbling (from UV) plastic sacks on the site for Mt. Sherman, the proposed main scree. We decided that the simplest way to make constructive use of it quickly was to adopt the no-dig method for the upper shrub border. After putting in an edging of large split boulders from our usual stone-mine, a ruined dyke on a friend's land, the space behind could be filled in to a depth of 20-30 cm on top of the existing thin stony soil. I used a mixture of topsoil stripped from the site of orchard frame 5, once part of the Convent vegetable garden, and the spent bulb compost mentioned above. I also incorporated a large heap of old grass clippings dating back to the early years of the upper garden when it was largely grass, once an old sheepwalk, and we had yet to build a proper compost heap up there. About 9 m across at the widest point, and almost 40 m long, this bed slopes gently up to the fence along the side of a knoll lying behind next door's garden. It was planted in late March with trees and shrubs from various sources. Some, such as *Euonymus sachalinensis* we had raised from the SRGC Exchange; others like *Philadelphus delavayi* CLD 1152 and several sorbus species from Ness including the pink-flowered *S. cashmiriana* SEP 492 and two American species; *SS. cascadiensis* and *sitchensis*, we had been given; but for the first time in very many years we purchased a substantial proportion. Amongst these were long-term investments, for example *Stewartia koreana*, a sort of deciduous substitute for camellias which are unsatisfactory here, just as oxydendrum is for arbutus, and the 'Snowdrop tree' *Halesia carolina vestita*; and also two faster growing *Prunus* species: *P. sargentii* for its flower and autumn colour, and *P. maackii* 'Amber Beauty' for its bark, the latter a choice inspired by the fine specimens at Gothenburg we described last time.

While I was thus largely occupied on the upper garden, work finally started in late March on a pet project of mine and one which had been gestating for many years: a winter-covered screebed. A site had long been earmarked on the South, ex-orchard side of the



drystone dyke that divides the lower garden, occupied in the meantime by a 'temporary' i.e. unmortared block, frame. Removing this, I set up the shuttering for a concrete raft 1.8 m wide by 11.5 m long. To create a drainage slope across this base, 100x50 mm timbers were used at the back, wall side, with 75x50 mm for the front. Chris put in another long day's work for us mixing and barrowing. Jobs such as this have to be kept well away from days when he has a gig, because of the effects on his hands.

Most of April was taken up in my building the sunnyside frame, Orchard 5, and transferring the appropriate bulb boxes into it, but by May I was free to add the two courses of blockwork to Chris' raft. A little pile of cardboard strips about 10 cm wide and as high as the thickness of the mortar bed, was placed under every other front block of the lower course to provide for a series of drainage slots. The removable roof was planned to be of 4 mm translucent 'Correx' sheets, each 1.23 m wide. To allow for an overlap between the sheets, the supports were to be at 1.08 m intervals along the bed, and so stainless steel bolts were set into the mortar joint between the courses, both front and back, at this spacing. (For older readers who still think, as I do, in Imperial units, Correx sheets are 4ft wide, and the supports were at 3ft 6in centres). The bolts protruded about 50 mm before 20 mm of harling was added to the outside of the blocks. Thus standard 25x50 mm treated timber uprights could easily be bolted on for the winter, short pieces being used as blanks in the summer so that people do not catch themselves, or their clothes, on the boltends. For the harl and rounded topping on the walls I used a standard 4:1 mortar made with coarse concrete sand, no peat to weaken the mix. It is a myth that plants do not like cement, as evidenced by the moss on our older frames, the lichens on our concrete windowsills, the *Erinus alpinus* all over an old bridge outside the village, or countless ferns in walls everywhere. The effect will be a little stark at first, but will soon weather, especially as the surface was roughened with a wire brush while the mortar was still green.

With construction complete the hardest part was still to come; I had to fill up our 0.6 m deep box with a scree mix, richer towards the bottom as in nature, one third of the length to be limestone, the rest acid. We already had a large heap of limestone chippings left over from the ex-azalea bed to scree reconstruction described in *The Rock Garden* for June 1993, p. 253; for the acid part 10 tons of 5 mm dolerite chippings replaced the remains of Chris' aggregate on the drive. Peat was ordered from a farmer outside Inverness who works his own bog, black peat from the bottom of the deposit for its higher Cation Exchange Capacity and longer term stability, and

not the brown fibrous material used in container composts. It arrived in three cubic metre polypropylene bags perched on the back of a 38 tonne 'artic' behind its normal load of concrete blocks on their way to Fort William. The driver, a soft-spoken Harris man who had had no English until he went to school, backed his long vehicle right up to our garage door. Even so Poll had to direct traffic, to glares from impatient tourists, around the tractor unit while he used a central hydraulic crane to offload our peat. A barrow load of the peat, one of chippings and one of sieved loam from the triangular turfstack between this bed and Orchard frame 4, the last lightened with half a barrow of the 3 mm crushed granite we use as 'sand' in our compost, were dumped into the box near one end. They were thoroughly mixed together, and shovelled along to start a layer half the depth of the inside. When a couple of metres had been thus filled, I switched to a leaner mix, with two barrows of chippings per batch, and shovelled this on top of the lower layer, filling to within 10 cm of the top. It took over a fortnight to work right along the bed, a vertical sheet of old correx separating the lime and acid parts. No fertiliser was used at this stage, the bed will be fed next spring when hopefully the plants will have rooted sufficiently to make full use of the nutrients; and no so-called drainage layer was used at the bottom, the slots just covered with pieces of plastic mesh to retain the compost. The concrete base has a dual function, to keep out greedy treeroots, and to provide the basal moisture film found over bedrock in the wild.

As finally realised, this bed has elements of a Farrer cement moraine, one of Alex Duguid's monster troughs, and Roy Elliott's scree-frame, its *raison d'être* probable closest to the last: to cut down on the number of pot-plants, especially larger specimens, and hence on time-consuming repotting. It will also serve as a reserve-cum-trial bed and eventual feeder for the open scree, Mt. Sherman; if new introductions survive with this winter cover, then we can try them without. It took a further 10 days to add some small rock outcrops to break up the flat surface, lay out all the pots, do the actual planting, and the all-important top-dressing. Fortunately this second part of June was largely cool and cloudy. Most of the plants were in 10 cm pots or larger and had very long root systems once shaken out of their compost, necessitating deep holes. The compost in the bed was kept just moist enough so that these did not collapse. The whole bed was top-dressed with the dolerite chippings, a hard rock which the ancient Egyptians used for hammerstones to carve out their granite obelisks. Experience with the limestone scree has taught us not to use any further porous top-dressings as they go mossy here within a couple of years. The top-dressing should be

washed, to remove the fines which also encourage moss. Mixtures with a high proportion of stone do not settle much, but when the inevitable occurs, the bed can be topped up with further chippings. As completed the bed contained some 550 plants representing over 200 genera. So far less than half a dozen have failed to establish, even though some had become somewhat potbound and starved, but the real test is still to come. As I write in October the cover is on and we can do no more. Time alone will tell, and I shall report next time. Surely we cannot get another winter like the last.

TO THE WOODS AND HILLS OF THE PACIFIC NORTHWEST

Some people may be a little surprised that, in the midst of all this work, we found the time to go away for a month last summer, but Alf Evans warned us many years ago not to become slaves to the garden; there's more to life than pulling up poppers. In point of fact, it is not my construction nor the weeding, or lack of it, which is the limiting factor, but Poll's propagating time. However, the itch to be in the mountains again had to be scratched; the Pacific NW top of the list of American mountains we had yet to see.

I have been over our reasons for choosing the American West rather than its only real rival outside Europe, the Sino-Himalayan region, several times before, most notably in the Stone Column for January 1991. In the five years since then, having sat through a great many lectures on various treks to the Sino-Himalayas, we have still not changed our minds. Perhaps for new readers I might be permitted a brief précis: fully independent travel, booking only the flights in advance; better hiking conditions, no leeches or monsoon rains; and hardier plants, more of the high alpiners thriving here without the continuous attention of the specialist grower.

The only second thoughts concern the remarks I made about hiking up through the forest zone; the woodland ground floras are extremely interesting (and hardy), the lighting effects can be very beautiful, and the shade welcome during an initial ascent. Timing is always something of a gamble; we chose to go relatively late, 6 July on, for two main reasons: to extend Poll's propagating and for more certain access to the high alpiners. Go too early in a heavy snowpack year, as did the AGS in California recently, and many stations are still buried; too late in a light year and there are still alpiners to be found in the shade of North slopes, or by remnant snowbanks.

Unfortunately, lack of space precludes anything but the briefest of sketches of a month-long trip in which we drove over 6500 km, hiked 16 different mountains all over Washington and N. Oregon,

and visited some very interesting gardens. Spring was late in 1996, the season compressed so that a vast range of plants was in bloom, from *Douglasia laevigata* and *Lewisia tweedyi* to *Gentiana newberryi* and *Claytonia nivalis*. Snow was still everywhere bringing its own problems. Near Lake Chelan, we drove over 30 km of poor dirt road only to be stopped by a drift a few km from the intended trailhead. Continuing on foot, we found the trail frequently obscured by further snowbanks. Poll would stop where the faint tread disappeared, while I circled up above looking for a blaze on a tree, or a cut downfall log to show where the trail went. Eventually, we attained the ridgetop to find it largely clear of snow, as the wind blows much of it away to make those drifts in the forest below. Up on the summit scree, white *Phlox hendersonii* (Fig.32 p.125) and wine-red *Douglasia nivalis* (Fig.30 p.124) vied for top cushion, *Anemone drummondii* (Fig.31 p.125) waved its blue-backed blossoms in the wind, *Erigeron aureus* competed for space with *E. compositus*, producing the odd cream hybrid, while lupins and penstemons added accents of darker blue and violet. Our first major hike of the trip, this one mountain top epitomised everything we had come to America for; to wander in solitude and sun amid an absolute profusion of choice alpiners scarcely touched by the heavy hand of man.

It is not just the snow itself that causes problems; rivers and streams become swollen with snowmelt, particularly on warm afternoons. Visiting Askival while up attending the Oban Rhododendron Conference, Barry Starling had told us of an unusual gentian he and Boyd Kline had found high in the Wallowa range back in 1976. They had camped, but Poll and I, lacking gear, had to get in and out in a day, and the only practical trail repeatedly crossed rivers and creeks on its way up the valley. Just after leaving the trailhead, we had to detour 400 m or so upstream to find a large deadfall log bridging the river, before rejoining the trail by climbing diagonally through sparse woodland, an old burn, dotted with *Calochortus eurycarpus*. Negotiating a vigorous sidecreek by throwing boulders into it, we had to recross the main river where it was wide, relatively shallow, and split by several islands. These we joined with improvised causeways of small dead trees, which had to be added to on the way back as the river rose during the afternoon. One last obstacle, a steep snowbank at the head of the valley, we bypassed by scrambling up a loose shaly ridge, trying to avoid the mats of *Eriogonum ovalifolium* and *Haplopappus lanuginosus* in full flower. Up on the col we found the gentian to be an unusual form of *G. calycosa*, spreading and rooting down in the

willow turf to make wide patches, rather than the normal upright clumps.

On both of the above occasions Poll and I were quite alone all day, but the company of like-minded friends does not detract from what Americans call the 'wilderness experience'. Apart from the 'crack' along the trail, with morale support a few more risks can be taken. Poll would never have crossed all those steep snowfields on the way up to see *Hulsea nana* on the appropriately named Old Snowy had not Rick Lupp and Ron Ratko been along; nor, but for Loren Russell, would she have slithered about taking photographs on a precipitous pitbing-like moraine ridge, part of one of his favourite hikes high in the N. Oregon Cascades. Old Snowy, one of the peaks in the Goats Rocks Wilderness, lies just to the east of Mt. St. Helens and so was enveloped by a heavy ashfall when the latter exploded in May 1980. Although much of the 'heather', i.e. cassiope and phyllodoce, was killed at the time, the longterm effects have been of benefit to many other plants; even the heathers are regenerating strongly in many places. The dust has acted like a slow release fertiliser, leading to vigorous growth and magnificent flowering on such as *Pulsatilla occidentalis* and *Erythronium montanum* (Fig.28 p.123). The superb multi-flowered specimens we saw could also have been a result of the ample moisture from the heavy snowpack; when Ron Ratko returned in October, much still remained unmelted. Shortly afterwards the first fall of winter blanketed the upper slopes anew and thus many of the plants under the drifts have had to skip a season altogether. Small wonder that some of these species adapted to the tough conditions of life on the edge find our gardens a little on the effete side.

In the Eastern Olympics (Fig.29 p.119) with Betty and Ned Lowry, and Steve Doonan, it was their intimate knowledge of the mountain which greatly enhanced a superb day. Overwhelmed by the riches of this summit, including two endemics named for an early explorer, *Erigeron flettii* and *Viola flettii* (Fig.34 p.126) and *Erigeron flettii*, we should certainly have missed finding the white form of *Campanula piperi*, double *Potentilla fruticosa*, and restricted *Elmera racemosa*. In return, I was able to add one to Betty's list: *Arnica rydbergii*.

Not all our time was spent at such rarefied heights, there are interesting gardens to see in the Puget Sound area including one on the Peninsular side, Heronswood Nursery, where Dan Hinkley is particularly interested in choice herbaceous plants of form and substance. His woodland garden has an almost tropical luxuriance, aided by the high humidity of the area. Across in Renton, Betty Lowry complains that those same warm wet winters make the

cultivation of native alpiners difficult, for us a familiar problem (see above) and one leading to similar solutions i.e the provision of various winter covers. One alpinehouse-like structure had a particularly ingenious roof in two overlapping sections, with a continuous ventilation slot at the ridge. What with the compact cushions on the driveside raised beds, and a beautiful violet form of *Collomia debilis* (Fig.33 p.126) seeding around the screes, her open garden alone would satisfy most. Apart from engineering Betty's various structures, Ned has his own semi-wild woodland below.

The foundation of any really interesting alpine garden is successful seed-raising, as demonstrated both by Betty and, further south at Graham, by Rick Lupp's garden and mail-order nursery. Here the house and its immediate surrounds are within a cool woodland, but this has led to enormous problems with slugs. Most of these are, I'm sorry to say, introduced European aliens which the local birds do not significantly predate. Rick grows most of his choice plants up on raised benches, in a series of small polythene houses, each devoted to a different genus or family. At the time of our visit, those containing composites, gentians and Rick's favourite campanulas, were full of bloom. We particularly noted a chance hybrid, *Campanula piperi* x *lasiocarpa*, appropriately named 'Bumblebee', and his wild finding *Erigeron aureus* x *compositus* 'Goat Rocks', with more intermediate foliage than the ones we saw by Lake Chelan. Naturally, Rick has a number of especially selected forms of his local flora, like the very compact, dome-shaped *Douglasia laevigata* 'Packwood'. Over at Issaquah, the Grand Ridge boys are back; Steve is growing and propagating again. The plants of course never went away, such was the soundness of the original concept, some just got overgrown a little. The range of interesting plants to be seen is expanding again, for example they include a large number of named cultivars of *Anemonella thalictroides*, much sought after these days, and Steve and Phil's own selection of *Shortia uniflora* x *galacifolia* 'Leonora'. The only garden we visited in Oregon was that of the O'Byrnes near Eugene. Not too far from the coast, they even succeed with blue meconopsis, which were, naturally, long over at the time of our visit, but we did note a particularly imaginative layout, and some fine clematis.

In conclusion, thanks to all our friends in the Pacific NW for their hospitality, their researches on our behalf prior to the trip, and most of all for their company 'on the hill' as we say in Scotland. It may be a year or two, but like your General MacArthur, we shall return.

“ ‘Cause tramps like us, baby, we were born to run’;
or at least hike slowly.

THOMAS BLAIKIE, ALPINE PLANT COLLECTOR

**If you think present day plant hunters
have problems, read on.....**

by Forbes W. Robertson

The 18th century witnessed a remarkable emigration of Scottish gardeners to England where they carved out successful careers as head gardeners, nurserymen or seedsmen. Some went further afield like Thomas Blaikie, who spent most of his life in France, where he won a respectable place in French garden history designing 'jardins anglais' for aristocrats and hobnobbing with royalty. But it is not that part of his career which is our present concern. Before he moved permanently to France he was commissioned by two physicians, who were also devoted gardeners, to travel to Switzerland for the purpose of collecting mountain plants. He was the first professional alpine plant collector. His employers were Dr. John Fothergill, a Yorkshire Quaker, with probably the finest private garden in the country, and Dr William Pitcairn a distinguished Scots physician and former private tutor to James, 6th Duke of Hamilton.

EARLY DAYS

Blaikie was born in 1750 at Corstorphine, Edinburgh, where his family had a small estate of around two hectares. As usual, nothing is known of his early life, his education nor where he learned to be a gardener. He was certainly well educated, a sound botanist, who used the Linnaean names for plants and, quite early in his career, was on familiar terms with the leading nurserymen and botanists of the day, including Sir Joseph Banks. But, from the age of 25 onwards, his life is well documented since he left a diary which was edited and published in 1931 by Francis Birrell under the title "Diary of a Scotch gardener at the French court at the end of the 18th century".

HIS ALPINE TRIP

The account of his alpine trip is particularly detailed and reveals him as a man of lively curiosity with a discerning eye for both landscape and the people he met. He left London on 15 April 1775 and travelled first to Paris, where he took time off to look around the city and remarked on the hazards of going on foot in the narrow streets, which were crowded with coaches driven at great speed. At Lyons he visited the Anatomy School. He reached Geneva on 4 May where his first task was to present his letter of introduction from Dr. Pitcairn to Paul Gausson, who had a number of rare trees on his estate at Bourdigny near Geneva, including the first female *Ginkgo biloba* known in Europe. Blaikie was relieved that Gausson spoke good English for he had been greatly frustrated so far by his inability to converse with the people he encountered on his journey. This handicap did not last long because Blaikie quickly learned to speak French and later became so fluent and familiar with French ways to pass for a native. Gausson was very helpful and provided Blaikie with a plot of ground in his garden, where he could plant out the specimens he collected on his forays into the mountains. He also acquired another plot near Geneva at St Genis for a similar purpose. Throughout his stay he regularly visited these sites to add to his collection and look after and propagate his plants.

THE JURA MOUNTAINS

He began his expedition by spending five days exploring the nearest mountains of the Jura where he immediately came across his first specimens of *Dryas octopetala*, *Arctostaphylos uva-ursi*, *Erinus alpinus*, *Viola calcarata* and *Gentiana verna* and *acaulis* which he found “so beautiful to be beyond description”.

On 22 May he met a local bookseller, one of the Gosses, originally from Holland, who was “exceedingly curious in Botany”. The following day Gosse took him to meet the eminent Horace Benedict de Saussure, scientist, traveller and mountaineer, later to climb Mt. Blanc in 1787. De Saussure had amassed a large collection of herbarium specimens of the alpine flora and was able to give Blaikie good advice as to the richest areas to visit.

MONT SALÈVE

After the Jura he turned his attention to Mont Salève and vicinity, the nearest mountains south of Geneva. After several days there he was back in the Jura on the north side where he found



Fig. 28 *Erythronium montanum* (p.119) Polly Stone



Fig. 29 Colour on the heights. Eastern Olympics (p.119) Polly Stone

Fig. 30 *Douglasia nivalis* (p.118) Polly Stone

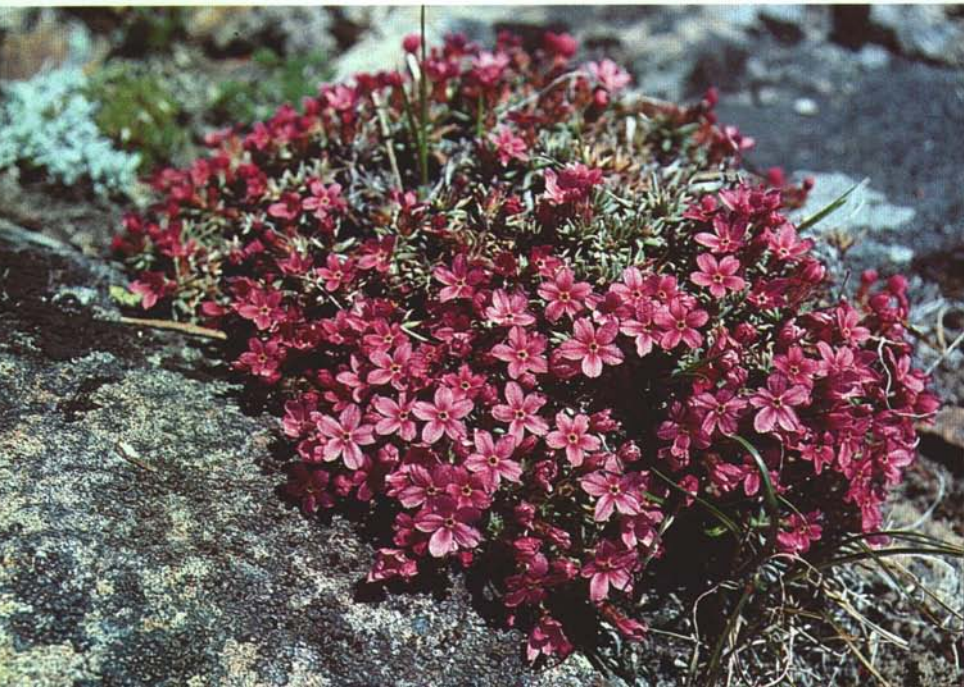




Fig. 31 *Anemone drummondii* (p.118) Polly Stone

Fig. 32 *Phlox hendersonii* (p.118) Polly Stone





Fig. 33 *Collomia debilis* (p.119) Polly Stone

Fig. 34 *Viola flettii* (p.119) Polly Stone



Pinguicula alpina and masses of *Cypripedium* in a wood. As the snow was now melting he planned to go further afield, found a guide and made for St. Cergue and the upland pastures where the cows were taken for the summer. Here he met up with a group of cowherds who supplied him with good milk and cream and a bed of spruce branches for the night. He climbed Mt Dôle and, like innumerable successors, admired the "most noble and stately view of the other hills and over the Lack of Geneva to Savoy". (Eighteenth century spelling was subject to few constraints.) Here he found large numbers of *Rhododendron ferrugineum*, *Vaccinium uliginosum*, and *Tozzia alpina* in the woods and *Andromeda polifolia* in boggy places.

CONVIVIAL HOSPITALITY

A couple of days later he returned to his cowherd friends and offered some money in return for their hospitality but they would not take it unless he promised to spend the evening with them to which he readily consented. They had a feast of cream and plenty of wine, which they had bought, so "this evening was spent very merry in dancing and drinking, one of the company played upon the fiddle and the others danced. I joined likewise and so we danced all barefooted. I frequently admired the happiness of those people who enjoys more happiness in such a trifling object as this than the higher class does in their great balls. At last when we were tired and the wine finished we retired to rest upon our beds of spruce branches and hay where we slept comfortably". This little incident illustrates Blaikie's good natured conviviality and the ease with which he made friends. We know from his later experiences at the French court that he was a popular figure, evidently endowed with plenty of self confidence.

MOUNTAIN HAZARDS

His expeditions into the mountains were not without adventure. While working along a slope he found his way blocked at the edge of a precipice. He managed to find a precarious way down by clinging to bushes but, by the time he had reached safety, he was benighted. However, he found a cave where he made a bed out of tree branches but he slept "but little dreading the wolves which is common in those woods". By daybreak he was up searching for plants. A few days later he had another unpleasant experience when he came to the edge of a stream with tempting plants on the other

side. He stripped off his clothes, which he tied in a bundle, and started to wade across but when he was halfway "the water was so excessively cold preceding from snow and ice and me warm with walking it soon seized me up so that with difficulty I gott out of the water and threw myself down upon the moss in the wood unable to put on my clothes. Here I lay almost senseless without any to help me. However, in a little after I found a glowing heat all over me, I soon recovered myself".

FEEBLE COMPANIONS

Late in June two botanist friends from Geneva joined him to look for plants in the Jura but, a couple of days later, they were too exhausted to continue and "were heartily sick of the mountains". That was a familiar experience for Blaikie. Very few could endure the pace he set. He was a seasoned walker who went everywhere on foot and would cover 20 or more miles in a day over rough country, carrying a heavy box of plants. As a consequence he had no luck with guides who quickly refused to go with him any further into the mountains. He had a low opinion of the stamina of those who went out with him, including Michel Gabriel Paccard who was the first man to ascend Mt. Blanc in 1786. Blaikie thought he tired easily! Indeed the only men who won his respect as suitable companions for a walk in the mountains were Abraham Thomas, a cowherd who knew his plants, and his father, then about 80, who had travelled through the mountains collecting plants for the eminent Swiss botanist Albrecht von Haller, author of 'Enumeratio Stirpium Helveticarum' which Blaikie used for numbering the species he collected. Both these men kept pace with Blaikie who considered them the only two people he had met "that is worth traveling upon the mountains".

On 24 June he was looking after his plants at St.Genis when he had a visit from Voltaire who appeared suitably impressed by the collection. Voltaire was then 81, tall and thin, still actively writing and living in a chateau near Geneva.

FURTHER AFIELD

By the middle of July Blaikie felt he had exhausted the Jura and Salève mountains, easily accessible from Geneva and prepared for a longer trip into fresh hunting grounds. Walking from Geneva he went by the south side of the lake to Thonon, which he thought a rather poor little town and then on to Evian. From there he walked

into the mountains south of Evian and encountered his first chamois, which interested him greatly. A couple of days later his guide refused to go further into the mountains, so they came down and parted company. The following day Blaikie walked on to Bex in the Valais. On 26 July he was introduced to Abraham Thomas, the botanist cowherd who acted as guide on their botanising walk to Sion, where Blaikie commented on the number of inhabitants, especially women, with goitre. The following day he came across *Opuntia* in flower and fruit.

HOSTILE NATIVES

He walked on to Kaidersteg which was in a German speaking area and engaged another guide who proved a disaster. They had not gone very far when he refused to go further into the mountains and left Blaikie. But a little later this fellow rushed out of a thicket followed by a near naked man with a long beard, carrying an axe. They threatened Blaikie in German but he ignored them and went on his way, both parties shaking their fists at the other. This incident had a sequel. When he got back to the inn where he was staying he was welcomed by the landlord. The guide then appeared and Blaikie became angry at his former behaviour. But he was outdone by the landlord who knocked the guide down and Blaikie had to intervene to save him from suffering possibly fatal injury. He later learnt that this same man had returned to the inn in his absence and tried to steal his belongings, but the landlord had kicked him out.

Blaikie was now travelling in the direction of Berne. On the way, in the vicinity of Grindelwald, he found *Pyrola uniflora* and the coral root orchid, whose roots he found so brittle that it was almost impossible to transplant this species. But what really amazed and fascinated him were the glaciers. The first one he encountered had "large cracks running all across of a prodigious depth". He wanted to cross it but his guide, in this case rather wisely, would hear none of it. Blaikie was "exceeding sorry to quitte this place and was almost determined to go by myself".

THE LINNAEAN SYSTEM

At Berne he had hoped to meet Dr Haller but he was ill in bed. However, he met Dr Abraham Gagnebin, a colleague of Haller's. and together they botanised in the district for several days. Blaikie then headed back towards Geneva via Joux, Ballens and Aubonne where he met a "curiouss Gentleman who pretends to be a great

Botanist” and who had inspected his plants at St Genis. His father had belonged to the Royal Society of London and had a plant, *Garcinia*, named after him by Linnaeus. The preceding plant in the list was Blakea, at which M. Garcin asked if it was not named after Blaikie's father to which the latter replied “surement” so “we concluded we was very nearly related in the Linnaean System and so we must go together to the Mountains and spend a day or two”. However, Blaikie had found several species on the Dôle which had escaped M. Garcin.

CHAMONIX AND MONT BLANC

A few days later he set out for Chamonix which he reached at the end of August. He had a letter of introduction to M. Paccard, the Public Notary of the town, and father of three sons, two of whom acted as guides to the area round Chamonix. With them he explored the slopes of Mt. Blanc and the glaciers, about which he found some species new to him, including *Saxifraga bryoides*, *Veronica alpinus*, *Ranunculus glacialis*, *R. aconitifolius*, *Artemisia genipi* to mention a few. He wanted to go higher up the mountain but his “compagnon” was almost tired out, as usual, and would go no further, so as there were no plants to be seen at that height, he consented to return to Chamonix. By 5 September, having combed the Chamonix district and collected seeds from beside the glaciers, he arranged to have a box made to send back his large collection to Geneva. He decided to return to Geneva directly through the mountains, a long, arduous and unexpectedly perilous route in the hopes of finding more plants.

STRANDED AGAIN

The very first night of his journey back he once more found himself stranded at nightfall in a precipitous place. He had to spend the night on an improvised bed of rhododendron but he could not sleep for the cold and the whistling of the marmots. At daybreak he left the “Hottle de la Roche” and soon found *Onosma echioides*, *Campanula barbata*, a species of *Hedysarum* probably *obscurum*, *Astragalus alpina* etc. He toiled on and towards evening saw some huts two miles away — “the most agreeable sight I had seen for this two days”. He hastened there and found only women occupying the huts, one of whom gave him milk and told him it was eight hours walk and no road to the nearest habitation, so he spent the night there on a hay bed. The following morning, after curds

and cream, the kindly lady pointed out the direction he should go but he got confused and was set right again by a man he met. Eventually he reached a village called Thonnage about seven in the evening and went to the Signe de la Croix Blanche where he ordered supper and wine.

A NARROW ESCAPE

But it was not long before two men came in and proceeded to question him in a way he did not like, while a crowd gathered at the door. One of the men went outside to speak to the crowd while the other, who appeared friendly, told him he should get out of the place as quickly as possible to avoid the chance of being murdered. He would not believe he came from Geneva but was convinced he was from Germany, to which he was well disposed, and therefore hoped Blaikie would escape the fate of two Germans a few days earlier. Blaikie was understandably mystified by all this and did not know what to make of this mob outside armed with sticks. He could not venture out and had his doubts about the man who gave him this alarming information. So he decided to stay there that night and defend himself as long as he could. He had supper and shared a bottle of wine with the apparently friendly adviser. The people of the house would have been glad to see him outside for they were afraid the mob would set the house alight. After supper his companion left and the mob went with him. After paying for his supper he was shown to a sort of "hogstie" where he was to spend the night. But as soon as possible he made for the protection of the wood and headed for the mountains. After hurrying upward through the night he reached a steep rock from where he could look back at the village and saw, to his horror, the mob of people, armed with sticks and pitchforks setting alight the cabin where they thought he was sleeping. "This scene made me think of getting off as fast as I could from this bloody place although the night was dark and the road through a thick wood; I continually kept upwards until at last I got clear of the wood and near the top of the mountain; here I could see better although I did not know which way to take before light because of the precipices, as soon as day-break I saw by the sky the position of the Mountains which run east and west, so I steered east and kept clear of all villages during this whole day; in the evening found some huts where I lodged however always in doubt". The next day he was back in familiar territory where he learned that his informant at the village had told the truth and that

two people had recently been killed there “under pretext of Religion” and that it was a miracle that he had escaped alive. So much for travel in 18th century Switzerland.

LAST LAP

By now the season was well advanced and most of the species he had collected were in seed which he gathered. By 4 October he was travelling south towards the east end of Lake Geneva and on 10 October he met up with his friend Abraham Thomas and persuaded him to accompany him to find replacements for many plants he had previously collected but which had died. He found many of them and collected a great deal of seed.

By mid-October he was back at Bourdigny putting his collection in order. Not surprisingly, in spite of collecting duplicates, not all the species were still represented and Blaikie was anxious to replace them, so 25 October found him back on the Jura struggling through the snow in search of the plants he remembered from his earlier trips. He was out again the next day and found the going difficult over snow-covered rocks. The wind was so strong that he found it difficult to hang on to bushes to guard against slipping. He was almost overcome by cold and wind at the top of the mountain but managed to gain the shelter of a deserted summer hut where he lighted a fire with his pistol and spent “a very disagreeable night”. He was certainly conscientious for he continued along the mountain finding many of the plants he was looking for and finally returned to St. Genis in the evening.

Most of November was taken up with cataloguing and packing up his plant collection and on 27 November, after breakfasting with Paul Gausson for the last time, he set off for London which he reached on 31 December. After having spent so many nights in miserable alpine huts on strawbeds or in the very indifferent French hotels he revelled in the cleanliness and comfort of an English tap room.

HIS COLLECTIONS

So much for the bare bones of his expedition. But what of the plants he found? His list of plants dispatched from Bourdigny for Drs Fothergill and Pitcairn included well over 400 species. In most cases each species was represented by more than one and sometimes as many as 30-40 specimens either of individual plants, tufts or cuttings of willows etc. We know he sent back a great deal

of seed although he does not list the species. His plants were all numbered according to Haller's scheme and given their Linnaean name. His collection was fully representative of the alpine meadows, screes and rocky places of the Alps he visited. It was comprehensive and included species of *Juncus*, *Carex*, *Cyperus*, *Lycopodium* and a few grasses. He kept an eye open for variation and included in his collection albino varieties of *Prunella laciniata*, *Erinus alpinus*, *Ononis spinosa*, *Verbascum lychnitis*, *Gentiana verna* etc. He collected nominally 18 species of *Hieracium*, according to Haller's classification and 23 different orchids. Only the rarer high mountain species are missing. Blaikie never received formal recognition for the species he introduced. In William Aiton's *Hortus Kewensis* (1779) there are 22 entries of species whose introduction in 1775 is attributed to Drs Pitcairn and Fothergill. All are listed as natives of Switzerland and sometimes France or Italy as well. There is no doubt these were all Blaikie's plants so he deserves formal, if belated, recognition for their introduction.

In the table below the first name is the one in Aiton's *Hortus*. In several instances the original name has dropped out of use due to taxonomic changes of one kind or another. Where known, the present name, or at least, a later more accessible synonym, has been added in brackets. The list is as follows:

- Achillea atrata* L.
- Achillea moschata* Wulfen
- Ajuga alpina* L. (*A. genevensis* var *arida* Briquet)
- Aretia* (*Androsace*) *helvetica* L.
- Aretia* (*Androsace*) *helvetica* L.
- Carduus rigens* L. (*Cnicus* x *rigens* Wallr.)
- Cineraria cordifolia* L. (*Senecio alpinus* Scop. var *cordifolius* D.C) *Erigeron uniflorum* L.
- Gentiana bavarica* L.
- Gentiana punctata* L.
- Geranium acutifolium* L. (*G. rivulare* Villars.)
- Hieracium porrifolium* L. (*H. wildenowii* Monnier)
- Gnaphalium alpinum* L. (*G. carpaticum* Wengb.)
- Hypochaeris pontana* L. (*Soyeria montana* Monn.)
- Laserpitium lucidum* L. (? *L. gallicum* L. var)
- Lepidium alpinum* L. (*Hutchinsia alpina* R. Br.)
- Poa gerardi* L. (*Festuca spadicea* L.)
- Polygala amara* L.
- Senecio nemorensis* L.
- Saxifraga bryoides* L. (*S. aspera*, ssp. *bryoides* D. C.)
- Veronica aphylla* L.
- Veronica bellidioides* L.

Many of the other garden worthy species Blaikie collected had already been introduced, often by de Saussure or “cultivated by Philip Miller”, according to Aiton's Hortus. Nonetheless Blaikie should be remembered in the annals of rock gardening, not only for his introductions, but also for his engaging character and tireless energy in the search for alpine plants.

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RHS Plant Finder

The information in the 1996-97 edition of the RHS Plant Finder is now available in electronic form on the Plant Finder Library CD-ROM. It not only includes all the information listed in the book but carries additional information from other International Plant Finders and also much useful data for plantsmen. Full details of how to obtain the CD-ROM are given inside the printed version of the book.

Indian Road Signs

Road signs in the UK have nothing on the ones seen on a Flower Trek in Sikkim in 1995. Thanks are due to Heather Salzen for noting them down as we sped along. Here is a selection:

*Beware of shooting stones Sinking area ahead;drive slow
Hurry burry spoils the curry Enjoy the beauty of the hills
Raw haste is sister to delay Slow drive;long life
If you wish to donate blood do so at the Blood Bank
Count your bridges as you come to them
Love me or hate me but stop your interference*



HELLEBORE SEED

by Will McLewin

The note in the last edition of the journal seems to me a little misleading and may cause unnecessary concern. Basically nobody need have any concern at handling a few (hundreds or grams of) hellebore seeds for garden purposes. There is generally no problem with ripe seeds themselves, which may be planted with insouciance (and optimism).

However, in trying to be more precise about the adverse physical effects of hellebores that may or may not be encountered I find myself with a very familiar problem, namely that nothing can be said about hellebores simply and without qualification.

On the general question of discomfort or worse arising from handling hellebore material, there are four sources of complication. These are:

- (i) whether sap is involved or just contact with solid plant material
- (ii) whether plant material is ingested or just touched
- (iii) which hellebores species are involved
- (iv) the particular person involved

My involvement (latterly an obsession) with these intriguing and extremely useful garden plants began over 25 years ago and in recent years I have handled annually thousands of plants and kilos of seed, so the remarks that follow are based on first hand experience and direct observation both in the nursery context and extensively in their native habitat centred on ex-Yugoslavia.

As far as I am aware, there are no dangers or discomforts at all that arise from handling hellebore flowers or leaves or roots and in particular dried mature seed poses no problems. On the other hand, it appears to be the case that all parts of hellebore plants contain poisonous substances which when swallowed in significant quantities can have serious consequences. In between these extremes, is the possibility that sap from some part of the plant can come in contact with an open wound. One situation is when extracting seed from capsules which are still green (containing sap). Juice from the fleshy part of the capsule can get under fingernails and even, after a lot of this activity, penetrate the skin of the finger tips. Another is when the plant leaves are mature and

hard and the serrated edges can graze the skin. I am familiar, after prolonged working with bare arms among mature plants, with a short-lived rash. I guess, without having conducted very careful experiments, that what I experience is a combination of 'physical' and 'chemical' effects, neither of which would be noticed without the other. People working bare-legged among hellebores have encountered the same thing.

In both situations, inflammation and irritation or numbness can occur. Usually this lasts only a day or so but — and here is another complication — it seems that some people are much more susceptible or sensitive in this respect than others. This remark appears to apply to other plants that cause problems, like stinging nettles and rue for example.

While it seems to me extremely unlikely that anything more than a passing irritation results from contact, swallowing 'extract of hellebore' should be regarded as considerably more hazardous. The potential toxic effects of hellebores are certainly very substantial. At the same time they are variable. There is no doubt that mice and voles eat the seeds without harm. Also while there are fairly well-documented examples of cattle dying from eating hellebores and in ex-Yugoslavia hellebores are routinely cleared from land brought into pasture, hellebores present there amongst meadow grasses are not removed from hay. Presumably the drying process somehow neutralises the toxic substances.

The other complication is that some species are much less malign than others in this context. The genus as a whole can usefully be separated into caulescent (*argutifolius*, *foetidus* etc) and acaulescent (*orientalis*, *odorus*, *torquatus* etc) and almost nothing of any value can be said about hellebores without making this separation. The second category includes the garden hybrids usually incorrectly called *orientalis* hybrids and properly called *Helleborus x hybridus*. Almost all examples of discomfort that I have come across following seed extraction have involved *Helleborus foetidus* and to some extent *argutifolius*.

I am not aware of significant discomfort arising from the acaulescent group. This may simply be because the seed capsule is thinner and almost always drier when the seed is ripe. In addition, the seeds of caulescent species have a much larger fleshy aril attached to the seed and this may be part of the problem. My guess is that reports of actual seeds separate from the follicles giving rise

to discomfort can only refer to caulescent species. If so it is most unfortunate if this is not made clear.

Lastly, an observation was made that "it is best to sow hellebore seed while they are still green" (sic). At least this matter can be dealt with simply. It is nonsense. Are the self-sown seedlings commonly found around plants sown green? No, they drop from the follicles when ripe and black. Like the other favourite bit of garden writers' rubbish, that hellebores are 'shade loving', daft comments about seed germination continue to be widespread. Neither can be based on careful first-hand observation because both are inaccurate. One should be that hellebores are shade **tolerant**, the other that badly stored hellebore seed gradually loses viability. Ripe seed kept cool remains viable for years. Seed which does not germinate one year and is simply left outside at the mercy of the weather often germinates well a year later.

These remarks taken together may seem rather confusing. Unfortunately the truth is often not simple and rarely benefits from hearsay and anecdote. A bit of common sense is in order when handling hellebores. They are marvellous plants and it would be sad if anyone were to forego their splendid, trouble-free late-winter flowers because of unwarranted fears about their harmful properties.

Will McLewin runs Phedar Nursery, a small research nursery near Stockport, and is particularly interested in helleborus and paeonia

Erratum

Autumn Gentians Part 2 June 1996
Page 89 line 28 should read "*G.sino-ornata*"
and not "*G. ornata*"

THE WHITE NEW ZEALAND GENTIANS

by Harold McBride

During a recent visit to the mountains of South Island, New Zealand, I was particularly interested to see so many gentians in their natural habitat, my previous experience of these plants being entirely based on their cultivation in the garden. It was, of course, of great interest to see several species for the first time, including several which are yet unnamed. During our Alpine Garden Society Tours we considered ourselves most fortunate to have with us an experienced New Zealand botanist to help us identify the individual members of this complicated genus. However, it is quite apparent that a serious botanical study of Australasian gentians is urgently required to sort out the species and decide whether they are indeed true gentians or part of the closely related genus *Gentianella*.

The AGS Encyclopaedia suggests that NZ gentians are unreliably hardy, often short-lived and some thriving best in the environment of the Alpine House. It has been my general experience that while some are, indeed, short-lived, many will set copious seed before their demise. I have not found hardiness a problem. During my stay in NZ the NW parts of the UK experienced their lowest temperatures of the century, yet no damage was caused to the eight species of NZ gentians in my troughs and raised beds, while many other plants such as celmisias suffered considerable damage. I have also found that NZ gentians much prefer raised bed or trough culture to the confines of the Alpine House, although several species do appreciate some winter cover. A gritty humus-rich soil is without doubt the most preferred growing medium with plenty of moisture during the growing season.

AVAILABILITY

The easiest means of obtaining NZ gentians is from the various Seed Exchanges where, thanks to our NZ members, several species are usually listed. Some packeted seed may take one to two years to germinate although fresh seed is usually very reliable. Approximately 10% of the seed produced from a single flowered

plant of *Gentiana corymbifera* has this spring provided me with over 200 pricked-out seedlings, while the balance of the seed from this rarely flowered garden plant went to various gardening friends and Seed Exchanges.

Seed from NZ gentians should be sown very thinly on top of a gritty humus-rich compost and, although I use a fairly coarse grit to cover the seed pans, the small seedlings make their way to the surface without difficulty. Great care must be taken at the pricking-out stage to avoid damaging the fragile root systems.

The seedlings are potted individually and kept in deep shade until established. They spend their first year in a well-ventilated, shaded cold frame; care must be taken to see that the seedlings are not attacked by aphids or slugs. Most NZ gentians will be ready for planting out into a raised bed or trough approximately one year after pricking out, usually in late March or April.

NZ gentians are sometimes available from Scottish and Irish Alpine Nurseries. Quite often these plants will have been grown in a potting compost composed entirely of peat. Most of this compost should be removed carefully before planting out.

Gentiana saxosa, the shore gentian, is the most commonly seen NZ gentian in British and Irish gardens. This plant is found on rocky shore lines in South Island and Stewart Island, but adapts well to cultivation where it requires good drainage, but like most NZ gentians, must have plenty of moisture during the growing season. Despite coming from a frost-free habitat this plant is quite hardy in my garden in Co. Antrim.

G. bellidifolia is closely allied to *G. saxosa* but I have found this tufted perennial much more difficult to please. The seedlings of this plant seem to resent root disturbance and are often lost at pricking out. I found *G. bellidifolia* in great numbers on the Old Man Range in central Otago where it grows in very damp conditions below melting snow banks or on the banks of streams in the Alpine Zone. This plant has flowered for me in a raised bed where it enjoys our usually moist summers.

G. amabilis (Fig.36 p.143) is thought by some to be a dwarf form of *G. bellidifolia* while some NZ botanists give it separate status.

G. patula is easily catered for, flowering well in a raised or trough. The white flowers (Fig.35 p.143) are produced in umbelliform clusters and show a distinct pink vein. In the Peel

Range it is found in montane grassland; much searching produced a plant with pale pink flowers.

The Cobb Valley in NW Nelson has a diversity of plant life unsurpassed elsewhere in NZ. A complex pattern of ancient granites, schists, sandstone, limestone, marble and volcanic rocks are exposed; this provides a wide range of soil types, hence the diversity of plants.

In this region, close to the Sylvester lakes is found a plant closely allied to *G. patula*, known as the Cobb Valley gentian. This tufted plant was found in great numbers in alpine meadows on the shores of the lake in the company of *Bulbinella hookeri*. Recently received seed has germinated well and I hope it will prove amenable to cultivation.

G. corymbifera grows in the Hooker Valley in the shadow of Mt. Cook which is the home of several NZ gentians. This plant provides us with quite a challenge to flower in cultivation; the 30-45 cm flower stems take several years to produce but, I feel, are worth the wait. This plant usually dies after flowering but sows itself in my raised beds.

G. serotina makes a fine trough plant; it also provides the gardener with lots of seed.

G. divisa, the snow gentian, was found by us on several SI mountain ranges, usually close to snow melt. On the Arnaud Range I discovered a non-flowering plant growing in a large cushion of the vegetable sheep, *Haastia pulvinaris*. *G. divisa* has proved a difficult plant in cultivation; my last mature plant succumbed during our high summer temperatures in 1995.

Apart from *G. saxosa*, NZ gentians remain quite scarce in British and Irish gardens. Recently we were pleased to have a visit from the well-known NZ plantsman and author, Joe Cartman, with his wife Ann who is President of the NZ AGS. Joe expressed surprise at seeing so many of his homeland gentians in cultivation as he had previously seen little evidence of any results from the large quantities of seed he had personally submitted to Seed Exchanges.

While the startling 'blues' from Europe and Asia will always be more popular with British gardeners, I'm sure those delicate whites from the 'mountains of the long white cloud' will bring interest and delight to all who accept the challenge they provide.

PLANT PORTRAITS

Campanula morettiana

Lyn Bezzant

This is a rare, high altitude alpine which grows in narrow crevices of limestone cliffs in the Eastern Alps at a height of 1500-2300 m. Flowering time in the wild is August-September. The Dolomites bellflower is a tufted perennial plant, 5-8 cm tall, closely related to *Campanula raineri* (see drawing at foot of page), but smaller. The tiny rounded leaves are grey-green and downy.

The flowers, usually solitary, are large upward-facing bells of violet blue (Fig.37 p.144). I have seen it growing in cracks of tumbled limestone boulders above San Martino di Castrozza in the Dolomites.

A compost made up of 2 parts medium grit, 1 coarse sand, ½ leaf mould and ½ loam with a dash of ground limestone is suitable. The plant, in a clay pot, is plunged in the alpine house all year, lightly shaded in summer. Plenty of water is required in the growing season and fairly dry conditions in winter. I avoid overhead watering, but a fine mist over the whole plant is appreciated in hot weather. *Campanula morettiana* flowers in July-August in cultivation.

Repotting is needed every year and is best done in April. Short tip cuttings have rooted in an all-sand medium. Propagation by division is possible but chancy with such a small plant. It is best increased by seed if obtainable.



Campanula raineri (L J Bacon)

Dianthus superbus

Lyn Bezzant

This lovely pink (Fig.38 p.144) was growing in rough grass in the village of Arabba, our holiday home for a Dolomite holiday some years ago. Some seed was already ripe enough to collect and germinated readily later. The plant proved to be a tidy and more compact form than usual, being only 20 cm or so tall. The leaves are grassy, about 5 mm wide. The flowers, opening lavender pink and becoming white, are green at the throat, deeply cut and fringed. They are deliciously fragrant. *Dianthus superbus* thrives in a sunny well-drained spot in gritty light loam. It flowers in June and July and is easily increased by cuttings, division and seed. It is listed in the latest SRGC Seed Distribution.

Tulipa cretica

Dennis Graham

Tulipa cretica Boiss.& Held has a small (5-10 cm) high white or sometimes pale pink star-shaped flower about 5 cm in diameter, with usually two, sometimes three shiny green leaves, the whole plant having a rather attractive delicate appearance, in common with other tulip species. It is endemic to Crete, found especially in scrubby stony areas and flowers in March, April and May depending on growing conditions. It can be increased by seed but bulbs multiply quickly by stolons. The plant has been likened in some ways to a small version of *T.saxatilis*.

I find it grows very easily in a not too rich gritty compost(1 part JI2 potting mixture, 1 part coarse grit) in clay pots kept in the alpine house all year. It begins growth about New Year and then should be kept moist but, after flowering, the leaves die back and the bulbs should then be kept in a warm sunny place where they can mature for flowering next season.

Although it is an attractive small bulb, I have not seen it too often in cultivation, even though it is said to grow in the open in a warm corner in stony or gritty soil. The photograph (Fig.39 p.145) shows plants introduced many years ago in Crete by the late Mrs Sheila Maule (see Obituary on p.213) and given to me in 1989. The picture was taken in March 1994.

E-Mail

If you wish your name to be included in the Club's list of E-Mail addresses, please send a message to Barry Caudwell at:

FBCAUDWELL@BAD.DUNDEE.AC.UK

Please put in the Subject Box

“SRGC E-Mail list”



Fig. 35 *Gentiana patula* (p.140) Harold McBride

Fig. 36 *Gentiana amabilis* (p.139) Harold McBride





Fig. 37 *Campanula morettiana* (p.141) Lyn Bezzant

Fig. 38 *Dianthus superbus* (p.142) Lyn Bezzant





Fig. 39 *Tulipa cretica* (p.142) Dennis Graham

Fig. 40 *Galanthus byzantinus* 'Sophie North' (p.147) Evelyn Stevens





GALANTHUS BYZANTINUS

‘SOPHIE NORTH’

(syn. *G. plicatus* ssp. *byzantinus* cv. ‘Sophie North’)

by Evelyn Stevens

There was a time for me, as for many people, when a snowdrop was just a snowdrop, but that began to change over 20 years ago when we came to live in a 70 year old house in Dunblane, Perthshire. The garden had very little in it apart from grass, some daffodils and a few trees, but I noticed a small clump of large-flowered snowdrops (Fig.40 p.145) growing entwined with the roots of a large conifer incorporated in a beech hedge. After a number of years I decided to attempt to dig up the bulbs and plant them elsewhere, some were destroyed in the process, but I managed to extricate a few intact and to get them established and for some years now they have been increasing satisfactorily. Fairly recently I have learnt that it is a distinct and fine form of *Galanthus byzantinus* (syn. *Galanthus plicatus* ssp. *byzantinus*). Other galanthophiles have assured me that it deserves to be given a clonal name.

So I have named this lovely snowdrop ‘Sophie North’, the little daughter of one of my husband’s close colleagues. Sophie was one of the sixteen five and six year old children who, together with their teacher, were so tragically killed in the Dunblane Primary School massacre on 13 March 1996. The school is only a quarter of a mile from where I found the snowdrop. Sophie’s father, Mick, tells us that a pet name for Sophie was Sophie Snowflake, so the naming seems perhaps even more apposite.

What makes this snowdrop so attractive are its large flowers of good substance, the outer tepals being strongly convex and the inner ones particularly pleasingly marked (Fig.40 p.145). Further it has very handsome broad leaves. There are two or three leaves per bulb, which are slightly undulating, deep green, thick-textured and overlaid with a waxy, greyish bloom. The mid-rib is emphasised as a well-defined silver channel terminating in a conspicuous

creamish green tip. Towards the edge of the leaves they are folded sharply downward, especially when young. With ageing this feature is less pronounced. Apart from this there are further hints of longitudinal pleating across the width of the leaf and the extreme edges of the leaf are rolled under. The leaves are fairly parallel sided and range from 1.5-3.5 cm in width and from about 11.5-17 cm in length. When growing as single plants the leaves tend to lie horizontally, so forming handsome ground cover. When in clumps the leaves are pushed up to lie at about 45°.

LARGE SCENTED FLOWERS

The flowers are large, beautiful and scented. The stems are not very long (7-12 cm) and the flowers thus tend to sit low down over the broad leaves. The spathes are 3.5-4.5 cm in length, the same as the pedicels which are held nearly upright. The ovary is large and sub-spherical (0.9x 0.6 cm) and is a fairly deep green. The outer tepals are 3 cm long and 1.5 cm wide, and while the bases are not markedly tapered they are widely enough separated to reveal the attractive inner tepals. These are 1.4 cm long x 1 cm wide, thick textured and slightly flared at the apex. The apical cleft is 2 mm deep. There are both apical and basal markings which are mid-green and look exactly like a clearly outlined child's depiction of the rear view of a rabbit: the apical, distinctly V-shaped mark, forms the ears, the basal marking forms the nearly circular body and the two areas are joined by a narrowish head/neck region. There is sometimes a whitish 'tail' to the 'rabbit'. Green markings are also extensive on the inner surface of the inner tepals.

Amongst my collection of snowdrops this one flowers in mid-season. For example, it flowers well after *G.* 'Atkinsii' and also after *G. nivalis* and *G. nivalis* 'Sandersii' but before *G.* 'Lady Elphinstone' and *G.* 'S Arnott'.

A GOOD GARDEN PLANT

Like all snowdrops it successfully withstands hard frost, falls of snow, heavy rain and the strong winds of winter, and is a constant pleasure to behold in the long weeks of late winter to early spring. I find that along with the other snowdrops it thrives well in sun or part shade here in our good acid loam soil and cool conditions at 200 m in central Scotland. It increases well and frequent splitting up and replanting 'in the green' results in ever spreading drifts of this lovely plant.

I would like to thank Jim Jermyn of Edrom Nursery and Matt Bishop for help in identifying this snowdrop and for their enthusiastic endorsement of my assessment that it is worthy of a clonal name. I am told that *G. byzantinus* is a very variable species both in the wild and in cultivation. It remains a mystery to me how such a fine form should have come to be planted under a hedge in a garden in Dunblane not remarkable for any of its other plant occupants. (See p.215 for a similar discovery with *Galanthus* 'Fred's Giant'—Ed.).

A limited number of plants will be available from me in spring 1997 (enquiries to me at: – The Linns, Sheriffmuir, Dunblane, Perthshire FK15 OLP). All the proceeds will be donated to the charity of Mick North's choosing, namely Breakthrough Breast Cancer.

The life of a young girl, so full of promise,
has been cruelly snatched away. I hope
that in small measure this beautiful and
pure spring flower will help the memory
of Sophie North to live on, along with the
memories of her class-mates and teacher.



Trientalis europaea (Chickweed wintergreen) see p.201 (L J Bacon)

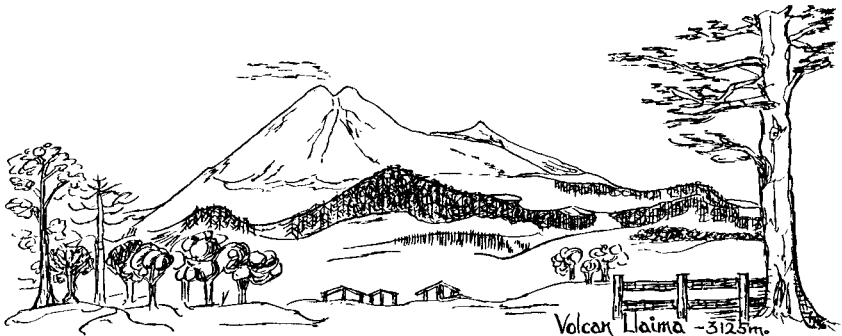
FOLLOWING FOOTSTEPS

Landscapes of the Chilean Temperate Andes.... Points of View..... not always Alpine

by Francis and Irene Ferns

The de-icing truck delayed the Shuttle flying south a little and again the Boeing 747-400 had to wait an hour at Heathrow. We sat, as in a car wash, boxed in until arms with weird antennae waved at us from outside and sprayed our monster with magic potions. Finally the plane took off with de-icing fluid sparkling as it chased off the aerofoil in little rills and scurries, catching any spot of light in the dark. Some 11 hours and 8,000 km later, we landed at Sao Paulo, Brazil: no time to stretch our legs, the aircraft was cleaned, refuelled and revictualled all around us; westward we flew to land at Santiago, Chile, where surprisingly all the baggage appeared. With a pile of baggage on the floor, could one suffer any more? Yes, but only a quick flip to Chillan (pronounced 'Chyan', ll = y as in 'yet') and then on to our base in a minibus.

To arrive on time after 27 hours of fairly continuous travelling, speaks volumes for modern technology and seems to refute the observation of Robert Louis Stevenson that . . . "To travel hopefully is better than to arrive". . . but he lived at a time 120 years ago, when sail, horse and foot were the usual means of travel. His words are still true; for the naturalist there is nothing better than travelling by foot, full of hope that the next corner will reveal something new to see; in movement lies the enchantment of travel.

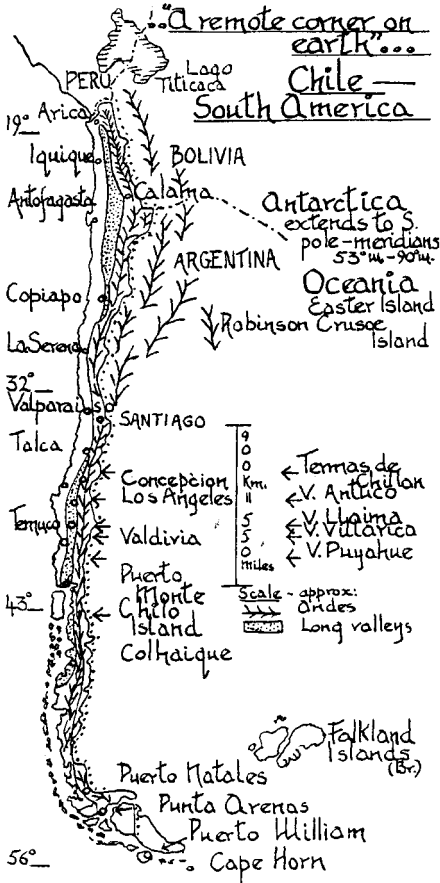


In Chile that is certain to be the case, even allowing for the fact that the corners are quite far apart. They comprise National Parks, volcanoes and the odd flash of colour seen from the highways. The initial impression has to be of a country as flat as the proverbial pancake, dominated by Lombardy poplars with pink-flowered brambles at the roadside touched by the delicate blue of chicory in full bloom; so much for first impressions.

What then is the true picture? Great names have been this way before, with perhaps more accent on the States to the east and north of Chile; Darwin, Hooker and latterly more alpine-minded such as Harold Comber, Clarence Elliott and Dr Worth; but only in the last 25 years have John Watson and his companions and parties from the AGS pioneered and persevered to leave tracks for us to follow in December '95.

THE LANDSCAPE

Healthy native forest covers much of the foothills and higher ranges of the temperate Andes, but in the flatlands running between the Pacific Ocean and the Cordilleras (mountains), most of the original forest has been cleared for farming which includes cropping large stands of eucalyptus and *Pinus radiata*



cropping large stands of eucalyptus and *Pinus radiata* to feed the timber industry and grazing. The mean tree line level is roughly 1700 to 2000 m above sea level. Alpine plant species then cover the mountain sides to the permanent snowline, sometimes very thinly.

North of Santiago the country gets higher, until in the Atacama region it becomes true rainless desert around 5000 m in height. South of Puerto Monte the hills get lower, colder and wetter; again the diversity of plant life deteriorates.

The highest points in the range stand out as the cones of the volcanoes: to these most of the negotiable roads off the Pan-American Highway No.5 point. At first the surface is sealed tarmac, but as the countryside becomes more interesting, they require greater concentration and driving skills. They may have begun as forestry roads or portage tracks to the Argentine border; now they are being progressively improved and graded to develop the wilderness for the skier, the walker and other frolics defined as outdoor sports and recreation.

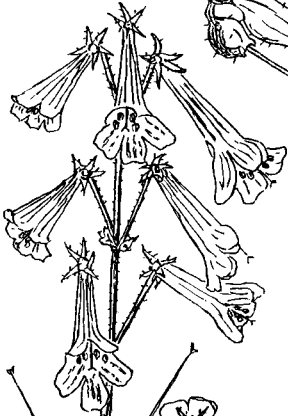
Recent writing and exploration on alpine plants in South America have focussed on the rosulate violas of the Andes and other plants, many quaint, perhaps interesting, but not always strikingly beautiful or garden-worthy. Consequently, many others which merit attention, not least because of their diversity of use of habitat or their diversity of flower form, get overlooked or dismissed as "not alpine".

GRASSLAND AND UPLAND SCRUB

In December, the grassland, the scrub and the fringes of abies forest are haunted by a ghostly chloraea orchid; white elfin figures pop up everywhere, standing half a metre or so high they flit through the woods; sometimes they sport a green-flecked dress, but usually they are a glistening white. They are impossible to name with certainty from the field reference books. They need very experienced eyes and those are much rarer than the orchids. The flowers with their floppy outer sepals often measure more than 6 cm across. Those of *Chloraea crispa* (see p.153) which seems synonymous with *C. galatea* as described in the field reference book by Adriana Hoffman are certainly more than 6 cm on good specimens. The lax spike, 30-70 cm high, carries five or six flowers; the upcurved wings of the tongue have toothed or crenate margins and the central lobe on the upper surface is covered by

Mitraria
coccinea

Chloraea
crispa



Sisyrinchium
jurceum



Conanthera
campanulata

Habenaria
latius
Schub & Stalands

papillae which can also be found on the tips of the lateral sepals. Regardless of the description it is a very impressive flower. It can be seen up to about 800 m. Others, like *C. alpina*, have rich yellow flowers, not quite as tall, but can be found up to 2000 m on rocky slopes and even volcanic slopes where the soil is sandy. Unlike many of the lowland species its leaves do not shrivel as it flowers; for example the leaves of the similar *C. barbata* do so. The description of the latter in the AGS Encyclopaedia of Alpines fits the yellow one which we found near our base at the Fundo Curanilahue, on the hard pan meadow, in particular having green-tipped sepals. It began to flower as *C. crispa* was going over. *Chloraea magellanica*, white, tinted green, with a heavy green network of veins and *C. nudilabia*, orange yellow, both grow on Volcán Llaima (Fig.43 p.164). They have the superficial bearing of serapias, with the same bold net veining and hooded flowers. They are all striking plants, obviously thriving in conditions similar to the garigue where the ophrys and serapias of Mediterranean shores are to be seen.

Access to mountains is not possible without passing through flatlands for an hour or two, so brief mention is made of some less known plants starting with the multitude of sisyrrinchium. Most are rather small with off-white flowers coloured only by purple or claret streaks on the reverse of the three outer petals; *S. junceum* (see p.153) is common, then in due season one species or genus follows another; *Nothoscordum striatum* is not even mentioned in the AGS Encyclopaedia, whereas *N. inodorum* carries a health warning, being designated as a serious rock garden weed. *Leucocoryne ixioides* on the other hand has merited a line drawing showing the distinctive sterile staminodes, but is probably found further north around Santiago and Valparaiso, so we did not see it; likewise the little blue violet coloured *Calydorea xiphioides*.

We did find two other blues, or rather violet coloured plants on the very dry hard pan meadow, where horses were grazing the sere brown grass. First, a little irid, *Herbertia lahue* (see p.153), with pale lilac flowers; fortunately photographed on the first day; a week later we were looking at well-developed seed pods. The other one is a member of the famous tecophilea family; *Conanthera bifolia* can be seen at the edge of the woodland or on dry roadside banks stretching up nearly knee high from a fibrous corm. The flowers are small, of a rich royal purple colour in contrast to the pointed cone of protruding yellow anthers; they look more like members of

the potato family. *C. parvula* has more campanulate flowers. Among all these *Nierembergia repens* flowered briefly, among the buttercups, which may account for its habit of getting lost during winter in our gardens; later it was seen flowering on Volcán Antuco around the 1300 m contour, so it should be hardy; though hardiness is a very variable standard by which to judge the suitability of a plant from a lowland Mediterranean climate (temperate) for the rock garden.

THOUGHTS ON THE DIVERSITY OF SPECIES . . . ON THE WILD SIDE

Just for a moment imagine an *Araucaria* with a head of blossom, like violets, proportionate to the tree. The floppy juveniles on the forest floor flourish just below the line where the rosulate violas begin to appear on the scoria (scoria is more ash-like gravelly clinker than solid lava) of the volcano; after all, the rosulate viola has a trunk and crown rather like the Monkey Puzzle tree in miniature; likewise the minute imbricate leaves of *Ourisia microphylla* (Fig.48 p.166) overlap like those of the leaves covering the branches on the tree. But, be reminded that the mosses and liverworts and gymnosperms came early on in the world, when all was greenery before the flowering plants became dominant in the Tertiary age, a mere 65 million years ago. If further reminder is needed look at those seed pans; one moment pristine with their sand/grit top-dressing, the next covered by those mosses and liverworts before the cotyledons of the cherished flowering plants emerge.

Something or some combination of factors has triggered one embryo form to grow into a tree which can live for 1000 years, while the other flowers spectacularly for its size, has a shorter life and keeps its head down. Both, however, are still flourishing at or near the same height on the side of recently active volcanoes to this day. Many more have died out on the way, unknown, unsung.

TRAINS OF THOUGHT

So much for random thoughts, provoked perhaps by the thinner air of the snow-streaked slopes of volcanoes, some dormant, some simmering, whose cones march parallel to the Pan-American Highway. If more such thoughts develop we shall be suggesting that rock plants originated at sea level; the high ground can then be left for the pundits to sit upon discussing their refined distinctions

of what constitutes the alpine flora. Even the forests of the lower slopes of the temperate Andes generate quite heady thoughts. There are some lovely things on the forest floor suitable for the shelter of glass in Britain or elsewhere, where there is no tree canopy to give cover and protection; even a windowsill will do.

Seeing a new flora in a strange country sets off many trains of thought. In the case of Chile it is not the number of different genera the taxonomists can find by applying the system by which Linnaeus brought order out of chaos; it is the diversity of vegetative growth developed by species of the same family in what seem superficially to be very similar environments in other continents which challenges the imagination of any observant traveller. To see new plants growing in the wild gives a different perspective to that of seeing the same plants imprisoned in a pot.

Curiosity provokes the question, "Why haven't the genera of a family found in South America in similar living conditions, namely temperate rain forest, developed the same method of vegetative growth as they have in Europe or in China? "

GESNERIACEAE

Take the gesneriad family for example. Generally the species are found in and on the fringes of rather open forest or woodland and rocky hillside, forming rosettes of leaves with fibrous roots. Species of the European genera, *Ramonda*, *Haberlea* and *Jankaea* are said to be relicts, surviving the last ice age from an undetermined earlier age. They reappear further east in the northern hemisphere in China as *Briggsia*, *Corallodiscus*, *Isometrum*, *Oreocharis* and *Petrocosmea*; others are plants of tropical rain forest.

The Chinese gesneriads cross promiscuously given the opportunity. *Briggsia* has yellow flowers; some ramble and have rhizomatous roots, but on the whole they might be mistaken for seedling foxgloves so far as the leaves are concerned. In South Africa the family is represented by *Saintpaulia* and *Streptocarpus*; like their European cousins the flowers are mainly cool glistening violets and whites, though the breeders have introduced warmer pinks and red shades over recent years.

In Chile where they usually grow in temperate rain forest, none we saw conformed to the expected rosette habit, and all broke new colour ground.

Sarmienta repens scrambles and clambers over rocks and shrubs and up trees to about head height. The glabrous opposite leaves are quite fleshy, orbicular or oval 1-2 cm across and slightly toothed. The flowers are borne singly on a stem from the leaf axils; the corolla is about 3 cm long and up to 1 cm wide. They are a unique shape, having a thin tube at the base which inflates to its full width and then constricts to flare into its five divided and spreading lobes. They hang downwards rather like a fuchsia with stigma and anthers protruding; colour, a bright crimson red. While said to be suitable for the frost-free alpine house in broken shade and needing a peaty fast-draining mixture with plenty of water, a kitchen or bathroom windowsill with the temperature kept above 10°C seems a better place to grow it.

Mitraria coccinea (see p.153) is unashamedly a climber, going up to 4 m or more in uncultivated woodland undergrowth. The leaves are oval, serrate but not prickly. The flowers are also intricately formed, scarlet in colour; again displaying strongly exerted stigma and anthers. Flowers of red hue with protruding stigma and anthers are said to be better adapted for pollination by small honey feeding birds, such as humming birds, and by large moths.

The third Chilean member of this very variable family is *Asteranthera ovata*; another red flowered scrambler over rotten wood which roots as it goes and also climbs for several metres up tree trunks, clinging on by aerial roots as an ivy does.

Final identification of this plant proved difficult. In some countries, comprehensive illustrated floras written in English are non-existent or short on alpine and sub-alpine flora. Chile is such a country. When in that predicament one resorts to the nearest friendly retired native botanist or the curator of the nearest botanical garden. Care has to be taken when considering tendering live material for identification; i.e. mature leaf, whole rosette, flower scape, flower and seed pod, in case the friendly expert proves not to be just a benevolent scientist in pursuit of truth, but a rabid conservationist who will have you immured in a police cell pending deportation because all unawares you have picked a Red Data Book protected species.

At Huerquehue National Park, two plants were found around the 700-1300 m contours; both had crimson tubular flowers and characteristics which would fit *Asteranthera* but the snippet of plant produced by the party which had gone up the hill where one species was found growing in the company of a weird little putty-brownish

coloured orchid, aptly named *Arachnitis uniflora* (see p.153), could not be positively identified that day. Later a breakway reconnaissance party saw it in flower much further south on Chiloé Island and established it as the gesneriad, *Asteranthera ovata*, beyond reasonable doubt. We never saw living material until the plant was shown to us in September 1996 growing in Logan Botanic Garden in the south-west of Scotland. It was recovering from the appalling frost of 1995, when we had been enjoying Mediterranean sunny spring weather, puzzling over the identity of the other red flower which had been confidently identified as an asteranthera by a resident botanist at Concepción university. In fairness to him, he only had a leaf and a hasty pencil sketch to work on, for the reasons above noted. The pre-prandial drinks session had accepted the opinion of the expert. We remained unpersuaded. There is only one species in the Chilean genus *Asteranthera*.

All the facts relating to the proper identification of the then unknown red flowered plant would take too long to recite here; although the puzzle created by lack of hard facts combined with misinformation make a neat little detective story. Suffice to say that a random trawl through the AGS Encyclopedia, when looking for the correct spelling of another name for this article, gave the answer; there was the plant with a description supported not only by a colour plate but also a line drawing; albeit neither did justice to the plants that we had seen covering the forest floor at Huerquehue, in association with the myriad different ferns and mosses. The shafts of sunlight filtering through the high canopy made the dark crimson flowers glow.

Ourisia coccinea (see p.153 and Fig.42 p.163), a member of that dustbin of a family, the Scrophulariaceae, is said to be easy to grow. We shall see. The seed we received certainly germinated as robustly as any foxglove. One could go rambling on about *Mutisia*, *Alstroemeria* and others, but enough of red herrings; time to move on to other things higher up the hill than 700 m.

VOLCANOES

The trouble with volcanoes is their ancient reputation and their occasional habit of reminding us in a spectacular manner that the firm earth on which we tread is shifting and moving all the time; nor are they as cold as the snow on their slopes would have us think. Tectonics and earth movements are now better understood

than they were a few decades ago; nevertheless, to stand on a mountain, seeing part of the landscape still puffing out steam and to know that it was in violent eruption two weeks or so ago, can be quite sobering.

Such was the case a few years ago when Mt. St. Helens, Washington State, blew its top and we viewed the damage from a safe distance 70 km away, munching lunch on Mt. Rainier. The dust and fall-out damage was all around us, as we climbed up to clean white snow. The alpine plants on the whole came through; the woodland and forest are taking longer to recover.

The Andes mountains are thought to have formed about 80 million years ago and boast about 600 volcanic peaks. The highest, Ojos del Salado, 6893 m, is the highest active volcano in the world. Fortunately, at the last count, only 47 are considered to be active.

Without being too specific, one might expect the cone of an active volcano to be a pretty lifeless place and to have a plant population of a transient character. After all, a volcano throws out a lot of heavy top-dressing during bouts of activity which would smother many plants, even allowing for the fact that plant life develops pretty quickly anywhere, given the chance; namely the right mix of a little grit for roothold, a little water, fresh air and sunlight. It is therefore worth asking what sort of plants should be growing in the alpine belt lying between the forest and the permanent snow of the cone.

Perhaps there will be tundra species like the willows, heathers and other Ericaceae; high alpine scree plants perhaps, the buns and those which keep their heads down like the drabas, saxifrages, phlox and even primulas. Surely there must be daisies, sedges and grasses, like those that grow in the northern hemisphere.

There are about six easily accessible volcanoes in the Chilean temperate Andes. Although similar in height and general climate, they do not seem to have quite the same plants, nor identical flowering periods and are short of the genera suggested above.

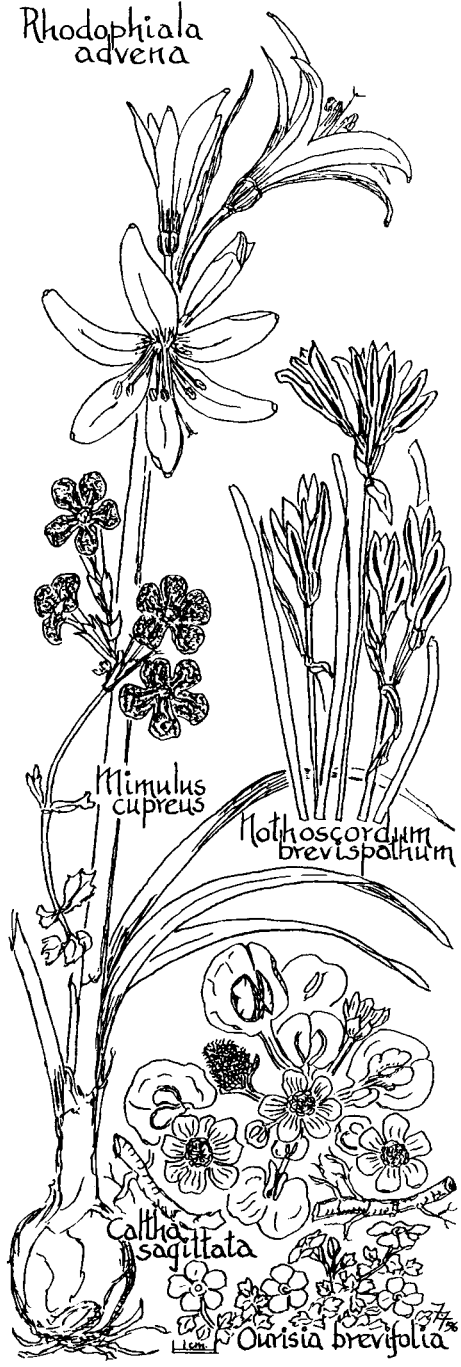
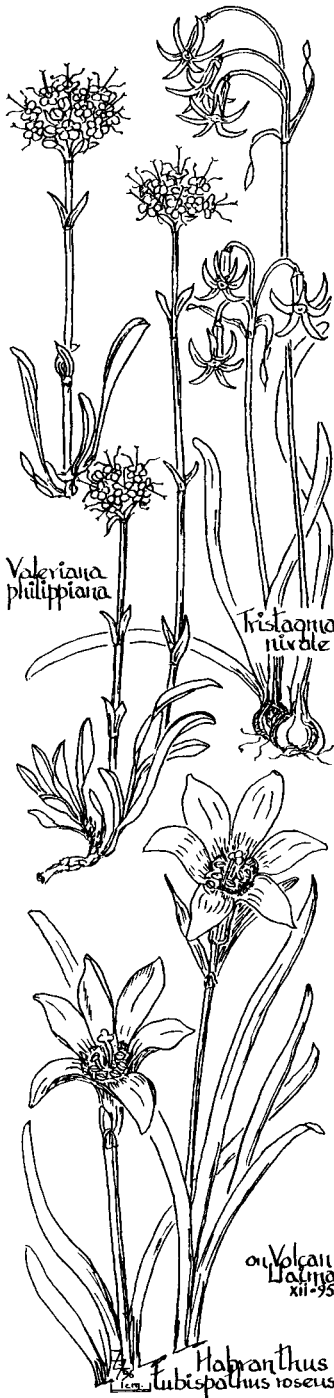
VOLCÁN CHILLÁN, 3212 M. TERMAS DE CHILLÁN 1760 M.

Having done Chillán market and been done by receiving Belgian francs in change, we sat and consulted the street map. With its help and the usual well-concealed road signs, we left Chillán in a south-easterly direction, aiming for Recinto and Termas de Chillán.

John Watson writing in 1974, about his classic survey with Martyn Cheese and Kenneth Beckett in 1971-72, relates how roads

Ghillan

Rhodophiala advena



in Chile, once off piste, soon become unloved and unspeakable. Twenty five years on, the 80 km of road in had improved a great deal and wound happily through undulating country, slowly gaining height. After an hour's driving and only 17 km to go, all that changed as we ran into what should have been the beautiful woodland gorge of the Rió Renegado, just before the village of Las Tranquas. Everything became covered in dust. The Hyunda minibus bucked and plunged as the lorries and building traffic, developing the condominiums on either side of the road, passed us, chewing up the now unsealed surface as they went. We were to see plenty of roadside dust in the days to come.

John Watson had camped in a side valley named Shangri La and spoke enthusiastically about the plants they found. So, with the altimeter showing 1300 m, a height at which Peter Erskine with a party some 20 strong recorded making a brief sortie in late December 1990, we searched for, but never found, the way in; for the time being it seems to have been developed out of existence.

Earlier reports talk of a new hotel built to replace the one burnt down in 1992. So, two landmarks having been missed, the minibus was parked in the ski centre car park.

Looking up the hill, we could see two buildings tucked into the side of the mountain, one large, the other smaller with a restaurant and bathing pool. A jeep track runs up between these to dissolve into a foot track passing some rather weak fumaroles puffing out steam and sulphur smells, reaching a ridge around 2100 m. Over the ridge the track drops sharply into a small glen, full of dwarfed *Nothofagus*, through which a stream gathers strength from the snow melt and the pools in which one or two stalwarts were bathing.

Peter Erskine found many good plants when he was there in January, when the snow had clearly receded to uncover much more ground than we could explore in December. We had been warned that early December might be too soon for the higher alpine plants. Erskine mentions the following plants in addition to what we saw:

In wet turf

Anagallis alternifolia
Chiliodendron rosmarinifolium
Gentianella magellanica
Geum chilense
Ourisia alpina
Ourisia poeppigii

On a scree

Combera paradoxa
Nassauvia lagascae ssp.
lanata
N. pygmaea intermedia
Viola revoluta

Higher up among rocks and gritty soil

Calceolaria lanceolata var. *pusilla*

Loasa lateritia

Nassauvia digitata (rock ledges)

Woods around 1300m

Alstroemeria presliana

ssp. *presliana*

A. ligtu var. *simsii*

Bipinnula volckmannii

Calceolaria violacea

Chloraea grandiflora

Chloraea nudilabia

Mutisia decurrens

Mutisia cana

Lathyrus multiceps (Fig.46 p.165)

Rhodophiala moelleri (*advena* ?)

The area is full of promise and needs more time to explore.

So far as we were concerned, before our time ran out, we found *Mimulus luteus* and a small patch of *Mimulus cupreus* (see p.160), a lovely plant which masquerades under the garden name of 'Whitcroft's Scarlet', among others. We lose it in winter, slugs more likely than frost, combined with a short-lived constitution. These plants were flowering brilliantly on a little eyot in a snow melt stream. A rosette forming calceolaria was also seen and long drifts of *Caltha sagittata* (see p.160) just in flower. The keeled leaves of this whitish, greenish marsh marigold remind one sharply of its New Zealand cousin *Caltha obtusa*. The flowers are similar too, as is its choice of living accommodation.

ROSULATE VIOLAS AND OTHERS

We scrambled back to the high ridge; the light had improved enough to photograph the first rosulate viola we had ever seen in the wild. *Viola cotyledon* (Fig.47 p.166) was scattered all over the north-facing slope in association with *Nothoscordum brevispathum* (see p.160), a small white-flowered monocot with a purple stripe on the back of the six-petalled flowers. I know we were looking for pink ourisias and had failed to find them which was a disappointment, but this first encounter with the alpine Andean rosulate violet did not impress us. The plant is intriguing for its form and life style but a Bavarica gentian or Farrer's King of the Alps far outshines it. Alstroemerias were only a handspan high on either side of the alternative track through the southern beech woodland; another month or more before they would be in flower.



Fig. 42 *Ourisia coccinea* (p.158) Francis Ferns



Fig. 43 Volcán Llaima (p.154) Francis Ferns

Fig. 44 *Maihuenia poeppigii* (p.171) Francis Ferns





Fig. 45 *Calandrinia* sp. (*umbellata*?) (p.170) Francis Ferns

Fig. 46 *Lathyrus multiceps* (p.162) Francis Ferns





Fig. 47 *Viola Cotyledon* (p.162) Francis Ferns

Fig. 48 *Ourisia microphylla* (p.155) Francis Ferns



greenhouse plant, the 'Poor Man's Orchid', growing at 1800 m on a Chilean hillside. No one would be poor with such a a showy greenhouse plant, the 'Poor Man's Orchid', growing at 1800 m on a Chilean hillside. No one would be poor with such a wealth of colour as the modern hybrids give, without heat too. The wild plant was flowering on the east-facing slope of a gulley facing the track around 1850 m. The flower is a cheerful cyclamen to orchid purple colour and of a most intriguing shape.

Also seen were a neat blue lathyrus and two rather floppy calceolaria species. A stop on the now missing Shangri La flats to photograph a single plant of *Rhodophiala moelleri* (see p.160) completed the day.

The whole of this first day of exploration underlined the need for careful reading of the available notes of other travellers who have been that way before and, if possible, verbal contact with them before leaving Britain. There is a need also, not to waste time by visiting towns to exchange money and buy baubles which is a difficult aim with a party with mixed interests and also to take food to the highest point before eating it.

VOLCÁN LLAIMA 3125M

This volcano is about 200 km south of Volcán Chillán, as the condor flies. It was puffing out steam for a day or two whilst we were at Pucón, that being a better centre from which to explore the volcanoes Llaima and Villarica and the surrounding countryside. It erupted in 1958 and again in 1994. The route in from the Pan American Highway is about 20 km south of Lautaro, turning east on the road to Vilcún. The road passes through open woodland and would be rated easy by rally drivers.

The occasional patch of *Embothrium coccineum* waves scarlet crowns against a clear blue sky, inviting a stop to explore further as do mossy banks which might hide *Ourisia poeppigii*, but it refused to show itself. Bamboo grows thickly in places; this together with the spindly woodland undergrowth makes deep penetration into forest difficult and often unproductive. However, European civilisation has left its thumbprint at the Lan Lan waterfall in the form of a patch of common or garden lupins which would have done credit to Mr. Russell. The road climbs more steeply, suddenly, to run out into an open space, surfaced with volcanic ash, scattered with a few huts and the litter of disused ski-lift cables and tumbledown pylons. The scoria is heaped up into

whaleback ridges running up the cone, some with snow in the hollows.

The forest stops quite abruptly around 1470 m. One or two dead araucaria trees stand gaunt against the sky. The cone is hidden by a high ridge of forest. The foundations of a burnt-out hotel provided a seat for a picnic lunch. Two plants immediately commanded attention. One, *Habranthus tubispatus* var. *roseus* (see p.160) looking like a miniature pink tulip with a dark blue ring at the base of the petals, in association with another having flowers of a robust orange like an asperula or some would say a sedum; this plant is *Quinchamalium chilensis* in the family Santalaceae. It can also be found on waste ground in places like the edge of *Pinus radiata* cultivated woodland on the agricultural flatlands. Grasses, pernettya with pink and white berries, and other greenery sparsely covered more stable areas where finer grits had created soil cover on and around rock outcrops. A pretty pale pink valerian, *Valeriana philippiana* (see p.160), poked through a patch of bare black clinker gravel. This was no close knit alpine tundra. A little higher up the cone, towards the permanent snow, only about 500 m away, *Viola fluhmannii*, a rosulate viola with quite a shrubby character and leaves like a phyllodoce, was in flower. For the sharp eyed another little hyacinth-like flower could be found; the scape of the sharply recurved bells of *Tristagma nivalis* (see p.160) is as green as the plants among which it grows. *Calandrinia tenuifolia* was sprinkled sparsely among the black scoria. Volcán Llaima has *Calceolaria tenella* in wetter places where the snow melt runs away and *Viola cotyledon* on the quite inhospitable scoria. *Nassauvia* sp., a weird quite unbeautiful composite can be found somewhere on the mountain's daughter cone, Cerro Colorado, 1923m, the Coloured Mountain. We wonder how Farrer would have described this ostrich-like composite with the same rosulate leaf pattern as Watson's beloved violets, which he cites as an example of parallel evolution. We give up and think of a Shakespearean hayseed who aptly, if unconsciously, remarked that "comparisons are odorous" (sic).

The only plant to stop us on the way back was yet another patch of *Rhodophiala* in a grassy woodland clearing by the roadside. The rest was silence except for the rumble of tyres on rubble and the continuous clatter and bang of stones on the metal shell of the minibus.

VOLCÁN VILLARICA 2840 M

This volcano is part of the volcanic line stretching south-east to Volcán Lanin on the Argentine border. It stands in the oldest of the Chilean National Parks, created in 1925. Parque National Lanin adjoining is six times larger. Volcán Villarica has erupted often in the last hundred years; the most recent of note in 1971 destroyed the township of Conaripe and only just missed Pucon, the main centre and holiday resort. Another major eruption took place in 1984. The damage done to the surrounding countryside is not so much by the actual lava flow as by the resulting snowmelt, which turns into devastating mudflows. Consequently, the cone itself is short of interesting alpine plants. Round about the cable car building around 1400 m, there was little to see except *pernettya* interspersed with a most promising looking silver leaved *raoulia*-like plant; *Lucilia frigida*, however, goes leggy in flower and loses its charm. Further we imagine that the ground around the ski lift gets pretty rough treatment at the end of the season when the snow wears thin.

A little lower down the hill *Berberis buxifolia*, *B. linearifolia* and *B. montana* make colourful patches either side of the road, whereas *Ovidia andina* and *O. pillo pillo*, although closely related to daphne, do not. Further in, on bare patches of ground, *Viola cotyledon* grows. On the more shady side of the road a neat little orchid was spotted. *Codonorchis lessonii*, the dog orchid, created much interest, looking like a leggy trillium with its three sepals dominating the form of the flower held on a long stem emerging from three leaves. As is so often the way with first sightings, the excitement fades with familiarity; they were two a penny in the forest of the Huerquehue Parc Nationale a day later.

The area around Volcán Villarica does make clear that on the whole, volcanic activity and its physical side effects do not kill off the entire vegetation in the area in which they occur. Watson writing about this area in 1972 was not impressed with the plants his party found. He states "the mountainous areas in the south below Volcán Llaima on the Chilean side of the watershed were a considerable disappointment".

It is clear that further south, Cerro Chapelco and Cerro Catedral on the Argentine side, approached from San Martin de los Andes and Bariloche in Argentina, are the prime places to explore for alpine plants, if time is short, rather than the colder and wetter land down to Terra del Fuego and Cape Horn.

VOLCÁN ANTUCO 2979 M

This near perfect cone is one of many dormant volcanoes, having last erupted in 1873 when molten lava blocked the Rio Laja at its eastern foot creating the Laguna de la Laja. Such a large highland lake creates a more buoyant climate for plants growing on the scoria. To the south-west the Sierra Velluda towers to 3585 m.

The road climbs slowly from the village of Antuco and our first sighting was not of a plant but of a grey fox travelling in the open on the far side of the gorge, intent on his own affairs. The valley opens out around 1200 m and we stopped to explore and photograph a fine pink *Mutisia spinosa* scrambling about a metre high through painfully spiny ground cover; it was easily identified by the white felt underside of the leaves. Having booked in at the Guarderia Chacay, we noticed *Nierembergia rivularis* and a deep magenta red calandrinia (Fig.45 p.165) flowering at the side of the stream running behind the hut. Past the ski station black scoria was piled everywhere as if some gigantic bulldozer had run amok in this Vulcan's ashtip. The eye is struck by the incongruous, a single plant of Viper's Bugloss, then a little pink willow herb growing in a hollow at the roadside in association with sorrel and a yellow composite with silver foliage. The ornithologist in our little party saw an Andean Gull, but all these were not quite what we were hoping for at 1250 m.

THE OURISIA AT LAST

The road dips, twists and rises, passing the ski lift, then the lava flow which has dammed up the river and finally a jetty pushes out into the lake; then we saw it ! *Ourisia microphylla* (Fig.48 p.166) spread here and there along every crevice in the stone-coloured basalt, in ones and twos where roothold and deep moisture could be found; always covered in flower, hiding the filigree foliage as fine as the most delicate of the prostrate cassiopes. Sometimes the pale pink phlox-like flowers faced the blazing midday sun, sometimes hidden in shady cutaways or at the base of the rock, neck deep in scoria. It must surely be the smallest and neatest of the ourisias.

Turning from the finished perfection of the ourisia, for the moment, to study the grander scene across the blue-green water of the Laguna de la Laja, the eye sweeps along the crumbling crags of 'solid' basalt rock, where the rotting, sliding stone barely gives root

hold to recolonising plants. What those slopes opposite held we shall never know.

Thoughts on the impermanence of solid rock jostle in the mind as eyes screwed up against the blue sky and now unyielding sun we search for further plants at our feet. There is an *Escallonia* underfoot with crimson tubular flowers. Could it be *Escallonia rubra*? There was also a small green loasa, only 15 cm high, no alpine beauty, but nor was the orange monster seen at Huerquehue National Park a day or two ago.

Then the bird man thinks he has seen a condor. We only half believe him, for like all plant minded natural history types we were looking in the wrong direction, down not up. Patricio our driver says the cone of Antuco is the most perfect in South America, probably in the world. He is proud of his country, justly so, and wants to show us the *ojos*, the holes from which the waters of the lake bubble forth to join the mountain streams lower down and so rejoin the river Laja. He also has in mind a shady place for lunch and so do we.

The museum we visited on the way up is still shut. A shout stops us on the way down to gaze at and photograph a patch of *Mahuenia poeppigii* (Fig.44 p.164), easily a metre across, covered in pale sulphur yellow delicate silky flowers. The small fleshy foliage in between the buds and flowers is guarded by the most vicious short sharp needles for this is a true alpine cactus, one of the many components of an alpine flora living on thin grassland and stony places in this subalpine woodland bordering volcanic ashfields.

Lunch, eaten in the shade, unpestered by flies, renews energy. We pack up and drive 800 m to a halt on the other side of the road, where a sign points to the Salto Torbellino, which translates as 'the waterfall whirlpool'. The plants on either side of the track are low and shrubby; an ordinary orange alstroemeria is in flower. At the *ojos* the water flows silently into a small pool, crystal clear, embroidered with yellow mimulus and tight-lipped calceolaria and other plants not memorable nor remembered, including *Fuschia magellanica*.

Only the landscape is memorable, dominated by a sheer ridge of conglomerate gravels from long gone eruptions; a wall of pinkish streaks, greenish streaks, sandy stone and grey basalt, hiding the Sierra Velluda and its glaciers at over 3000 m to the south-west. This time the ornithologist's first sighting is confirmed; all four of us saw the condor wheeling and turning over huts the other side of

the road. Away it went, soaring up into the blue sky above the ridge nearly out of sight and back again; as close as the grey fox had been at the start of the day. We could see with our naked eyes the black back and the white collar and primary feathers as it banked repeatedly, circling low, finally turning to join its mate flying high along the ridge and out of sight; leaving everybody happy with plants at our feet and birds in the clear blue sky; leaving an impression and sense of atmosphere no camera nor written word can convey.

Background Reading

The Flight of the Condor. M. A. Andrews. Collins 1985 ISBN 000 219 5518 Worth reading; gives a spectacular account of a minor eruption on V. Chillan.

CHILE. . . A remote corner on Earth. 1992 Turismo y Comunicaciones S.A. ISBN 956 7206 031 The car driver's *vade mecum*; essential for anyone driving a car. . . always halt at railway lines, however overgrown, and street intersections. Guaranteed to get you out of or through any town or urban area from Arica to Tierra del Fuego. Written in English.

Trekking in the Patagonian Andes. Clem Lindenmayer. Lonely Planet Publications 1992 ISBN 0 86442 144 3 £7.95. A most useful and informative guide, with excellent maps and photographs. There are other Lonely Planet guides which merit perusal.

Alpine Garden Society Bulletin — Special South American Issue. Vol 62 No.3 1994. This and the earlier works of John Watson in AGS Publications 42-45 (15 pts to date) carry the most comprehensive data on places and alpine plants.

Flora Silvestre de Chile Zona Central 1978 Ed. Fund. Claudio Gay and **Flora Silvestre de Zona Araucana**, both by Adriana Hoffman. Useful, illustrated in colour, not quite pocketable, written in Spanish, but the only field books available. 'Silvestre' does not, as it sounds, mean trees and shrubs; the books cover much more useful ground than those.

Maps For maps use the Chile motoring guide. Stanfords of Longacre, issue a scrappy print out which we found of little use. Natural History Book Service Ltd. 2-3 Wills Road, Totnes, Devon TQ9 5XN (Tel 01803 865913 Fax 01803 865280) may be found to be more helpful.

SHOW REPORTS

STIRLING - 30 March

The winter of 1995/96 produced some of the lowest temperatures in recent years (-21°C). The result was that some familiar species were missing from the show this year.

A superb pan of *Lathyrus vernus alboroseus* exhibited by Brian and Maureen Wilson won the Forrest Medal. Shown in a 12" pan at this stage in its growth, when the pink pea flowers were closely packed and the stems still relatively short, the plant was truly stunning. It also won The Ben Ledi Trophy for the best European Plant in the show. Certificates of Merit were awarded to The Royal Botanic Garden, Edinburgh's exhibit of alpine plants and to three plants - *Helleborus lividus* shown by Peter Semple, - *Primula allionii* 'Hartside No 12' shown by Betty Craig and *Primula x loisleurii* 'Lismore Yellow' shown by Glassford Sprunt, which also won the Spiller Trophy for the Best Primula. The Institute of Quarrying Quaich for best Non-European Plant in the show went to Ann and Viv Chamber's marvellous pan of *Primula whitei*. Sandy Leven won the Carnegie Dunfermline Trust Trophy having gained most points in Section I while Steven Garvie won The Fife County Trophy for most points in Section II and the Bronze Medal.

Lawrence Greenwood was awarded a Gold Medal for his display of paintings of alpine plants. Several were of plants photographed last year in China by SRGC members. Unfortunately Lawrence spent three days in hospital after the Show. Thank you Lawrence and Lilian for extending the interest of our show with these magnificent paintings. This year we had several paintings and drawings in the Junior section, inspired no doubt by Lawrence's past displays.

Fred Hunt stormed the 6 pan and 3 pan classes with his immaculate entries which this year included 4 primulas - *allionii* 'Anna Griffith' and 'Raymond Wooster', 'Joan Hughes', and 'Lismore Yellow'. Barry and Cathy Caudwell showed *Pleione forrestii*, its first appearance at a Stirling show. Cyril Lafong included the floriferous *Saxifraga poluniniana* and a nice *Dionysia* hybrid - *curviflora x tapetodes* in his entry. The 'grown from seed' class produced the fruits of a labour of love from Ray Fairbum, his own hybrid saxifrages. While they were all pink, the discerning eye could spot differences between them. Perhaps as they are more widely grown they will be found to be suited to different situations. The cold winter obviously held back the saxifrages. *Saxifraga oppositifolia* 'Corrie Fee', a white form of our native plant was shown by several exhibitors; the best came from Fred Carrie. Also out in force were crocuses, the star of which was Bob Maxwell's *Crocus cvijicii*, an outstanding yellow crocus from the former Yugoslavia. Many collections of dwarf narcissi, especially the bulbocodium types, were savaged by the winter freeze. Among the exhibits

of narcissi the most notable were *N. watieri* from Mrs K. Rimmer and *N. marvieri* from Margaret and Henry Taylor.

There is little doubt that the backbone of the show was provided this year by the many wonderful pans of fritillaria and corydalis. These seem to be immune to cold and burst into growth regardless of weather. Perhaps they respond to day length rather than temperature. The range of frits reads like a nurseryman's catalogue -*carica, conica, stenantha, bucharica, minuta, armena, raddeana, elwesii, michailowskyi* and *obliqua*. Many of these bulbs were hardly grown in Scotland 15 years ago. Special mention must be made of Peter Semple's pan of *F. pluriflora*, because this rare pink Californian is quite exquisite.

Many thanks to all exhibitors many of whom travelled hundreds of miles to make spring start with a blaze of colour in Stirling. A special thank you to Ian Christie who gave away his secrets during his lecture to over 100 members. Like our judges our nurserymen are generous with their time and advice.

Sandy Leven

EDINBURGH- 13 April

The Show was slightly later than in previous years and this, together with the extremely severe weather, probably affected numbers of entries; several classes were void. In Section I, the six pan Class was won by Fred Hunt with three primulas; x 'Broxbourne', 'Clarence Elliott' and 'Pink Ice' together with *Corydalis flexuosa*, *Fritillaria conica* and the elegant *Narcissus alpestris*. The class was well represented by five good entries; there were none, however, in the equivalent class in Section II.

Fred Hunt also won the Henry Tod Carnethy Quaich for the best bulb, corm or tuber with a wonderful *Fritillaria conica*. This fine plant took the Forrest Medal for the best plant in the Show. Cyril Lafong was especially successful in winning four trophies; the R. E. Cooper Bhutan Drinking Cup for the best Asiatic primula with a plant from subsection *Sphondylia*, the Midlothian Vase for the best rhododendron with a very well flowered *R. pemakoense* and the A. O. Curle memorial trophy for three plants of distinct genera raised from seed with *Primula magellanica* and nicely presented cushions of *Haastia pulvinaris* and *Raoulia mammilaris*. His cumulative points total won him the Reid Rose Bowl.

The Henry Archibald Rose Bowl for three pans of plants of different genera was awarded to Margaret and Ian Young who showed *Fritillaria hermonis*, *Tecophilaea cyanocrocus* and *Trillium rivale*. Peter Semple won the class for a plant new, rare or difficult with *Fritillaria falcata* (JCA 10504), interesting and unusual with small, speckled upright facing flowers. John Lee exhibited a neat form of *Paraquilegia anemonoides* with broad petalled lavender and white flowers; it was raised from hybrid seed from Gothenburg Botanical Garden.

A superb form of *Primula elatior*, greenish yellow with attractive greyish-green foliage is worthy of mention. It was grown from seed collected by David Rankin who also won the class for *P. allionii* forms and hybrids with a very large multiflowered plant of 'Beatrice Wooster'. Three striking, large flowered *P. allionii* hybrids deserve special mention., all being obtained from the same cross by the exhibitor, Ray Farnham.

There were six exhibits in the two pan Fritillaria class; each of the 12 pans was of a different species, illustrating the diversity of this popular genus.

A fine specimen of *Primula* 'Wharfedale Village', shown by Allan and Jane Thomson was judged the best plant in Section II and also took the higher honour of the K. C. Corsar Challenge trophy for the best American or European primula in the Show. Ian McNaughton won the Boonslie Cup for a miniature garden; he also exhibited two other troughs non competitively as well as several new European primula hybrids derived by hand pollination.

The Kilbride Cup for an arrangement was once again awarded to Stella and David Rankin. The £10 prize for the best plant shown by a first time exhibitor was won by Sue and Hector Riddle with an unnamed but well grown narcissus.

Ian McNaughton

NORTHUMBERLAND - 20 April

A couple of weeks of normal weather promised an outstanding show despite the unfortunate clash of dates with Perth, The number of exhibitors was up, the total number of plants up, particularly in the Open Section, and the standard very high. Fortunately the Wentworth Leisure Centre gives ample space for expansion and to display plants to advantage. It was a little strange though to have an SRGC show with only one Borders-based exhibitor and one Borders-based judge.

It was local group chairman George Young's year. , Not only did he win the Forrest Medal with a superb pan of *Viola brevistifolata* var. 'Hidakana', but also produced a winning pan of *Trillium hibbersonii* which was awarded a Certificate of Merit. What George didn't win in Section A, Geoff Mawson did. He won both six pan classes, and therefore two AGS medals and, in both, *Saxifraga* 'Lismore Carmine' was outstanding, as it was in T. Anderson's three large pans of saxifrages. Geoff deservedly took the R.B. Cooke Plate for the most first prize points in the Open Section.

Eric Watson, as ever, showed some wonderful dionysias, but to less prize winning effect than usual. In Class 45 his 3 pans were pipped by the saxifrages of J. Mullaney, who showed *SS. georgei*, *tombeanensis* and *porophylla*, and in the one pan in flower class his huge *D. viscidula* x *freitagii* was beaten by the Forrest Medal plant. He did, however, win classes with both *D. microphylla* and *D. bryoides*. *Townsendia hookeri*

won Class 18 for K.G. Mantle and a deserved Certificate of Merit and, in Class 12, *Pulsatilla vernalis* performed the same double for F. Carrie.

Allowed only one more plant from the Open my choice would be *Cyclamen repandum* 'Pelops' shown by F.P. Grimshaw, leaving me to ponder why the numerous excellent primulas, corydalis, anemones, anemonells, bergenias, fritillaries and rosulate violas have not been singled out. *Fritillaria tubiformis* winning the Sandhoe Trophy for J.B. Saxton and a gorgeous rosulate viola the E.G. Watson Trophy for A. Taylor must be the last.

Section B was a little thin, though with some very good plants. T. Anderson won both the Gordon Harrison Cup and an SRGC Bronze Medal for the most first prize points in the section. In the one pan bulbous class, J. Weir showed a fine group of *Narcissus calcicola* which won him a Certificate of Merit, and he and others showed some nice pans of *N. rupicola* in other classes.

Section C was dominated by J. Weir who showed his versatility by winning the 3 pan class plus individual classes with *Primula marginata* 'Holden Variety', *Androsace vandellii* and *Narcissus rupicola*, thus winning the Cyril Barnes Trophy for the most first prize points in the section by some margin. I don't think he'll trouble exhibitors in Section C next year. Finally, Carola Young won the Northumberland Cup for new exhibitors with a plant of *Primula* 'Aire Mist' as good as many in the Open. Look out behind you George.

Barry McWilliam.

PERTH - 20 April

This year the show secretary had a worrying time since entries were down on previous years - probably owing to the lateness of the season and the toll of choice plants taken by the icy winter. However, the entries were of a very high standard with some wonderful pans of many species on display.

The George Forrest Medal was awarded to Fred Hunt for a magnificent *Primula* 'White Linda Pope' for which as part of the six-pan (Class 2) he was also awarded the Alexander Caird Trophy. The Diamond Jubilee award and the L. C. Middleton Challenge Trophy were won by Sandy Leven with an unusual six pan collection of pleiones. The Dundas Quaich was taken by I. and M. Young for three pans (Class 3) including *Tecophilaea cyanocrocus*, *Fritillaria hermonis amana* and *Trillium rivale*. The Youngs were also awarded the Joyce Halley Award for a plant grown from seed, with the unusual labiate *Eriophyton wallichii*, although first in this two pan class was Jean Wyllie with *Androsace vandellii* and *Trillium rivale roseum*. In Class 25 the R. S. Masterton Memorial Trophy was awarded to Jim Sutherland for the best asiatic primula, *P. fasciculata*, while the E. H. M. Cox Trophy was awarded to *Rhododendron pemakoense* exhibited by Cyril Lafong. There were a notably large

number of entries in the *Fritillaria* classes, especially the two pan *Fritillaria* class, which was won by Fred Hunt with *F. crassifolia* ssp. *crassifolia* and *F. tubiformis*. Other less usual plants seen at Perth included some superb specimens of hardy orchids — *Orchis italica* exhibited by Cyril Lafong and *Calanthe bicolor* by E. and R. Smart.

In Section II the Bronze Medal, Perth Trophy and Perth Salver were won in a clean sweep by Nick Boss. His six-pan display was made up of *Scilla rosenii*, *Primula auricula* ssp. *bauhinii*, *Gentiana pumila*, *Townsendia hookeri*, *Primula hirsuta* and *P. villosa*.

The Junior Section was won by Helen Scott with a *Lewisia tweedyi rosea* for which she was awarded the Georgina Blackwood Memorial Trophy.

Unfortunately Lawrence Greenwood was unable to bring along the usual selection of watercolours for display, but Lynn and Mike Almond were able to step into the breach with a display of their own watercolours, done by Lawrence, so the show was not deprived of his artistic influence!

Cathy and Barry Caudwell

ABERDEEN -18 MAY

The weather on 18 May was as drab and dreich as the Show was colourful and bright. The show benches were not as packed with plants as they have been on other occasions. In spite of this the members had been able to produce some plants of outstanding quality and when viewed over all the impression was, as always, one of a splendid spectacle. Fred Hunt's submissions were of their usual high standard, although fewer in number, and he was the well-deserved winner of the Forrest Medal with a perfect pan of *Fritillaria purdyi*. He also produced the winning entry of the Jubilee A Class (six pan) with an immaculate collection of well-grown and well presented plants.

The Helen Craig Cup (for the best *Primula*) was won by *Primula ellisiae*, shown by Carole and Ian Bainbridge. The Simpson Salver (for the best *Rhododendron*) was won by a dwarf *Rhododendron* 'Patty Bee' smothered in creamy yellow flowers and grown by Alastair McKelvie.

Cyril Lafong has produced many excellent plants at the shows this year, in spite of the weather and this show was no exception. He won the Walker of Portlethen Trophy for the most points in Section I. He produced several pans, in various Classes, of *Kalmia polifolia compacta* 'Alba'. Each of these plants was smothered in blossom, completely masking the foliage. His pan of *Lewisia leana* is certainly the largest and most spectacular that I have ever seen, and was completely smothered in flower. Added to this list of outstanding plants was a large pan of *Calceolaria uniflora* (*darwinii*).

The Jubilee B class of Section II was won by John Lupton with his six pans, comprising *Clematis marmoraria*, *Clematis* x *cartmanii* 'Joe', *Calceolaria uniflora*, *Ranunculus parnassifolius*, *Lewisia cotyledon* 'Sunset Strain' and *Collomia debilis larsenii*.

The Bronze Medal, for the most points in Section II was won by Bob Mackie. The standard of plants in Section II was high and it was encouraging to see a good number of entrants in this section. The Aberdeen Quaich, for the best plant in Section II was won by *Fritillaria affinis* grown by Robert Paton.

The Esslemont Quaich which is awarded for 3 pans of new, rare or difficult plants was won by Ian and Margaret Young with their plants, *Eriophyton wallichii*, *Raouilia eximia* and *Helichrysum coralloides* x *Leucogyne* ?.

The Brian S. Bull Trophy has been presented to the Aberdeen Group by Kathleen Bull in memory of her husband who was a member of the Aberdeen Group and this trophy was awarded for the first time to Helen Greenwood for her entry of *Erigeron* 'Canary Bird' and *Aquilegia pumila* in Class 60. A special prize of £10 for the best entry from a First-time Exhibitor was awarded to Edward Stephen.

There were other plants of special merit which caught my attention going round the Show. The *Androsace vandellii* which Jean Wyllie had in Class 1 was outstanding, high-domed and about 12 cm in diameter and also her *Erigeron* 'Canary Bird' which was entered in Class 13. Ian and Margaret Young's pans of *Fritillaria pyrenaica* 'Braeside' and *Eriophytum wallichii* were also magnificent. The pan of *Cassiope* 'Muirhead' grown by Brian and Maureen Wilson was as large, neat and well-flowered a specimen as I have ever seen. Sandy Leven produced a magnificent pan of *Pleione* 'Stromboli Fireball'. The tulips on the bench were probably better than usual; no doubt the cold weather had something to do with keeping them so neat and the flower stems so straight.

Glassford Sprunt

GLASGOW - 27 April

A small green rosette. Tiny, long tubed, lilac flowers emerging from its centre. Barely 3 cm high. Perfect! What is it? *Solmslaubachia minor* KG 205, courtesy of Jean Wyllie's expertise. The plant was grown from seed collected at 4400 m on the Big Snow Mountain in Sichuan. Unfortunately, the cross it has to bear is greenfly which can quickly destroy a healthy plant. Otherwise, in maturity it should form a tight cushion to make even the dionysias look on nervously.

On the one hand our shows provide this kind of revelatory, if obscure, alpine gem — on the other hand, a few classes down, a couple of continents later, you reach *Fritillaria affinis tristuliflora*: 40 cm tall with purplish black flowers and internal yellow and maroon chequering. Sombre and foreboding, no doubt, but so well flowered as to win the Forrest Medal for Ian and Margaret Young. *Erythronium americanum*, another N. American, won a Certificate of Merit for Jane Machin. With its bright mottled foliage and its sparkling lily-like yellow flowers it was the most graceful, resplendent plant in the whole show. And to think that only a few years

back erythroniums rarely appeared on the show bench . . . considered unsuitable for pots. As in all things, fashions and theories change.

Bulbs, in general, seemed to do surprisingly well after such a bitterly cold winter. *Fritillaria hermonis amana* EKB 1034, *F. tuntasia* (Fred Hunt), *Corydalis x allenii*, *Orchis italica*, *Dactylorhiza sambucina* (Cyril Lafong), *Pleione* Shantung 'Apricot' (Sandy Leven), *Trillium rivale* 'Purple Heart' (the Youngs) were all marvellous indicators of the fine skill employed by their respective owners. Back among the conventional alpine fold there was, as ever, Jean Wyllie's *Androsace vandellii* winning another Certificate of Merit. To produce regularly such large, well flowered specimens of this classic cushion is a magnificent achievement. Similarly, the tightness and profusion of flower on Fred Hunt's *Lewisia brachycalyx* is not a case of serendipity, but a master at work. Stella and David Rankin took the Ian Donald Memorial Trophy with that miniature seductress, *Primula scotica* (best native plant). The Edward Darling Trophy (3 pans Rhododendrons) was won by Anne and Viv Chambers – I was particularly impressed by the hernia size pan of *R. pemakoense*. Hardy orchids are beginning to re-establish themselves on the show bench (and I don't just mean pleiones). We have Cyril Lafong to thank for the following: *Pterostylis curta*, *Aceras anthropophorum*, *Cypripedium formosanum* and *Pleione* Shantung 'Ducat'. His cypripedium was judged the best orchid in the show (Charles M. Simpson Memorial Trophy). He won the Crawford Silver Challenge Cup for most points, the William C. Buchanan Cup (3 pans rare, new or difficult) and the Jubilee Class A. In Section II, Steven Mc Farlane made a virtual clean sweep, taking Jubilee Class B, the James Wilson Trophy and the Bronze Medal with a wonderfully varied collection which included *Meconopsis delavayi*, *Tropaeolum azureum*, *Paraquilegia grandiflora*, *Lathyrus vernus alboroseus* and *Primula fasciculata*. Ann Bush's lovely pan of *Fritillaria pallidiflora* was the best plant by a first time exhibitor.

John Lee

DISCUSSION WEEKEND, GLASGOW — 14-15 September

Seeing the cyclamen erupt into flower in the autumn always shakes me: some Antipodean inversion afoot or a benevolent nature's late night extension to the Show season? No surprise, however, in Sandy Leven's *C. hederifolium* taking the Forrest Medal: a beautiful, light pink version of this classic species in a well filled, well balanced pan. An easy garden plant, I hear you say. . . but the trick (and the kudos) is in getting it to flower like this.

Nick Boss gained the Diamond Jubilee Award and a Certificate of Merit for his six pan exhibit of alpines set naturally among, over and between rock fragments and slivers of stone . . . the effect singularly resembled a miniaturized trough, its essence distilled into art.

The 'star' of the show, if only because its perverse beauty defied conventional alpine apologies (as well as drawing the crowds), was a species of lily grown by the Blands from seed collected in Vietnam. It stood at about 80 cm with large recurved flowers of light yellow spotted maroon in the centre. My guess is that it is *Lilium primulinum ochraceum* (or ssp. *burmanicum*). Less obtrusive, certainly, but no less interesting, was a pan of *Crocus granatensis* shown by Margaret and Henry Taylor. This purple/lilac species comes from Spain and is, apparently, stoloniferous: a beautiful addition to the autumn ranks and, if it reliably flowers at this time, should make more regular appearances on the show bench. Their own hybrid *Gentiana* 'Margaret' struck me as being a winner, in every sense of the word, combining all the best qualities of its parents (*sino-ornata* x *farreri* x *ternifolia*).

Still, it wouldn't be an autumn show without the thematic interplay of form and foliage. Sandy Leven showed two mature pans of that difficult cushion *Bolax gummifera*, which, along with his other splendid entries, helped him to win the Mary Bowe Trophy. Bill Robinson took the East Lothian Cup with that lovely houseleek *Sempervivum* 'Mrs. Guiseppi'. Perhaps the best of the lot was Lyn Bezzant's delightful pan of *Vaccinium oxycoccus* with its low green mat of foliage with red berries and pink shooting stars nestling among it. Jean Wyllie took the East Lothian Trophy for her three pan exhibit of *Erigeron* 'Canary Bird', *Cyclamen africanum* and *C. cilicium*. Best to leave the last word to the cyclamen: their combination of majestic flowers and foliage quintessentially defines that autumnal harmony this show strives to underline.

John Lee

SEED EXCHANGE

By the time you get this Journal our 50th Seed List will have been received by participating members. They will have read it from cover to cover (I hope) and the order form will be filled in and sent off to Mr. Wilson. He and his 'Seedlings' will be busy making up the order.

I have amassed most of the last 49 Seed Lists but I do not have ones for the following years; 47/48, 48/49, 49/50, 50/51, 51/52, 53/54, 54/55, 56/57, 58/59, 64/65. I would be delighted if any member has any of these lists and could lend or donate them to the Seed Exchange. Any on loan will be photocopied and returned.

The 'Easy Ten' are available again this year and it is not too late to request them. Each year a different set of ten seeds are selected and cost £2. Send cash and your name and address to Mr. Wilson as soon as possible. Do not delay.

I hope you all have a good seed growing season and harvest lots of good seed to send me for our 51st list.

Jean Wyllie

RHS JOINT ROCK GARDEN PLANT COMMITTEE

Recommendations made at SRGC Shows in 1996

Stirling - 30 March

Awards to Plants

Award of Merit

To *Primula allionii* 'Gilderdale Glow' as a hardy flowering plant for exhibition, exhibited by Mrs B Craig, 9 Hillpark Road, Edinburgh

Certificate of Preliminary Commendation

To *Trillium decumbens* as a hardy foliage plant for exhibition, exhibited by F Hunt, 34 Morris Place, Invergowrie, Dundee

To *Tecophilaea cyanocrocus* 'Violacea' as a hardy flowering plant for exhibition, exhibited by F Hunt

AGM Assessment

Pieris nana (*Arcterica nana*) was recommended for further assessment as a candidate for an AGM, exhibited by Mrs E Armistead, 45 Swanston Gardens, Edinburgh

Perth - 20 April

Awards to Exhibitors

Certificate of Cultural Commendation

To A J Leven, 2 Leighton Court, Dunblane for a pan of *Pleione* Rakata 'Dusky', exhibited by A J Leven

Glasgow - 27 April

Awards to Exhibitors

Certificate of Cultural Commendation

To A J Leven for a pan of a seedling of *Pleione* Shangtun 'Apricot' exhibited by A J Leven

To Dr P Semple, 103 Southbrae Drive, Glasgow for a plant of *Helleborus lividus*, exhibited by Dr P Semple

Glasgow - 14 September

Awards to Plants

Preliminary Commendation

To *Blechnum penna-marina* 'Minor' as a hardy foliage plant for exhibition, exhibited by H C Shepherd, 30 Lingmoor Road, Bolton

Awards to Exhibitors

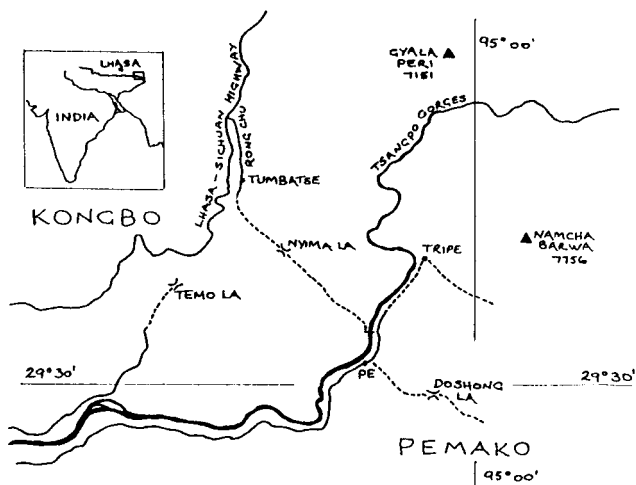
Certificate of Cultural Commendation

To P S Bland, Inglewood, Inglewhite Road, Goosenargh, Preston for a pan of *Lilium* sp.

RETURN TO THE TSANGPO: THE 1995 EXPEDITION TO SOUTH-EAST TIBET

PART 1 SOUTH OF THE RIVER

by Anne Chambers, Fred Hunt and
Richard Lilley



For many years the area of Tibet where the mighty Tsangpo disappears into the gorges to emerge on the plains of Assam as the Brahmaputra has intrigued geographers and botanists alike. In a short distance the river drops about 2500 m and makes a 90 degree turn as it forces a way between the massive peaks of Namcha Barwa (7756 m) (Fig.49 p.183) and Gyala Peri (7151 m). It was only in 1913 that Bailey (of Blue Poppy fame) and Morshead established beyond doubt that there was no great fall on the river, merely a series of cataracts. Kingdon Ward was the first botanist into the area in 1923 followed by the Ludlow and Sherriff expeditions. Since the relaxation of travel restrictions inside Tibet, botanists have been eager to return, fired by that wonderfully romantic tale of Kingdon Ward's explorations, 'The Riddle of the Tsangpo Gorges'. We finally got permission and set off for Tibet via Kathmandu on 28 May under the leadership of Kenneth Cox of Glendoick Gardens, to be the first botanists over the Doshong La for nearly 50 years



Fig. 49 Namche Barwa from Tripe (p.192) Fred Hunt



Fig. 50 *Rhododendron forrestii repens* (p.188) Fred Hunt

Fig. 51 *Diapensia himalaica* (p.188) Fred Hunt





Fig. 52 *Arisaema* sp. (p.189) Fred Hunt

BRITISH
NATIVE
PLANTS

Maria Bennett



A



B



D



C

- A. *Alchemilla glaucescens*
B. *Asarum europaeum*
C. *Paris quadrifolia*
D. *Sagina boydii*
E. *Alchemilla alpina*



E

ALPINE TREASURES APPEAR

Our flight from Kathmandu gave us spectacular views of the Everest group and Kanchenjunga before descending to the airport at Gongkar (3300 m) 96 km south of Lhasa, where we climbed into 4-wheel drive vehicles for the spine-jarring two-day drive to Pe. The road followed the Yarlung Tsangpo as it flowed east through an area of scant rainfall and our progress was slowed once or twice by dunes of windblown sand. The second day out gave us a foretaste of the alpine treasures to come when the road climbed over the 5000 m Potrang La. Grey-green cushions studded with the blue forget-me-not flowers of *Chionocharis hookeri* and clumps of a very mealy *Primula macrophylla* v. *ninguida* grew amongst the dwarf rhododendrons which included the delightful pink *primuliflorum*. The following day, glad of any excuse to stop, we investigated purple patches on a hillside of spiny oak. These were *Rhododendron bulu*, in the Lapponicum subsection, whose only known distribution is restricted to that area and with them a few specimens of *R. triflorum* v. *mahogani*, the form named for its mahogany-flushed yellow flowers. The delicate *Iris decora* and *Arisaema flavum* were the most frequent plants in the silty soil along the river.

THE DOSHONG LA

Near Pe, we passed bushes reminiscent of broom except that the pea-like flowers were lilac-blue. It was *Sophora moorcroftiana*. The village of Pe is at the foot of the track over the Doshong La which is a trade route for the people living in the valleys south of the range. We camped overnight on the banks of the Tsangpo just beyond the houses. The river here is wide and placid with little of the force it soon shows and in the early morning Gyala Peri, Namcha Barwa's sister peak on the north side of the river, was reflected in the water. Since we wanted to reconnoitre the pass, we moved camp higher up to a meadow ringed by *Rhododendron wardii* in full bloom. The surrounding trees and shrubs were festooned with *Clematis montana* and clumps of the orange *Primula chungensis* and a dark purple *Iris* aff. *chrysographes* grew by the stream.

Next morning we set off in great anticipation to explore the north side of the pass. Fallen trees soon blocked the forest track so we left the vehicles behind. On the open side of the track *R. wardii* and *Bergenia purpurascens* were common with an occasional pink

Podophyllum hexandrum while in the forest *R. mekongense* made patches of light under the dark canopy. Its bright yellow flowers, flushed red on the reverse, appear before the leaves on the bare twigs. The track then disappeared under the snow and from that point we had to cross the steep slopes and snow-filled gullies separating the rocky outcrops that formed the more exposed stretches of the trail. Snow conditions were very variable, sometimes soft and undercut by melt-water, sometimes icy on the surface. The weather held throughout the day and we were well rewarded — the Doshong La was indeed the wonderful 'Rhododendron Fairyland' described by Kingdon Ward.

THE LEAF-TURNERS IN THEIR ELEMENT

Our leaf-turners (syn. rhododendron aficionados), the majority in the party, were enchanted and it was impossible not to be captivated by the amazing jumble of species and colours. In addition to *RR. nivale* and *primuliflorum* which we had seen before, there was magenta *calostrotum* and pink *charitopes* v. *tsangpoense*. Several more of the daphne-flowered species were prominent — yellow *cephalanthum* Nmaiense group and the deep pink *kongboense*. Here and there *R. campylogynum* was coming into flower and in less exposed sites we found the nodding pink thimbles of *pumilum*, Kingdon Ward's 'Pink Baby'. Other areas of the bare hillside were dotted with scarlet which turned out to be a mixture of forms of the *R. forrestii* group including v. *repens* (Fig.50 p.184) and *chamae-thomsonii*. The waxy red bells were superbly effective against the grey rocks.

There is much more to the Doshong La than rhododendrons. Amongst them grew several species of dwarf willow and cassiope. Cassiope — now there was an identification problem. We felt confident in naming plants that had the fat, hairy stems of *wardii* and some with the whipcord stems of *fastigiata* but there seemed to be an abundance of plants neither positively one species nor the other which presumably were natural hybrids. Primulas were scant apart from more patches of *macrophylla* in grassy hollows, but there was something else for the alpine enthusiasts to enthuse over — magnificent cushions of *Diapensia himalaica* (Fig.51 p.184), both the pink and yellow forms, covered some of the rocky outcrops, their flowers seemingly impervious to the weather. There were also a few with peach-coloured flowers suggesting hybridisation. We turned back just short of the summit.

THE WEATHER TAKES CHARGE

The Doshong La at 4000 m is one of the lowest in the Himalayan chain and also one of the wettest, two facts not unrelated. The pass is in the direct line of the prevailing winds, laden with water vapour, as they rush up the Bay of Bengal. To quote a disgruntled-sounding Ludlow, “. . . it never seems to cease raining or snowing, day or night, year in, year out,” and Taylor gave it a Scottish dimension, “as wet as the wettest wet day in Lochaber”. We had been prepared for lots of rain but were surprised by the depth and extent of the snow on the Doshong La and anticipated more on the south side of the pass. After the reconnoitre which was not without minor accidents, half the company elected not to cross and stayed to enjoy that temptingly pleasant base camp in the meadow. The rest of the party, with an army of porters, crossed next day in the best possible weather with little wind and an overcast sky which spared us from the glare of the snow. The summit rocks were clear and in the crevices under a host of prayer flags were more clumps of the pink *Diapensia* and a tiny pink primula, possibly *rubicunda*. From the top we looked down the snow-filled valley into the province of Pemako, our promised land.

THE PROMISED LAND OF PEMAKO

It was a long descent to the next vegetation and one of the first plants below the snow-line was a dwarf *Gaultheria* with pink-flushed white bells like *G. tricophylla* but lacking ciliate leaf margins. Shortly afterwards we found Kingdon Ward's 'daffodil primula', *Primula falcifolia* (see Front Cover), a beautiful species which must stand as one of our best finds. The dark green serrated leaves are lance-like and the yellow flowers are in a loose umbel. Some plants had corollas entirely yellow, in others the buds and petal reverses were suffused with salmon-pink and all had a broad cream 'paste' centre. Close by in the rhododendron scrub was the most striking arisaema of the trip (Fig.52 p.185), not yet positively identified. The spathe was glaucous maroon and the tripartite leaf was marked with the same colour between the deeply impressed veins. Then more primulas — this time it was *dickieana*. Clumps of it were growing in turf down the hillside in a wet run-off area. The flower is flat and hairy faced with all the variation in colour described by Ludlow and Taylor. Each plant seemed to differ from its neighbour, cream, yellow, mauve, cream with a mauve edge and

a curious yellow streaked with salmon, all with a yellow eye. Our next exciting find was Kingdon Ward's 'Orange Bill', *Rhododendron cinnabarinum* ssp. *xanthocodon*, Concatenans group, a lovely form with an orange overlay to the waxy yellow bells. This site on the Doshong La is its *locus classicus* and Kingdon Ward gives a vivid description of his 'stiff fight' to reach the plant. We got to our plant rather more easily but admired it as much as he did. As we continued down the valley our attention was caught by specks of bright pink on the cliff ledges, not as easy to access as 'Orange Bill' but well worth the effort. It was *Pleione scopulorum*, an attractive little species distinguished by having two leaves at flowering-time and a small pseudobulb. Also on the cliffs but much less obvious grew plants of *Primula jonardunii* with small pink flowers and the indented leaf margins of the Dryadifolia section.

Farther down we reached a site flat enough for camping though hardly ideal. The soggy valley floor here was studded with plants of *Primula vernicosa* which we had already seen on the north side; our tents were pitched over the rosettes. The primula gurus Halda and Richards differ markedly in their view of this species which the latter lumps with *hookeri*. The small white flowers are insubstantial and we tend to Richards' opinion that it must be one of the least appealing of the Petiolares section.

THE WATER-LOGGED LOWER VALLEY

Next morning as we explored the lower valley to about 3000 m we began to understand why it was not cultivated, though comparatively broad and flat. In several kilometres it showed no great drop in height and because of the excessive local precipitation there were still patches of snow lying a long way below our camp; much of the rest was water-logged. These cool wet meadows were home to various primulas, as yet only emerging leaves, and must be a spectacular sight in July. Surprisingly, in such a wet situation, there were thickets of *R. parmulatatum*, a medium-sized species with heavily spotted flowers in three colour forms — cream, strawberry-pink and cream with a pink edge to the petals, this last noted in the area by Kingdon Ward in 1923 and Ludlow and Elliot in 1947. Most of the rhododendrons down here were the larger-leaved species that preferred the adjacent forest habitat; some, such as *sinogrande*, had not been recorded from the area previously, much to our leader's delight. We saw two more arisaemas in the valley,

A. nepenthoides and *A. propinquum*. The most interesting find, however, was completely unknown to us — a pair of dark-mottled leaves on a stout stem strongly resembling *Podophyllum* but, unlike that genus, carrying multiple buds. When a specimen in flower was found lower down the valley it turned out to be a *Dysosma*. The lovely white flowers are pendant on long pedicels and have cream anthers and a bright pink style. The plant is identical to the herbarium specimen of *D. aurantiocaule* at the Royal Botanic Garden, Edinburgh, collected by Kingdon Ward in northern Burma; we understand that a recent revision by Julian Shaw, of Nottingham University, does not recognise *Dysosma* as a separate genus and the new name will be *Podophyllum aurantiocaule*.

YET MORE CLIFF GEMS

We returned early to camp to have time to explore its surroundings. Our dear Sherpas had decorated each tent with a truss of the red *R. lanigera* which grew nearby. *R. leucaspis*, that rather tender species with pink-tinged white flowers and hairy leaves, grew in moss on top of a huge fallen boulder while some more pleiones, not in flower, were atop an adjacent one. Then we were attracted to a side valley by the lure of yet more pink flowers on cliffs, seen indistinctly through binoculars. The ravine was filled with drifts of old rotten snow making for a treacherously steep climb. When we reached our goal, instead of the expected pleione we found the pink flowers of *R. uniflorum* v. *imperator*, an attractive dwarf species. The little yellow *Lloydia flavonutans* grew there too and the opposite cliffs were covered in *Primula dickieana*. Our too short excursion into Pemako was over and in the morning we started on the long slog back over the pass. David Burlinson, director of Exodus Travels, who accompanied us, had crossed the previous autumn and reckoned that in some places we were walking on about 10 m of snow yet to melt. A warm welcome mixed with some relief awaited us at base-camp.

MORE LUCKY FINDS

The following day we broke camp to return to Pe en route for Tripe, a village several kilometres farther down the Tsangpo. Rather than take the vehicle track, we walked down through the forest and found an unfamiliar clematis of the *Atragene* type, later identified as *barbellata*. The sepals were thickly felted, bright yellow flushed salmon on top, salmon-red underneath. Another

lucky find was a plant of *Cypripedium tibeticum*. In contrast to others we found later, this one was clump-forming, growing in dense shade and a dull maroon, but *tibeticum* does seem to exhibit a great deal of variation (more in Part 2).

From Pe the vehicles took us as far as they could along the river. Then we walked the last few kilometres towards Tripe along the track which climbs up to overlook the now-turbulent Tsangpo as it flows through the narrowing gorge. At the campsite above the village, cloud obscured the view beyond the head of the valley, but while we waited for the pack-ponies to arrive breaks appeared and soon the fluted ice-cliffs and ridges of Namcha Barwa stood out against a blue sky (Fig.49 p.183). This valley, with its magnificent view of the peak, was the campsite used by Ludlow and Taylor in 1938 and by Ludlow and Elliot in 1947. Some 'R & R' (rest and recreation) was just what we required after the high emotion of the Doshong La and before we crossed the Tsangpo to scale greater heights. The only emotion here was when someone thought to check the stocks of rehydration fluid cooling in the stream. Would the hastily-dispatched pony express return from Pe with more beer in time to avert a crisis?

INTO DRIER AREAS

We did find time to explore the area surrounding the camp. The descent into the gorge yielded little except *Arisaema flavum* already in seed, not surprising in the fierce heat of the place. High above the camp on the track to the Nam La, plants of *Cassiope wardii* were in full flower but our only new find was *Primula jaffreyana* on dry banks. The presence of stands of bamboo confirmed that this area in the rain-shadow of Namcha Barwa was comparatively dry and would be relatively unprofitable from our point of view. However, the arisaema along the track was of interest to one of us (AC). The '*concinnum*'-like plants around the previous camp had not been typical of that species and the ones here were less so; some had filamentous extensions to the auricles. It was identified by comparison with herbarium specimens at the Royal Botanic Garden, Edinburgh, as *Arisaema fraternum*, named for its affinity to *concinnum*.

YAK-BUTTER TEA

Our climb ended at a yak-herders' hut where a brother and two sisters whose parents lived in the valley stayed all summer to tend

the animals. They welcomed us with bowls of yak-butter tea, Tibet's much maligned national drink. Kingdon Ward appreciated it, ". . . its unpleasantness has been greatly exaggerated". . ., and this sample was one of the best, without any hint of rancidity in its buttery taste. The recipe:

In a churn, add one handful of leaf tea, one handful of salt, one scoopful of yak-butter. Pour on boiling water and agitate for a few minutes, allow to settle, serve in silver-lined wooden bowls.

Then it was time to leave for pastures new across the Tsangpo.

A plant list will be published at the end of Part 2.

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(The books listed above are out of print but well worth reading.)
Chan, Victor. Tibet Handbook. Moon Publications, Chico, California, USA. 1994. (A comprehensive guidebook)
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Bud-Blooming Heathers

Bud-blooming heathers (*Calluna vulgaris*) have flowers which do not open properly but remain as buds. They are therefore unfertilised and last longer, as do the flowers of double heathers. They have been known since the 1920's but it is only recently that much interest has been shown in them. Kurt Kramer in Germany has crossed bud-flowers with normal heathers and a range of new cultivars is now on the market. These include 'Melanie', 'Romina', 'Alexandra', 'Alicia' and 'Anette'.
(See *The Garden*, Nov 1994, p.453)

BRITISH PLANTS FOR THE ROCK GARDEN

by Maria Bennett

I am quite used to getting funny looks from fellow gardeners when they hear that I am interested in British wild plants. That is, even in our enlightened times, many still envisage a wildflower garden as a sea of nettles, couch-grass, ground-elder and bitter-cress (well, I must admit that there are some of these in my garden, but, just like you, I call them *weeds*).

I would like to describe a few of my favourite British plants suitable for a rock garden and if you are not yet familiar with some of these little wild wonders, I hope that you may be able to share my fascination for them.

Part 1: FOLIAGE PLANTS

Foliage plants are perhaps not as important in a rock garden as they are in a herbaceous border or woodland garden, as many alpine plants grown primarily for flowers are evergreen and thus provide interest throughout the year. The plants described below (few of them evergreen) will not give a dazzling display of flowers or make your neighbours turn green with envy but nevertheless have enough attraction to deserve a place in a rock garden, if not on a show bench. They provide contrasting forms and textures and a useful green foil for showier alpine plants; many of them are happy to grow in difficult shaded situations. 'Foliage plants' is a somewhat imprecise description, as all these plants have flowers as well, but these are often green, small or inconspicuous, and do not dominate, but complement the foliage.

Adoxa moschatellina (moschatel). This is an utterly charming little plant and it is surprising that it is not more widely grown. The Greek name 'Adoxa' means 'without glory'. It lacks bright colours and its beauty can be appreciated only at close quarters — ideally with the aid of a hand lens. It smells pleasantly of musk, and its alternative common name "townhall clock" refers to the peculiar arrangement of the green flowers in the inflorescence — one flower

facing upwards and the other four flowers facing north, south, east and west. The fresh green pinnate leaves emerge from the underground creeping rhizome in early spring, and the flowers are produced in April; the plant dies down in summer. Although in the wild, moschatel grows in shaded places and will thrive in similar conditions in the garden, it is quite accommodating and can be planted in a sunny position as long as the soil remains moist and contains plenty of leafmould. Where happy it will spread into extensive patches without ever becoming a nuisance. Seed is not always produced and is difficult to collect, but the weird-looking rhizomes can be easily divided after flowering.

Alchemilla alpina (alpine lady's mantle) is a deservedly popular rock garden plant, with pretty rounded leaves divided to the base into 5-7 lobes, dark green above and silvery beneath (Fig.53 p.186). It is native to rocks and mountain pastures of Scotland and northern England. It is easy to grow in a sunny position in the rock garden, and can even be naturalized in very short grass. Confusingly, many plants sold under this name are in fact *A. conjuncta* or *A. plicatula*, and the best chance to obtain a true species is probably at reputable wildflower nurseries. All *Alchemilla* spp. are readily propagated from seed, which is best sown in autumn, although spring sowing can also be successful. Most species will self-seed.

Alchemilla glaucescens (small lady's mantle) is a more or less scaled-down version of the popular *A. mollis*, reaching up to 20 cm in height. It is found in grassland on limestone in parts of Scotland and in Yorkshire. Foliage is not as attractive as that of *A. alpina*, but quite pleasant; the leaves are more or less rounded in outline, with 7-9 shallow lobes; foamy yellowish-green flowerheads are produced in abundance (Fig.53 p.186). It looks particularly good nearby other foliage plants of contrasting shapes and textures, e.g. grasses and ferns.

Alchemilla minima (dwarf lady's mantle). This is a truly diminutive, charming little lady's-mantle (actually, I could not find a common name for it, but the epithet 'dwarf' seems most appropriate). *A. minima* is one of the few British endemics, found only on limestone grassland in northern Yorkshire, and is unfortunately rare in cultivation. Its lobed kidney-shaped leaves do not exceed 30 mm in diameter, and tiny lime-green flowers are

carried in small tight clusters. It is probably best suited for cultivation in a trough where it will not be smothered by larger plants. Suitable neighbours for it include *Polygala calcarea* (chalk milkwort), *Primula farinosa* (bird's-eye primrose) and *Draba aizoides* (yellow whitlow-grass).

Asarum europaeum (asarabacca, or wild ginger) is an excellent low evergreen ground covering plant for shady situations, with most handsome, glossy, dark green kidney-shaped leaves (Fig.53 p.186). The flowers, which are described by many as 'insignificant', are in reality quite fascinating — if you can be bothered to search (some time between May and August) on the ground under the leaves where the flowers are invariably concealed. They are purplish-brown, hairy, bell-shaped with three somewhat incurved lobes, smell of pepper and lie on the ground — well, this is perhaps not everybody's idea of a nice flower, but certainly something different. Wild ginger is tolerant of competition with roots of trees and shrubs and will eventually spread to form a substantial glossy evergreen carpet. It does need shade to do well and ideally, humus-rich neutral to alkaline soil. Propagation is easy by division of rhizomes in autumn or spring, but can be also from seed which is best sown as soon as ripe (if you manage to collect it before the ants do) and kept outdoors; the seed should germinate in spring.

Corynephorus canescens (grey hair-grass) is a slender, evergreen, tufted perennial grass with greyish needle-like leaves to 6 cm long and upright stems with narrow panicles of spikelets with purple anthers in June-July, usually not exceeding 10 cm in height. Native to Norfolk, Suffolk and Jersey and introduced in few places in Scotland, this little grass grows on sand dunes with *Romulea columnae* (sand crocus), *Viola canina* (heath dog-violet) and *Euphorbia portlandica* (Portland spurge). *C. canescens* is a very useful and attractive small grass, but is surprisingly uncommon in cultivation. In moist sandy soil in a sunny position and without much competition from taller perennials, it will self-seed without becoming offensive and can even be allowed to form a short thin turf as a pleasant evergreen background to other plants in a rock garden. Propagation is easy from seed sown in spring or early autumn in sandy compost, but the plants do not normally flower until their third year.

Euphorbia hyberna (Irish spurge). This rare spurge which, in spite of its name, occurs not only in Ireland but also in south-west England, is perhaps too tall for an average rock garden, growing up to 60 cm, although often only half this height. Its unbranched stems bear oblong or elliptical dark green leaves to 10 cm long which turn pinkish-red in autumn, and clusters of typical spurge flowers surrounded by lime-green bracts, from April to July. The flowers are followed by warty seed capsules. In the wild it is found in woods and on shaded streambanks, and in the garden it will be happy in shady situations on moist acid soil. *E. hyberna* can be propagated both by division of rhizomes and by seed in spring.

Festuca vivipara (viviparous fescue) is a curious little grass, of botanical rather than horticultural interest, forming a dense tuft of very fine dark green leaves, with stems up to 30 cm tall which produce little plantlets in place of normal flowers. It grows in mountains from North Wales to Scotland and in cultivation prefers more or less acid, humus-rich soil in a sunny position. In the wild the stems bend right to the ground under the weight of numerous baby plantlets which root. However, detaching and potting the plantlets is not always successful, and where just a few extra plants are needed, division in spring is more reliable.

Herniaria glabra (smooth rupturewort) is a most useful ground covering plant for hot dry sites, being content with a bit of dust between the paving stones as a growing medium, thriving in almost pure sand or gravel, and can even be used for a 'low-maintenance' tub or hanging basket (i.e. the one you usually forget to water). Prostrate stems clothed in tiny elliptical leaves form a bright green mat; the flowers are minute and green, and are not really worthy of inspection. Leaves are often retained in winter, when they take on a bronzy tinge. Dwarf spring bulbs planted to grow through the mats of this plant will provide further interest. It is a rare native found only in Lincolnshire and East Anglia. Although normally perennial, rupturewort can be short-lived and sometimes even behaves as an annual, but this is compensated by ease of propagation from seed or division in spring, or by stem cuttings in autumn.

Listera ovata (common twayblade) is one of the commonest orchids in the wild, but is rare and difficult to establish in cultivation because, like all terrestrial orchids, it is dependent on mycorrhizal association with symbiotic fungi. Unlike many of its relatives with brightly coloured flowers, lesser twayblade is of humble appearance, with a spike of small, hooded greenish flowers over a single pair of large, oval, deeply parallel-veined leaves. *L. ovata* grows to about 30 cm or sometimes higher and is found in woods and other shady places. In cultivation the best chance of establishment is in moist soil or compost containing plenty of leafmould, sharp grit and some limestone chips. The only feasible method of propagation is division.

Melica nutans (mountain or nodding melic) is an attractive but uncommon perennial grass, found in woods and on rocks in many parts of Britain except southern England. It can sometimes grow too tall for an average-sized rock garden, with flowering stems reaching 60 cm in height (although usually less), carrying one-sided, graceful panicles of purplish, nodding spikelets in May-July. *M. nutans* is a fine grass for a larger rock garden, border or open woodland, which prefers neutral to alkaline, well-drained soil and a position in sun or light shade. Propagation is easiest by division of slender creeping rhizomes; if sowing seed, chilling is recommended to induce germination.

Mibora minima (early sand-grass) is the smallest native grass often only 2-3 cm high, — a charming annual forming small tufts of very fine bright green leaves, with tiny one-sided panicles of purplish-tinged spikelets which appear from February to May and sometimes again in late summer. This dainty grass is found by the sea in Wales and the Channel Islands. It is uncommon in gardens, where it needs moist, very sandy soil and sunny or lightly shaded position. Few annuals are ever grown in rock gardens, but *M. minima* self-seeds in favourable conditions and can form a short turf, ideal for shading the base of some plants which prefer cool root run, such as many terrestrial orchids. It is a good companion for many small alpines, e.g. *Gentiana verna* (spring gentian), *Centaureum scilloides* (perennial centaury) and *Primula scotica* (Scottish primrose). The seed is best sown in late summer or in autumn in pots of very sandy compost and overwintered outdoors.

Oxyria digyna (mountain sorrel) is a pleasant little weed – oops! – alpine, which grows by streams and on damp rocks in mountains of Scotland, North Wales and the Lake District. It has a basal rosette of fleshy kidney-shaped leaves on long stalks and upright stems bearing small green flowers from June to August, the overall effect being considerably more pleasing than that of most related species (that is, sorrels and, beg my pardon, docks). The whole plant, and the seedheads in particular, assume rich bronzy-red tints towards the end of the summer, when bright colours are scarce in a rock garden. In good soil, mountain sorrel can grow to 30 cm, but is often smaller, and looks best by the stream or nestling among rocks. It is an easy and undemanding plant, which grows well in sun or light shade, but prefers moist soil. *O. digyna* does self-seed profusely, so is not a good choice for a tidy garden, — but if you do try it and happen to end up with hundreds of unwanted seedlings all over the place, my suggestion for a revenge: eat it — the leaves are supposed to have a pleasant sharp flavour.

Paris quadrifolia (herb Paris) has nothing to do with Paris, the generic name being derived from ‘*par*’ — equal, referring to symmetrical arrangement of this plant’s parts. The handsome, broadly oval, conspicuously veined leaves are stalkless and borne in a single whorl of four. The whorl is situated half-way up the stem and in May-July is overtopped by an unusual single green flower, normally consisting of four lance-shaped petals and four thread-like petals, with long yellow stamens (Fig.53 p.186). This is followed by a black berry, which eventually splits to reveal its contents: shiny, bright red seeds. The whole plant is very poisonous, especially the black berry, which even looks somewhat sinister. Herb Paris is native to woods on calcareous soils in many parts of Britain; however, it is local everywhere and is very rare in Scotland. It can make an unusual subject in a shady part of a rock garden, or under deciduous trees, where it will spread by means of rhizomes. When planting, make sure that the rhizome is situated 10-12 cm below the soil surface. *P. quadrifolia* requires moist soil from neutral to alkaline, and at least some shade. It is not practical to propagate it from seed as it takes several years for a plant to reach flowering size; seed must be sown immediately as it is ripe. Division of rhizomes is a more reliable way to multiply this plant.

Plantago maritima (sea plantain). I am not trying to insult you by suggesting that you introduce a new weed into your garden, as this species of plantain is harmless and in my opinion quite attractive with its starfish-like rosette of long, narrow, fleshy dark green leaves, although there is not much to be said about the flowers. *P. maritima* is quite common in salt-marshes and on the rocks by the sea. It is doubtful that it can cause any problems by seeding in the garden, as my attempts to germinate the seed resulted in very few seedlings (or perhaps it says something about my propagation techniques). It will feel at home in sandy soil or in a crevice, in company with *Limonium* spp. (sea-lavenders), *Armeria maritima* (thrift), *Silene uniflora* (sea campion). Slugs are partial to the succulent leaves.

Sagina boydii is a mysterious plant with no English name; although it is thought to have been found in the Scottish Highlands near Braemar in the 19th Century; it has never been rediscovered again and all specimens in cultivation are descendants of a single plant. *S. boydii* is a very slow-growing choice alpine, forming small cushions, rarely more than 3-4 cm across and 1 cm high, of very dark-green, glossy, needle-like leaves (Fig.53 p.186). The minute flowers are inconspicuous and rarely produced. It is rather tricky and challenging to grow, best suited for pot culture in an alpine house or cold frame, or, with a bit of luck, in a trough or scree. It requires sun but dislikes too much heat, and some shading may be necessary in hot weather; the compost must be very gritty and contain plenty of leafmould. Water carefully to keep the compost moist but not wet throughout the growing season and almost dry in winter. Propagation is by division or, alternatively, by detaching individual rosettes in June and rooting them in a pot of perfectly drained compost or even pure sand.

Sibbaldia procumbens (sibbaldia). What an imaginative common name! This is probably due to the fact that this plant from the mountains of northern Scotland is of humble appearance and never attracts much attention, although a carpet of prostrate stems covered with bluish-green, softly hairy, trifoliate leaves on reddish stalks is quite appealing, if unexciting. The tiny yellow flowers are similar to those of potentillas, to which sibbaldia is closely related, but are only 4 mm across and often lack petals. It is a good ground cover plant for sun or shade which can be underplanted with small

bulbs to add a bit of interest to its modest complexion. The seed requires chilling to germinate, and division is probably the easiest method of propagation.

Thalictrum alpinum (alpine meadow-rue) is a delicate little thing, with dark-green ternate leaves, each leaf consisting of nine diminutive, rounded, toothed or lobed leaflets with prominent veins, glaucous underneath. The tiny flowers borne in racemes on slender stems are greenish-purple and inconspicuous, although decorated with bright yellow anthers on violet filaments. *T. alpinum* grows in mountains in the northern half of Britain, but is rarely noticed by hillwalkers because of its modest appearance. It is not generally available even from specialist alpine nurseries, but the seed often appears on the SRGC list. This dainty plant requires sun and moist but well-drained soil or compost, and should be grown in a trough or raised bed with other small alpiners such as *Salix herbacea* (least willow), *Erigeron borealis* (alpine fleabane) and *Silene acaulis* (moss campion), as it is likely to get lost in a larger rock garden among more vigorous neighbours. Propagation from division is possible but not advisable, as the plants do not like disturbance. The seed is best sown when ripe in autumn; if sowing in spring, artificial stratification is recommended.

Trientalis europaea (chickweed wintergreen) has nothing to do with either chickweed or wintergreens but belongs to Primulaceae. The solitary starry white flowers on long stalks borne in spring above a whorl of 5-7 lanceolate leathery leaves are quite large, about 15 mm across, and pretty, particularly when seen in large numbers, as in many Scottish coniferous woods (see p.149). The leaves turn a beautiful pinkish-red in autumn with some of the leaf whorls topped by a pretty, small, round seed capsule, silver in colour, on a slender stalk. Unfortunately, this plant is rarely cultivated. In the garden it should succeed in a shaded peat bed or under coniferous trees, in company with other treasures of northern pine woods, such as *Linnaea borealis* (twinline) and true wintergreens — *Moneses*, *Orthilia*, and *Pyrola* spp. Seed is not set every year, but if available, should be sown as fresh as possible in acid compost and overwintered outdoors; division of rhizomes in spring is probably a better bet. There is also a pink-flowered form, f. *rosea*.

(To be continued)

NATIVE STONEBREAKERS

The Scottish mountain saxifrages

by Bill Paton

The saxifrage is the doyen of Scottish mountain flowers. At levels above 700 m our hills are home to no fewer than nine montane species, *Saxifraga aizoides*, *S. cernua*, *S. cespitosa*, *S. hirculus*, *S. hypnoides*, *S. nivalis*, *S. oppositifolia*, *S. rivularis* and *S. stellaris*. No other vascular genus provides as many montane species.

The name saxifrage is clearly derived from the Latin *saxum* a stone and *frangere* to break and is widely believed to reflect the plant's ability to grow in rock cracks and so to widen and even create cracks. However, the first use of the name was in the first century AD by a medical botanist Dioscorides, who refers to its efficacy in dissolving kidney stones.

In fact both explanations are misconceived, for the saxifrage is no better a healer than it is a quarrier. As mountain plants, however, they are courageous in their choice of exposed rocky habitat, fascinating in their various characteristics, interesting to cultivate and attractive to look at.

A few general features will be outlined here, and variations from these will be given in the descriptions of individual species. Characteristically, and excepting *S. oppositifolia*, the mountain saxifrages have basal rosettes from which rise flowering stems longer than the norm for saxatile species. These stems branch to give one or more flowers, each with 5 sepals, 5 petals and 10 stamens. All nine of the Scottish montane group have some hair on their leaves or stems, all are perennials and most are evergreens.

All have circumpolar distribution. *S. cespitosa*, *S. nivalis* and *S. rivularis* are Arctic plants, penetrating only into the north of Europe, while the others have full Arctic/Alpine distribution, Some if not all are relict species, being survivors of a pre Ice-age tundra-type flora.

CULTIVATION

Given normal rock garden treatment these plants can for the most part be grown at lowland garden level. However, cultivated plants will tend to be more lax – if also larger – than those growing in the wild. If we are to produce the splendid little plants of the high places in all the glory of their clear petals and shiny leaves then we must understand and as far as possible reproduce their natural habitats. Being saxatile they require a stony, gritty soil with lots of drainage. Broadly, *S. cespitosa* and *S. rivularis* are of the high granite and consequently acid hills while *S. hirculus* grows in limestone areas. The salts released when mica-schist breaks down support many forms of plant life. *S. nivalis* and *S. stellaris* grow on both granite and mica-schist; *S. aizoides*, *S. cernua*, *S. hypnoides* and *S. oppositifolia* grow in both mica-schist and basic conditions.

In winter their natural habitats will be frozen and milder lowland conditions may be too wet for them. They are accustomed to copious supplies of water in spring and early summer when the snow is melting and rather less when the hills dry out later in the season. Naturally, marsh species are different; they must constantly be damp but not waterlogged. Although rock and scree habitats may afford little or no shelter from the sun, these saxifrages mostly prefer a northern to a southern exposure. Sun and water needs are related; the more sunshine they have the more dampness they need.

SAXIFRAGA OPPOSITIFOLIA (Purple saxifrage)



At first glance the absence of basal rosettes and the presence of long trailing stems forming cushions give no indication of the distinctive qualities of *S. oppositifolia* or even of its membership of the saxifrage genus. It is the first of the mountain saxifrages or indeed any of the Scottish montane species to come into bloom. At the end of February it is weary and worn from the winter, but visit it in early March and you are greeted with a glimpse of pink or purple, and by the end of the month the bloom gloriously covers the whole plant. It will also flower for a second time, although somewhat sparsely, in the late summer.

Leaves are small and have lime pores near the tips from which surplus lime can be secreted, causing the leaves to have a grey/green appearance. By contrast the flowers are large with very short stems and pale pink to purple petals some three times larger than the leaves. The species is variable and one Scottish version named 'Corrie Fee' has particularly lovely, large, pure white flowers. Another, named 'St. Kilda', flowers a fortnight later than the standard form and is a lovely pink colour, with foliage forming a dense mass. Large petal size is not an uncommon feature of mountain flowers. The climate and soil conditions of the high tops, along with the inhibiting effect of ultraviolet radiation on plant but not flower growth, make for tight plants with relatively large blooms. The visual effect is attractive to people and pollinators alike. *S. oppositifolia* seems to exemplify these effects in its normal form in the wild.

It is widespread in the Arctic and European mountains and is found throughout the UK. In Scotland it grows on exposed cliffs and screes from 450 to 1100 m and also on low ground where seeds and plants have been washed down from its often unstable habitats. It can readily be cultivated, although it has a tendency to burn in hot conditions and to infiltration by moss when damp. A gravelly, north-facing site and regular vigilance are required.

SAXIFRAGA AIZOIDES (Yellow mountain saxifrage)

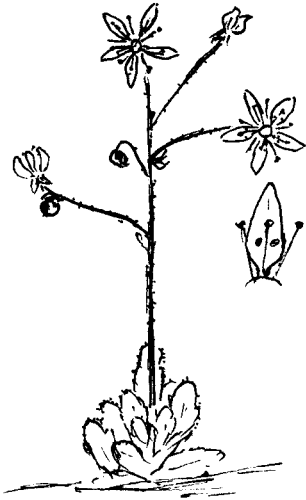


All of the limestone and mica-schist hills and glens of west and central Scotland, from low levels to 1000 m are likely to contain this species. Its favoured habitats are the banks of streams where it often produces large splashes of colour. It can also flourish on the recently gouged banks of hill roads. Its close association with running water causes parts to be washed down from time to

time and take root in shingly banks. It can be lax and untidy but a

plant in full health is a proud sight. Stems are loose, clad with many fleshy leaves, and they branch to give a clutch of flowers per stem. The flowers are an interesting and unusual feature. Their standard 5 sepals, 5 petals and 10 stamens (the petals narrow and yellow or orange with red dots) are all visible from above and are reminiscent of a child's kaleidoscope rather than a flower head.

SAXIFRAGA STELLARIS (Starry saxifrage)



S. stellaris is very visibly of the saxifrage genus, with shapely basal rosettes from which medium to tall flowering stems rise, branched towards the top to culminate in some 5 or more white flowers. The petals have two yellow spots near the base and are narrow and somewhat pointed, giving a dainty and delicate rather than an impressively floristic effect.

Absent from the most extreme polar regions, it is widespread from Iceland to Scandinavia and the main European mountain ranges. It is the most common of the white saxifrages in Scotland, in part because it grows in both acid and mica-schist hills. It is one of only three saxifrages (the others being *S. cespitosa* and *S. rivularis*) to be found in the granite Cairngorms.

Essentially this is a species of the high hills, where it grows in single rosettes or small clumps. A stray may be found on lower ground where it has been washed down from the heights but its natural habitats are mossy tundra, beside high streams or indeed in the mossy area of snow-lies on top of the very highest hills.

In cultivation its needs must be met in full, namely a wet gritty soil, a little shade, and vigilance on the part of the gardener, for it has a disconcerting habit of dying out unexpectedly.

SAXIFRAGA HYPNOIDES (Mossy saxifrage)

This is a well-known upland saxifrage, widespread in the hills and widely grown in private gardens in one variant or another.



In structure it has loose rosettes from which it sends out prostrate leafy shoots terminating in new rosettes. These quickly form a mat which, nominally at least, can be mistaken for a patch of moss or moss-covered boulders. It has long thin stems branching in the upper part to give four or five terminal buds which droop, giving the impression of an ailing plant until they are ready

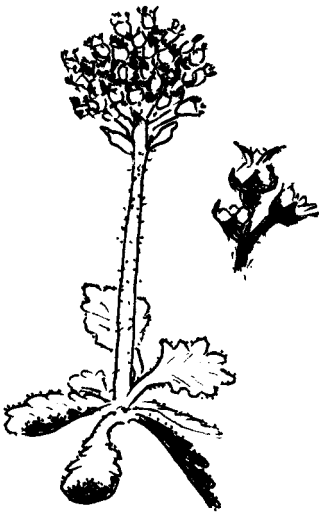
to flower, when they turn upwards and open into large, pure white attractive blooms.

It grows from sea level to around 1200 m, especially on mica-schist in the west of Scotland, where it is often in company with one or more of *S. oppositifolia*, *S. aizoides* and *S. stellaris*. Plant growth is noticeably affected by climatic and environmental factors. For example, a hot, dry summer will adversely affect its size and cause the foliage to turn red.

In cultivation a gritty, damp, north-facing site will achieve a plant of more than 30 cm in diameter in one year. Random propagation is effected by birds scattering parts of the plant, some of which take root at surprising distances from the parent.

SAXIFRAGA NIVALIS (Alpine saxifrage)

This would not win a beauty contest but it is a species of signal character. The rosette is distinctive with thick, toothed, shiny leaves, green on top and a striking reddish/purple on the underside. From this rise thick, hairy and deceptively sturdy-looking stems which in time are topped with close clumps (aptly described by one writer as golf balls) of rudimentary flowers. The petals are predominantly white, with green and pink shading, and are barely large enough to emerge above the sepals. All in all, the promise of the rosette, stem and crowded bud is not borne out and this bloom is surely the urchin of the upland saxifrages. However, other features command respect.



The species is circumboreal and its sites in the UK represent its most southerly penetration in Europe. It is most frequent in central and western Scotland where it reaches an altitude of almost 1200 m, growing mainly in crevices of damp basaltic or mica-schist crags. Although officially a rare plant, it sets seeds well and is not declining in Scotland. One thought in passing; why is a plant of circumpolar distribution, which does not grow in the Alps, be known

as the alpine saxifrage instead of the snow saxifrage as it had appropriately been named by Linnaeus?

SAXIFRAGA HIRCULUS (Yellow marsh saxifrage)



The glory of *S. hirculus* is its flowers. The petals are bright yellow with reddish markings on the lower half, and at 1.5 cm long they are twice the size of those of its near relative *S. aizoides*. The plant is tufted, with lanceolate leaves which die off in winter and serve to protect the resting buds. The stems are slender and vary in length, reaching as much as 30 cm in good conditions or in tall grass. Such a species does not deserve the name *hirculus*,

meaning a goat and apparently relating to its smell, which at worst is elusive.

This is a plant of base-rich flushes and mires within upland moors and pastures. In Scotland its present highest sites are around 400 m. Its membership of the montane plants' club is based on present-day English sites and one former Scottish site at 700 m.

It is a listed species, declining into extinction in some parts of Europe. It is also declining in Scotland, in some areas because of drainage or increased grazing, while ironically in other places it is being swamped by long grass where grazing pressures have become negligible. Already it has been lost from four Scottish counties and is known only in three squares of 10 x 10 km in Scotland and nine squares throughout the UK.

Since it is a listed species, British plants are not available. However, seed from overseas and especially from Iceland is sometimes offered through the Club's Exchange. If you acquire some, try sowing in a pot with basic compost and sand. The pots need to be thoroughly watered but not set permanently in a tray of water. Its vegetative reproduction system is impressive. Some four months after germination a young plant will produce horizontal side-shoots which drop to rest on the soil and put down roots. In this way each new shoot quickly becomes independent of the parent plant and in time can be easily removed and planted out.

SAXIFRAGA RIVULARIS (Highland saxifrage)



This was first discovered in Scotland by George Don of Forfar more than 200 years ago on Lochnagar, where it still grows. It is presently known only in a maximum of 21 sites each containing up to 100 plants, but although it is declining and is down to a single plant in one of its sites, it is not in immediate danger of extinction, partly because many of its sites are inaccessible.

It is an Arctic plant and grows in Scotland at an altitude of 600 to 1200 m. True to its name it is found on the banks of streams or in damp, rocky crevices especially on the cold side of acid hills, as

for instance in the northern corries of the Cairngorms. It has tufted basal leaves, hairless and either rounded or divided into 3 –7 lobes, or kidney shaped. Stems are short and may bear up to three blooms in a cluster. Petals are rounded and white, sometimes with pink flushing. A distinctive feature is the production of underground bulbils which in spring or early summer send out stolons 4-5 cm long, at the end of which a new plant breaks through the soil.

In cultivation it needs a cold, wet and peaty situation. In suitable conditions it is a lush and healthy plant, but it blooms only grudgingly. Indeed, flower heads may be produced deeply within the plant and not be noticed until the seed capsules emerge slightly from the foliage.

SAXIFRAGA CERNUA (Drooping saxifrage)



One of the two most scarce of our mountain saxifrages, this is classified as 'very rare' and is listed in the Schedule of Protected Plants.

In common with its relative *S. rivularis*, the basal leaves are rounded, in the case of *S. cernua* with 5 - 7 lobes. Long, slender, reddish stems rise from this, normally ending in single terminal 'nodding' buds. Stems straighten just before the buds open, causing the flowers to face directly upwards. The petals are surprisingly large, pure white but short-lived.

In late autumn the plant retreats to ground level, where withered summer vegetation serves to protect the overwintering buds. To all intents and purposes it does not set seed in Scotland; indeed it does not set seed anywhere below the Arctic Circle. Instead it produces large numbers (as many as 50 per flowering stem) of red bulbils in the axils of the stem leaves. Some of these bulbils produce two leaves before falling off, but most drop off before growing the first leaves.

These, incidentally are true *S. cernua* leaves and not cotyledons, for the bulbils are embryonic plants and not seeds. The bulbils can roll or be blown over considerable distances helped by the small

round leaves, before dropping into a crevice or below a stone, putting down roots and developing into new plants.

This viviparous method of reproduction has important implications. Since it is asexual, each new plant has exactly the same genetic characteristics as its parent, and consequently all the plants in an area may be members of the same clone, each with exactly the same constitution.

Lack of variation in the plants would seem to make them more vulnerable to climatic change. In particular, global warming could be a special danger to a species which exists only in three sites, the Ben Nevis massif, Glencoe and Ben Lawers where it seeks the highest and most exposed of habitats, in each case above 900 m. Further, there is some evidence of collection at its present sites and it has almost certainly been lost from two previous sites in Perthshire.

On the other hand, as a relict species it has already survived major climatic change over many thousands of years and despite the exposed nature of its present sites it seems to have found an equilibrium in each, at some 50-100 plants.

Nevertheless, prudent precautions are taken against the loss of the Scottish plants and, in common with other rare species, reserve populations are being grown in lowland conditions. Quaintly, provided these plants are grown in something approaching damp, mica-schist conditions, they flourish in the milder climate. Indeed, the profusion of bulbil production can present a problem in choking the site and inhibiting the development of established plants.

SAXIFRAGA CESPITOSA (Tufted saxifrage)



distribution and is a species of sterling qualities if rather

undistinguished appearance. In Scotland it is a true montane flower, growing only above 600 m and mostly between 900 and 1200 m, where it occurs sparsely and in small clusters on a few very rocky and exposed sites.

In structure it is the archetypal saxifrage. It has a basal rosette consisting of small, loose and stickily hairy leaves, each with 3 or 5 lobes. From this rise short hairy stems branching towards the top to give two or three terminal flowers. The petals are white, shading to yellowish-green at the bottom and with line markings on the top giving overall the effect of a greyer shade of white. Despite its status as a scheduled species it is to be found in some nursery lists but beware, for all that is offered as *S. cespitosa* may not be our Scottish mountain plant. If in doubt, check the leaves which, as Webb and Gornall state in their 'Saxifrages of Europe', should have:

- a) a majority with three, and fewer with five lobes
- b) leaves below the rosette all three-lobed
- c) fairly long hairs on the leaf petioles
- d) unfurled leaf segments

Contrasting with its dwindling presence in the wild, it can readily be cultivated on moist, acid grit and the higher the ratio of grit to compost, the smaller and more attractive the plant will be.

CONSERVATION

The main danger to plants at present is the destruction of their habitats, in the case of mountain plants through increased leisure use of the hills. Global warming is potentially a catastrophic future risk and, indeed, recent warm summers have led to reduction of some species. Sadly, there is also some evidence of collection of plants. It is an offence under law to remove any wild plant without the landowner's permission. Rare plants have special protection and are classified on three levels:

- 1) Rare (e.g. *S. nivalis*) These occur in not more than 100 different grid squares of 10 x 10 km (total 3500 in the UK)
- 2) Very rare (e.g. *S. hirculus* and *S. rivularis*) These occur in not more than 15 different 10 x 10 km squares and are listed in the British Red Data Book
- 3) Very rare and endangered or vulnerable (e.g. *S. cernua* and *S. cespitosa*) and listed in the Schedule of Protected Plants. They must not be traded or picked, removed or destroyed in any part, including seeds.

AVAILABILITY

The SRGC Seed Exchange frequently offers seeds, some of foreign origin, of 7 of the 9 species described in this article. The two which have not been offered in the past are *S. cernua* which does not set seed and *S. rivularis* from which foreign seed may become available in the future. In addition *S. hypnoides*, *S. oppositifolia* and *S. stellaris* are widely available from nurseries and the 'Corrie Fee' and 'St. Kilda' versions of *S. oppositifolia* are available from specialist nurseries.

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OBITUARIES

Elma P. Spiller

Mrs Elma Spiller died on 19 May 1996 in the Copper Beech Nursing Home, North Berwick.

From the inception of the Stirling Rock Garden Group, Elma was the centre of activity organising Discussion Weekends, Coffee Mornings, Raffles, Bring and Buy Sales and always found wherever work was to be done; the continued success of the early life of the Group was due to her enthusiasm and generosity.

Her own garden was full of plants lovingly and expertly attended, with ne'er a weed. Elma had a vast store of knowledge with enormous experience of propagation, planting and growing with a particular fondness for primulas, hence the Spiller Trophy for the best Primula at the Stirling Show.

She was delighted to become a Vice President of the SRGC and an Honorary Member of the Stirling Group.

I was also privileged to know this gracious lady as the wife of the late respected Gerald B. Spiller Esq. MA LLB, Rector of Bannockburn Secondary School where pupils and staff benefited from her magical enthusiasm and charm.

Dan Niven

Sheila Maule

On 25 May 1996, Sheila Maule died. She was 89 and had spent a lifetime lovingly caring for her plants.

Sheila was born in 1907 in East Lothian, the daughter of a farmer, but it was her mother who seemed to instil a deep interest and fascination for plants. This she never lost and on marrying John, her devoted husband, sailed for Nigeria in 1932. John was appointed to a post in the Colonial Service, as an animal geneticist, and in the challenging West African environment she designed a garden and grew plants suitable for that climate. John's next posting was to Cyprus in 1934 where in an entirely new set of conditions Sheila assembled a different collection. The 1939-45 war came and she and her family were evacuated to South Africa, eventually returning to Scotland in 1947 where they bought that unique house in Hannahfield Quarry, Balerno where she entertained many rock gardeners.

Soon after becoming established in Edinburgh, Sheila involved herself in rock gardening and thankfully in the SRGC. Along with Betty Cormack she resurrected the Edinburgh Show, performing the tasks of Show Secretary for many years. On the death of Mrs Boyd-Harvey, our Club Secretary, she accepted the post of Overseas Liaison Secretary and corresponded with many growers from abroad. She used to say she was greatly rewarded in this job for she was frequently visited by enthusiastic overseas members and she loved people. She attended shows regularly and staged many prize-winning exhibits. Sheila had a discerning eye, was an able judge and often was invited to lecture on rock gardening. Alaska,

Canada and the western USA were added to Greece and the European Alps where she travelled looking at mountain plants.

At home, Sheila assembled a wide range of all manner of hardy species and, for a time, was particularly interested in Japanese native plants. She grew many to perfection in Balerno. Latterly, when less able to manage the quite intensive plant-oriented garden, she planted up her alpine house with uncommon bulbs. It was to that haven she would conduct her visitors in early spring where one could enjoy not only perfect blooms but delicate scent, the special value of which Sheila was well aware.

Sheila was awarded the Club's Jubilee Salver in 1992. She will be sadly missed by her many alpine gardening friends but it is to her husband John after 64 years that we now feel compassion.

Alfred Evans

Angus Small

It was with considerable regret that we learned of the death on 8 May 1996 of Angus Small at the venerable age of 92. Angus had been one of the stalwarts of the West of Scotland Group for longer than anyone can remember and, since joining the Club in 1953, had served it in a wide range of capacities.

As the convenor of the Renfrewshire Group from 1968-1991 he gained the distinction of becoming the longest serving convenor in the Club's history, a record which I suspect will be difficult to surpass. In addition to this, he acted as the Secretary to the West of Scotland Groups from 1967-1983, representing them on Council for four spells during that period. He was also a member of the President's Advisory Committee from 1972-74.

During his curatorship of the Davidson Slide Library from 1968-91, Angus undertook the daunting task of re-cataloguing the collection. I well remember the tiers of drawers crammed with slides lining the loft of his house.

However, to characterise Angus' contribution to the Club purely in terms of his administrative activities would be to do him a great injustice. When you had a gardening problem, Angus could always be relied upon to offer sound advice. He was an accomplished grower of plants who continued to exhibit at Club Shows when well into his 80's. His encyclopaedic knowledge of alpinists and their historic associations with the great plant hunters who introduced them to us was demonstrated in the series of articles which he contributed to the Journal.

In 1990, Angus was a worthy recipient of the Golden Jubilee Salver in recognition of his sterling service to the Club over many years. It was an award he greatly cherished.

However, Angus' enthusiasm was not limited to gardening and alpinism. An accomplished musician, he still found time to play the organ on Sundays at several local churches. Bowling was another of his passions and he graced the greens for many years.

Angus was truly a *man for all seasons* and he will be sorely missed by all who had the privilege to know him.

Don Stead / Roger Smyth

Fred Sutherland

Fred Sutherland, a former Head Gardener of the Cruickshank Botanic Garden, University of Aberdeen died on 9 September 1996 aged 84.

He was a member of the SRGC from the late 1940's and even in retirement he attended all the Discussion Weekends. Older Club members will remember the magnificent displays of plants he staged at the SRGC Shows in the Music Hall.

Fred started as a student at the RBG, Edinburgh in 1937 but his training was interrupted by the war. He joined the Seaforth highlanders in 1940 and served in North Africa and Italy. After being captured in Italy by the Germans, he managed to escape. He was never re-captured and worked on a local farm until he could rejoin his regiment. Demobbed in 1944 he returned to the RBG and completed his training in 1946.

Fred's 31 years at the Cruickshank Gardens ended with his reluctant retirement in 1977. He will be remembered for the construction and planting of the Rock Garden between 1969-71. He carried out most of the planting and all of the turf laying personally.

Fred's wife Catherine died in 1973. He moved to Inverness to live with his daughter and son-in-law in 1984. Fred did not like to be idle and talked enthusiastically about his garden in Inverness and also about how much he enjoyed helping Jim Sutherland in the early days of his new nursery.

He was very proud when the snowdrop 'Fred's Giant' which he discovered at the foot of an old hedge in the Cruickshank Garden was awarded a Certificate of Preliminary Commendation in 1992. A fitting tribute to a man whose life was devoted to horticulture.

Bob Rutherford

ANNUAL GENERAL MEETING

Annual General Meeting

**The Annual General Meeting will be held at the
Battleby Conference Centre, Redgorton, Perth
on Saturday 1 November 1997 at 2pm**

Nominations are required for the President, the Executive Officers and for four Ordinary Members of Council to serve for three years. All Executive Office-Bearers retire annually but are eligible for re-election.

Nominations in writing and seconded by another Club member or members should be lodged with the Secretary not later than 15 May 1997. The nominator must ascertain that the nominee is willing to serve if elected.

The following having served for three years as Ordinary Members are not eligible for re-election to Council for one year: Mr V. Chambers, Mr M. Hopkins, Mr J. Lee and Mr A. M. Wilson.

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Friday 10 October

16.00 Registration

20.00 Evening lecture:

Jack Elliott "Bulbs for the Rock Garden"

Followed by the Bulb Exchange and Fringe Slides

Saturday 11 October

08.00 Registration

09.00 - 12.00 Workshops

12.00 Show opens

14.15 WILLIAM BUCHANAN Memorial Lecture:

Harry Jans "The Future"

16.00 Afternoon Lecture:

Kath Dryden "Growing Woodsy Plants in Adverse Conditions"

20.00 Buffet Supper

Followed by The Plant Auction

Sunday 12 October

09.00 Registration

09.30 1st Morning Lecture:

Harold M^cBride "The Cultivation and Propagation of Alpine Plants"

11.15 2nd Morning Lecture:

John Blanchard "Wild Daffodils"

14.30 HAROLD ESSELMONT Lecture:

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