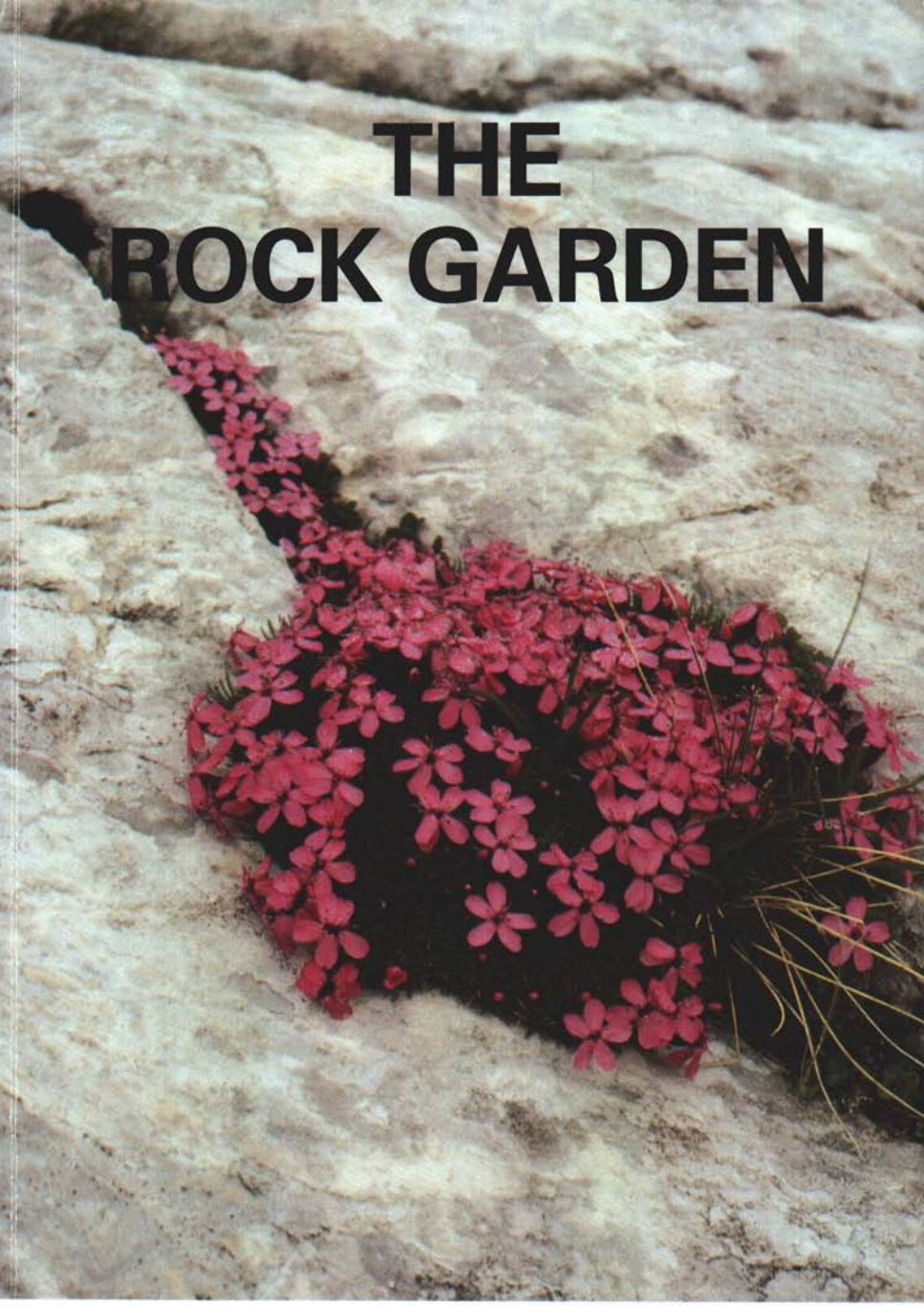

THE ROCK GARDEN

THE JOURNAL OF THE SCOTTISH ROCK GARDEN CLUB

Volume XXI Part 4 Number 85

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The Rock Garden

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Edited by:
Drs CAROLE and IAN BAINBRIDGE
3 Woodhouselee, Easter Howgate, Penicuik,
Midlothian EH26 0PG

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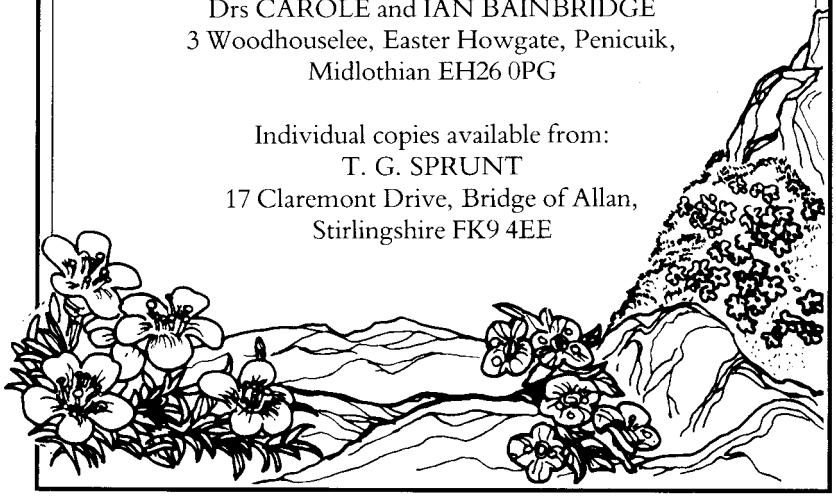

Front cover:
Silene acaulis in the Julian Alps (see p359)
Photograph by Lynn Almond

Contributions to THE ROCK GARDEN

The Editors would greatly welcome contributions to **The Rock Garden** on any aspects of alpine and rock garden plants and their cultivation. Articles should follow the format of previous journals, with colour slides and line drawings if appropriate. They should preferably be typed, double spaced, or on a 5.25" floppy disk in Microsoft Word.

Pen and ink drawings and vignettes are also welcome, especially in a horizontal format to fit a part page. Articles and drawings should be sent to the Editors.

We also require cover photographs for **The Rock Garden.** Anyone with colour slides for consideration as cover plates should contact Dr Michael Almond, Illustrations Manager, 28 River Crescent, Ninewells, Dundee, DD2 1UJ.

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Ranunculus glacialis (see p420)

Joel B. Smith

Editorial

We were warned! Alastair McKelvie said that things would never be the same. The garden would suffer; we'd never have time for shows, and friends would avoid us for fear of being coerced into putting pen to paper. Hopefully, writing this column represents the end of our first major challenge; editing our first issue and maintaining the quality that characterised Alastair's editorship.

"Planning a journal is like planning a garden", Alastair said. Perhaps he didn't realise that our last five years have been an exercise in commando gardening, starting with the elimination of rosebay, couch grass and ground elder, digging the 'trenches' to make the screes and pond, and carrying endless bags of leafmould, gravel and manure in and equally endless bags of rubbish out.

He may have been right. Though both editing and gardening are hard work, and can be (and have been) daunting prospects, we do derive a great deal of enjoyment from them. We've certainly experienced a great deal of friendship over the last few years, as gifts of seeds, cuttings and plants have all made their way up the hill to our latest patch of order-from-chaos. We've benefited from lots of friendly advice, and even the occasional gift of a few hours' digging.

The journal too is a form of 'friendship gardening'. We can all share the expertise and experiences of our fellow members through the pages of **The Rock Garden.** We appreciate the generosity of the contributors to this issue. They have given up valuable gardening time to write about cultivation techniques, new and interesting plants and places, and other aspects of rock gardening. We think (and hope) that most of them are still talking to us, and hope that you will enjoy their contributions.

A thought crosses our minds as we write this on a sunny November day. We're indoors slaving over a hot word-processor: where is Alastair? Will he be missing the joy of editing the journal, or will he be in the garden, repairing the years of 'editor's neglect'? We hope he's enjoying his well earned rest, and having fun!

CAROLE AND IAN BAINBRIDGE

President's Review

The past year has been one of mixed fortunes for the Executive of the Club, although one of continuing progress for the Club as a whole.

The Club membership figures as computed this year cannot be directly compared with those of previous years. In previous years family members were individually listed and thus added one to the grand total for each family member. For computer purposes the family now has one entry only and is thus a family unit. This should result in considerable simplification of the mailing list.

The total Club membership computed by this system stands at 4464 as compared with about 4500 last year. The members resident in Scotland comprise some 1424, those resident in the rest of the UK 1345, and overseas members 1087. There are 608 family units.

The incorporation of the cost of the Seed Exchange into the Overseas Members' Subscription has proved to be very popular with those members participating in the Seed Exchange as they now have only one set of bank service charges to pay instead of two, so that in effect their total outlay has gone up very little.

There has been a change in the regulations concerned with the covenanting of subscriptions, so that covenants can now only be concluded with those who are actual wage earners paying the standard rate of tax. A wage-earning spouse can no longer covenant for a non-earning spouse. For a very small increase in subscription in the form of a Family Membership this problem can be solved and as a bonus you can become a family unit in the Club. I hope that this subscription year will see a further increase in the number of covenanters. It really is a painless way for UK wage-earners to increase the income of the Club.

You will, doubtless, all be gratified to see from the accounts how the relatively small rise in subscriptions has produced a surplus last year of over £5,000 as compared with a deficit of almost £3,000 the previous year and this in spite of the extra costs to central funds incurred by the reprints of Journals 1 - 8.

The Executive has, over the past year, been considerably exercised since our Treasurer announced his intention of withdrawing from the Treasurership at the time of this A.G.M. Many avenues have been explored in an effort to secure a replacement and I wish to commend to you the great efforts of our Secretary, Evelyn Stevens, in trying to secure a successor. These efforts have finally been crowned with success.

Fortunately at the eleventh and a half hour, and from a quite unexpected quarter, one of our members has volunteered with considerable alacrity, and his name will be put to the Meeting later by his proposer and seconder. This proposal was discussed in Council this morning and your Council is happy to recommend him to you.

Sadly at this time our Auditor, Mr King, has also asked to be relieved of this duty. The duties which he was required to do in this capacity have been well and willingly done. He has given these services for the past 10 years or so. We thank him sincerely for his many efforts on our behalf and send him our best wishes.

We are saddened to see our Treasurer, Lewis Bilton, go. When he took over the Treasurership of the Club, the Club was facing near bankruptcy. He steered us through these troubled waters and in his quiet, canny way has husbanded our resources till our finances are in the healthy state that you see today. In October 1987, Lewis recommended a 40% increase in subscription, this being the first increase since 1981/82, over which time the Retail Price Index had increased by 100%. This increase in subscription has, two years later, resulted in a surplus of over £5,000 and steadily increasing membership. Lewis, therefore, leaves the post with the Club in good financial heart. We are most grateful to him for all his efforts on our behalf and I am sure that he must be happy to see that his years of stewardship have been crowned with success. We do, however, wish him joy in his retirement and offer him our sincere thanks.

The second crisis has been in connection with the Seed Exchange. As I was retired by the time that the last Exchange got under way, I was able to see at close quarters the amount of work involved. With the yearly increase in the popularity of our Seed Exchange it was quite obvious that it was, in its form at that time, too much work for one person. The work starts hotting up towards the end of September and goes on unremittingly until about the end of February for ten to twelve hours a day and more or less seven days a week.

Jean Wyllie came up with the suggestion that the Exchange could be conveniently divided into three sections, each with considerable activity, but over a more limited period of time. It is now to be operated in these three sections. Thanks are again due to our Secretary in securing the extra two managers required.

Jean Wyllie is the Seed Exchange Manager and is responsible for receiving the seed from the donors and for collating these receipts and for the production of the Seedlist.

Marisa Main is the Seed Packeting Manager and is responsible for arranging for the necessary teams of packeters. We are grateful to the Royal Botanic Garden, Edinburgh for their help in housing this part of the Exchange.

Morris Wilson is the Seed Distribution Manager and will operate this section from the Botanic Garden in St Andrews along with his team of helpers. We are grateful to the authorities of the Botanic Garden for their help in making accommodation available.

The Seed Exchange has completed its second computerised year and

much was learnt from the first year's operations. The definitive Seedlist is produced on a floppy disc and, with our change in printer, is transferred to the computer of the printing machine which produces the list without the intermediary of a typesetter.

This new system resulted in a saving of about £300 on printing costs. We are most grateful to Jean's husband Jim for his help in securing the loan of a computer from his firm McDonnell Douglas, and to his staff for their technical help in devising a suitable computer programme and in helping iron out operational problems.

The Exploration Fund Committee met under the chairmanship of John Main. A number of good applications were submitted to the Committee and the choice as to whom the allocations should be made was a difficult one. The following were selected:

Gerard Henry from Kew Gardens went to Turkey and has already submitted a good collection of seed to the Seed Exchange.

Paul Ainsworth from the Royal Botanic Garden, Edinburgh went to Greece.

Christine Walkden, a free-lance horticulturist, was originally scheduled to go to Peru, but because of the real danger of terrorist attack this was, with permission, changed to California and Oregon.

Colin Totty of the National Trust for Scotland went to Turkey.

The past year has seen a considerable upsurge in the exhibition of plants at our Shows. In view of the mild winter and abnormal flowering times of many show plants it was surprising that it was possible to mount such good Shows. Section 2 was better represented, all round, than usual and this augurs well for the whole future of our Shows. I would, at this point, make a plea that more of our members make just that little bit of effort and bring along even just a plant or two to the Shows; it's great fun. The fun is in running the race, winning a prize is only a bonus. The main thing is to show as wide a range of good plants as possible to both members and public. The Shows are our shop window.

The Stirling group held their second successful Discussion Weekend at Stirling University. A wide spectrum of topics was presented by the lecturers and the overall impression was that those who attended thoroughly enjoyed the Weekend. Our thanks are due to Sandy Leven, his wife Anne and all his helpers for their sterling efforts.

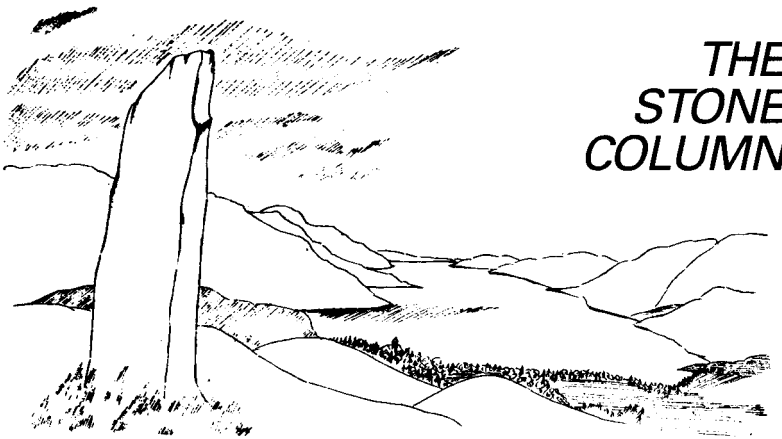
At this juncture it is my sad duty to record the death of Roy Elliott, who was for many years one of our members, but who was best known for his work over some thirty years as Editor of the Bulletin of the Alpine Garden Society. I have written to his widow and family on behalf of the Council and the Club offering our commiserations, and also to the President of our sister organisation, the AGS, expressing our sadness at their great loss.

I would like to express my thanks, and I am sure yours, to our retiring Editor, Alastair McKelvie, for his work for the Club as Editor of our Journal for the past seven years. We are sorry to see him go. We have seen changes and improvements in the Journal under his editorship just as we have done variously under that of our previous editors. Some of his ideas met with a little opposition when originally broached, such as the change of title of the Journal and the advent of the pictorial cover. I think, however, that he has won *those* arguments. Improved technology also helped him and has resulted in a change from mainly black and white illustrations to entirely colour illustrations and this has undoubtedly improved the general value of the Journals.

Jackie Thomlinson has retired from the Dumbarton and Glasgow Group convenership and has been replaced by Joan Gillard. Don Stead has taken over the convenership of the Lanarkshire Group from Angus Small who held the locum. The Club owes the conveners a great debt of gratitude for their continuing efforts on behalf of the Club at Group level.

I hope that the ensuing year will be one of continuing progress for the Club and that it will prove to be a less worrying one for your Executive.

T. G. SPRUNT
21 October 1989



THE STONE COLUMN

Expect Nothing and Be Not Disappointed

There is little doubt that weather and gardening are as inseparable as music and dancing. The climate calls the tune, and we gardeners cannot but dance to it! Whether or not it was as a consequence of the La Nina event in the Pacific, over much of the British Isles there was indeed something of a replay of the infamous, or glorious, depending on one's point of view, summer of '76.

Over at Inshriach on Speyside, John Lawson judges a summer by the number of days he can garden in shorts. By his accounting, '89 was somewhat drier than '76, without quite reaching the same extremes of temperature. This conforms to the general pattern further south, sunnier but not quite so hot. In the far southwest, Devon and Cornwall were badly hit, with streams drying up which had continued to flow in '76. Here by Loch Ness we escaped the worst of the extremes, thanks to the occasional weatherfront skirting close by the north-west of Scotland. Thus our hot spells in May and June were punctuated by sufficient rainfall to maintain adequate soil moisture. The sprinkler was only needed in our rainshadow areas, particularly under a pair of large beech trees. As luck would have it, the longest and hottest period up here coincided with our absence in France, leaving our son, Sean, with a considerable work load of shading and watering in the frame-area.

We have always thought that the "Glorious 12th" of August, which also happens to be my birthday, marks the end of summer proper up here. By then there is an autumn feel to the air and a ground frost is quite probable overnight. There is often a wet spell which we call the "August Monsoon". This year the weather broke on July 25th, just after our return home from the Alps. There was intermittent rainfall for a while, then from August 10th, 14 wet days in a row! This was a most frustrating period, it was impossible to get out into the garden often enough to keep up with the

weeds, and little new construction was possible. Our tempers were not improved by the TV continually telling us what a "good" summer we were supposed to be having. No doubt many southerners sitting under a stable anticyclone would have welcomed some of our rainfall; the grass is always greener! Back in '76 we had to continue watering for all of August and into September, but at least we were able to put on the sprinkler and get on with adding much needed planting space elsewhere!

Turning to our raison d'etre, the plants themselves: after effects of the past mild wet winter were still in evidence throughout the summer. As always there were some gains and some losses. The small soldanellas, *Soldanella minima* and *S. pusilla* produced very little flower; perhaps they missed their complete winter rest. On the other hand, *Lithodora diffusa* 'Heavenly Blue' was in full flower by early April. Usually she is badly cut back by frost and flowers much later, on a rather smaller mat. That well known authority on woody plants, "Bean", refers to this very popular rock plant as "not really tender, it detests winter wet". Our experience, especially last winter, does not really bear this out. If anything *L. oleifolia* is the more resistant to freezing winds. It too, can be burnt, but rapid regrowth in spring from the running rootstock soon restores the canopy. Its flowering is not impaired. Many of the "evergreen" herbs for once were just that, the Pacific coast irises such as *Iris douglasiana* for example. As a result they had the energy to flower really well this summer. Some consequences were more indirect – I usually prune our shrub roses during periods of dry frosty weather, when more pressing tasks are not possible, but last winter this never happened. As a result many have become overlarge, and impeded pathways. Pushing past their overhanging branches after rain is a very effective way of getting soaked! Before the arrival of garden visitors, I had to resort to tipping back branches, something I dislike as it can spoil the shape of the bush. Cutting out old growths right at the base is preferred, but in full leaf it can be difficult to see what is required. Grovelling under a rosebush can get one a pretty comprehensive wetting!

Possibly as a result of above average temperatures this summer, and adequate soil moisture, many plants responded with quite exceptional growth. A plant of *Salix x boydii* for example has put on 28cm of extension growth. It is often said to only grow 2-3cm per year, and be suitable for a trough! Walking around with our new joint Editors in August, Poll noticed that wasps were paying inordinate attention to our large "boydii". Looking more closely we discovered dense clusters of large black aphids, on many of the branches of around 0.5 – 0.75cm in diameter. It was their honeydew which was attracting the wasps. We had never seen this pest before, but a spray with a synthetic pyrethroid knocked them down in less than half an hour.

Another occurrence which we noted for the first time was the strange behaviour of that exquisite Japanese woodlander *Glaucidium palmatum*. A few came into growth at the usual time, many were very late appearing, and some remained dormant, but alive, all summer. The unusually mild winter had failed in some way to give them the correct signals.

Looking around the garden, I am more convinced than ever that excessive rainfall such as we had this August does the vast majority of alpines no harm whatsoever. Many obviously preferred this wet to the dry heat of July, and showed their appreciation by flowering for a second time. *Primula spectabilis*, often said to be shy-flowering, *P. glaucescens*, and their natural hybrid *P. x carueli* were prominent in our troughs; while in one border *Meconopsis grandis* flowered above mats of autumn gentians in full bloom, an arresting sight!

Our experience suggests that it is rather easier to grow alpines from hot dry continental environments in our maritime conditions than the other way around. Dry climate plants often tolerate much greater rainfalls in cultivation while they are in active growth. They can be covered if necessary in winter. On the other hand, plants from the wetter mountain ranges frequently fail altogether when the weather turns hot and dry. Pouring water onto them often does little to alleviate their distress; it is the low **air** humidity they detest! One could install mist nozzles and hope for no hose restrictions. This year we have certainly had far more damage from the three hot July weeks, on Himalayan plants especially, than rotted steppe species during the August monsoon. One very gratifying exception to the former rule has been the performance of *Primula pulchra*. This is a dwarf high-altitude relative of *P. sonchifolia*, with undiminished flowers of an intensely dark violet-blue, and a yellow eye. It came to us from George Smith's collectings as a tiny travel-sick piece, in August 1986, but such is its approval of conditions by Loch Ness that Poll had 30 spare plants for distribution this year. Multiplication is helped by its stoloniferous habit, plantlets appearing around the edge of the pots.

At the recent Stirling Discussion Weekend we were asked several times if having accurately predicted this summer (for the south and east!) would we care to do the same for the coming winter. Having consulted my seaweed, looked at the pinecones littering the drive, and inspected the local holly bushes, I can honestly say that I haven't the faintest idea. The hollies are well berried, but this does not foretell a hard winter, it is merely a consequence of good flowering and pollinating conditions earlier in the year. The rowans around the village are exceptionally well berried this year, as are some of our exotic species. Seedlings of *Sorbus vilmorinii* and *S. prattii*, originally sown back in 1980, are fruiting for the first time. The former has deep crimson berries, the latter white, a little smaller but in

larger bunches than those of *S. cashmiriana*. Any day now the redwing flocks will arrive to feast, and we shall know that winter is not far behind.

Of Gentians, Composites, and a Little Gastronomie

After spending five weeks touring the Wild West last year, we thought it time to pull in our horns and revisit the European Alps this summer. A return to the Alps, yes, but not a return to camping. Poll works long and hard at the potting bench, in addition to all the normal domestic chores, and was determined on a real break from the latter. Having decided on a hotel holiday, France was the obvious first choice. For us, food and wine are almost as important as the potentialities of the local flora. Their beds may sag, their plumbing require the application of a little British ingenuity on occasions, but we found the cuisine of the Logis de France generally good, sometimes excellent, and, once or twice, quite superb (s.a.e. please!).

We have been asked how we plan our plant-hunting trips; it's really very simple. First we decide what we wish to see and draw up a list. Then we find out as far as possible, from books, friends and old Journals, where these plants can be found. Marking these recommended places on our maps, we then play "join the dots" to decide on our route. No precise timetable is attempted except for the car ferry and days immediately adjacent. The weather can obviously impose delays, or failure to find a sought-after plant require the Bruce principle.

Within our 20 day trip, we allowed 2 days for travel to and from Hull, and 6 days for travel/sightseeing across France, including a visit to a member's very interesting garden near Liège. This left 12 days in the Alps proper for which we had 9 walks planned. In the end, the weather was kind and we managed an extra hill day.

Occasionally we used our American system of telephoning a day ahead, but mostly we took "pot-luck" at finding accommodation. For peace of mind we had our camping equipment with us in Grisewald. As it turned out we only spent one night in her, and that out of choice on the Petit Mt. Cenis. Poll had found us an irresistible campsite hidden in a hollow among rock outcrops, with *Saponaria lutea* for company.

Incidentally, our old Land Rover, Grendel, has retired, after 17 years service, to the hills above Fort Augustus, where she transports a local keeper's wife. Grisewald has many refinements, a much better ride, and power steering with a tighter circle to make life much easier on the alpine passes, but can never replace Grendel. She only gave us one anxious moment, when a bracket holding the heat-shield over the turbo fractured, near the top of the Col de la Bonette, producing a terrible rattle until we wired it up.

And what of the plants – if 1987 was the year of the primula, this time it was the turn of the gentians. We have long had a soft spot for the verna gentians; the smaller members of the group are trough plants "par excellence", always looking healthy and willing to flower well. Only once have we seen an unworthy member of the group: in the Southern Adamello where *Gentiana verna* itself erred towards slaty blue-greys and meaty mauves. Even here, on limestone, the smaller *G. brachyphylla favratii* redeemed the family honour. This year, in many places at higher altitude, there was the brilliant blue of the acid ground counterpart: *G. brachyphylla brachyphylla*. As we approached a high pass one morning its flowers, dark and inconspicuous when closed, opened progressively to greet the sun rising above a ridge to the south until the short turf was bespangled with myriad pools of intense blue. Along with adjacent hectares of *Ranunculus glacialis*, this was undoubtedly one of the finest sights in the world of alpines: colourful, without overstepping the mark into public-park flamboyance, or the monotony of a field of oil-seed rape.

Spectacular they might have been, it was not these sheets of *G. brachyphylla* we were especially seeking, but some of their rarer relatives. In the limestone "Pre-Alps" near Grenoble is to be found *G. pumila delphinensis* with its narrow, sharply pointed, leaves. Normally as deep a blue as the sky viewed from high in the stratosphere, one plant was of purest Cambridge. The other two we sought belong to the non-rosetted alliance around *G. bavarica*. Replacing the latter in a very limited area of the Cottian Alps, *G. rostanii* prefers the same kind of moist peaty habitat, often near streams. It can easily be told by its longer leaves, which lack the characteristic yellow-green hue of *G. bavarica*. The foliage of *G. rostanii* incurves rather, giving a sturdy look to the basal growth. In contrast the slender flower stems, up to 15cm tall, look as if they need the support of the surrounding lush grasses. The flowers are typical verna in style but perhaps a little emaciated.

We came across *G. rostanii* by accident in two separate places, and so did not need to make a specific journey to seek it out. This gave us an extra day in hand. Conversely, we were directed to *G. terglouensis schleicheri* on a bare stony ridge at around 3000m. The type subspecies *G.t. terglouensis* is found in the Dolomites and points east; but *G.t. schleicheri* has a sparsely scattered distribution from the Maritime Alps northwards just into Switzerland. At first glance *G.t. schleicheri* is difficult to distinguish from the all-pervading masses of *G. brachyphylla*. The leaves of the former, instead of forming basal rosettes, crowd the short upright stems. They are abruptly pointed and somewhat incurved or imbricated. The stems may, in open gravel, be so closely packed as to produce the bun-shape beloved of alpine-house growers. In sparse grass, however, we found one or two

strongly stoloniferous specimens, forming loose patches. A second point of distinction is provided by the calyces. That of *G. brachyphylla* is narrow, parallel-sided, and scarcely winged; the calyx teeth are relatively long and slender-pointed. Incidentally, there are tall forms of *G. brachyphylla* which can be misleading until the characteristic calyx is noticed. *G.t. schleicheri* has a shorter broader calyx, often slightly bulged in the centre, and more noticeably angled. The teeth are separated by larger gaps, in clasping a thicker corolla tube. *G. terglouensis* itself is not strong growing with us: the French sub-species appears slightly more robust, and hopefully may be more amenable.

Ask a young child to draw a flower, and the chances are that they will produce a daisy. It's been said often before, but it's still true that this apparently simple flower-form has a basic appeal. The composite flower is of course only superficially simple: the actual combination of ray and disc florets can be highly complex in detail. Poll has always been a daisy fan, but I am a more recent convert, now much preferring them to that other highly evolved family – the orchids, with their weird and wonderful flowers (sorry Fred!). The American trip last year really tuned us in to the Asteraceae, there are so many good species in the Rockies. Thus we determined to take a second look at some of the European competition.

Top of our list was *Senecio halleri*, (Fig 52, p.346) a diminutive species with a tuft of white woolly almost entire leaves, about 4cm long. The 2-3cm orange flowers are borne singly (a synonym is *S. uniflorus*) on stems of up to 10cm but usually much less. We walked for eight hours in a glacial hanging valley to eventually find this stylish and beautiful composite in rocks below a refuge, amid children and the Guardien's goats! The day was not wasted, the turf where the glacier had retreated consisted mainly of *Salix reticulata*, enlivened by *Campanula cenisia, Petrocallis pyrenaica* and many more choice high alpines.

Not far away, in turf, grew *Senecio incanus*, its grey-white foliage much more deeply lobed, and with an inflorescence consisting of a dense flattened cluster or corymb, of smaller flowers. There were quite a number of obvious hybrids, with intermediate basal leaves and 2-3 flowers per head.

Much larger in scale than these senecios, but also with densely woolly leaves is *Berardia subacaulis*, an endemic of the French Alps. Farrer is rather dismissive, but we were sufficiently attracted by the photograph in Rasetti's "I Fiori Delle Alpi" to seek it out. The arresting sight of its silver grey rosettes, up to 30cm across, scattered along the crest of a limestone ridge at 2000m, made the effort worthwhile. Many of the larger plants carried a single, central, stemless thistle-flower of a delicate primrose yellow. Far from being inconspicuous, these heads around 5cm across complemented the thick, long-petiolate foliage admirably.

During Margaret and Henry Taylor's "tour de force" on the Pyrenees at the recent Stirling Discussion Weekend, we were pleasantly surprised to see several slides of composites, including a fine clump of *Doronicum clusii*. The propaganda must be working, they used to tease us about liking "comps". All the alpine doronicums have been tarred with the same brush: accused of coarseness in growth and flower. To date, we have only grown one in the garden, *D. columnae* with its long stemmed, heart-shaped leaves. Spreading gently, the foliage mat has remained below 10cm, and bears single large yolk-yellow daisies, on stems of 15-20cms. If your taste runs to squinny-flowered hummocks like *Androsace pyrenaica*, then you will probably not be attracted by this description, but I know which we prefer for garden decoration.

It could be that our Highland climate is sufficiently hard to keep this doronicum in character. The coarse-growing myth probably started, like so many other alpine myths, in the south where so many of the books are written. This week our night temperatures have been 5-6°C, whereas down there it was 12-14°C; daytime 16-18°C for us, 22-24°C for the south. These differences are typical of spring and autumn, and must have quite an effect on alpine plant growth.

In the French Alps the species found at high altitude is *D. grandiflorum*, whose leaves are usually ovate. The very large heads, up to 7cm in diameter, were generally a more orangy yellow than our *D. columnae*. Seedlings were collected and we will see if this spectacular plant behaves as well as our established species. We only saw it above 2500m, so it has as strong a claim on being a high alpine as virtually any androsace.

Aster bellidiastrum (or *Bellidiastrum michelii*) has been described as an enlarged lawn daisy. I still have fond memories of making daisy chains as a young child on my grandmother's lawn; perhaps because of this I found the sight of *A. bellidiastrum* growing as a crevice plant on the Bonette very appealing. The solitary flowers were larger, for this plant size (c 12cm), than many exotic composites, and we thought the combination of cream disc and white rays very restful. It could be very pretty grown with acaulis gentians.

And gastronomie? We arrived back at our hotel rather late after our 10 hour marathon, elated at finding the superb *Senecio halleri*, and had just stripped to shower when the phone rang. Would we please present ourselves in the dining-room forthwith as our soufflés were spoiling! It could only happen in France!

One Kite Has Landed

In our column for the June 1986 Journal, we made the suggestion that

members visiting the Pyrenees keep an eye open, in suitable territory, for a meeting between *Saxifraga media* and *S. aretioides*. Their natural hybrid *S. x luteo-purpurea* is a very important early parent of our garden hybrid kabschias, but had been lost sight of in the wild. We are very happy to report that, acting on information supplied by Brian Arundel of the Saxifrage Group, Margaret and Henry Taylor did the leg-work, and tracked down the rather obscure references. As their slides at Stirling showed clearly, these two species are still acting somewhat promiscuously in the Central Pyrenees.

And Another is Launched

Still in the Pyrenees, another of the Taylors' slides showed a compact, almost stemless pink daisy, identified as *Erigeron frigidus*. Other writers have reported finding this species in the same general area around Nuria. However, in Flora Europaea, G. Halliday writes of this: "A very distinct species (from the Sierra Nevada), records from the Pyrenees probably refer to 14". 14 is *E. uniflorus*, but Henry's slide did not look like the latter to us. *E. frigidus* is said to be more densely caespitose, much more hairy, and have deep lilac ray florets. (The pink on the slide could be Kodachrome, *Aster alpinus* has never photographed properly for us.)

Another possibility is *Erigeron alpinus*. A dwarf, narrow leaved form of this last is found in the Pyrenees. This species differs from the preceding two in having trimorphic florets, i.e. three different kinds. There are thread-like female florets between the disc and ray-florets. Flora Europaea is, I believe, under revision, so this could be an ideal time to set the record straight.

Trouble With Troughs

Despite having a great many troughs in our garden, I have always felt that they were a strange in-between type of alpine gardening. Is a trough a large pot, or a small raised bed? It is certainly true that as far as care is concerned they fall squarely in between the two: requiring more regular attention than the open garden, but less than a collection of alpines in pots.

Our trough collection evolved quite simply because of a perceived problem with tree roots. In the sheltered hollow below the house we had a sunny area adjacent to the north boundary which appeared suitable for alpine beds. However our first trial bed became infested, in less than a year, with roots from a row of lime trees outside our fence, and outwith our control. The majority of alpines grew very poorly. We still have this bed, called the "ramp", after a path diagonally down through it, but now it is used for plants tolerant of poor dry soil. For the rest of the area we stripped most of the top-soil, spread gravel, and set up groups of troughs. The

theory was that the lime roots would be unable to cross the air-gap between ground and trough base.

No form of alpine gardening is without its drawbacks, and those of troughs soon became evident to us. If the tree-roots cannot get in, neither can alpine roots escape. Thus restricted, they rapidly exhaust the compost of both moisture and nutrients. The latter are replenished by regular liquid feeding during the growing season. I used to walk backwards and forwards with cans, a laborious procedure taking a couple of hours to get around all our troughs. Now I borrow Poll's dilutor which does the job in a fraction of the time.

When our son, Sean, came to look after the garden during our absence in the Alps, he was left a set of written instructions. These included a request to water the troughs every 4–5 days unless there was substantial rainfall. In a normal summer this is quite sufficient but this July was exceptionally hot! We arrived back home at around 8.30pm having driven all the way from Hull, to discover trough plants screaming for water. I had to get out the hose-reel and spent the next two hours giving the troughs a thorough soaking. It was a still, warm evening, the midges were ferocious, and my comments to Sean totally unprintable! (If anyone would like a 3–4 week "holiday" by Loch Ness next July in exchange for watering and dog-sitting duties, please apply to . . . . .)

Now that we have had time to take stock, it is quite clear that the way we had planted many of our troughs had compounded the watering problem. In an effort to make the troughs look less like containers, we had mounded them up in the centre and allowed the top-dressing to spill slightly across the top of the trough walls (Diagram 1). We should have realised that this makes water more liable to run off instead of soaking into the compost. This is exactly opposite to the terraces we have expended so much energy constructing all over the garden. (see Column January 1988). In the same edition, we commented on the moss problem on some types of rock in troughs here. The unreconstructed porous outcrops were so bad after the past wet winter that we had to resort to chemical treatment with Algofen. After a trial on one trough containing only replaceable plants, we found no noticeable damage, and proceeded to treat the others. The moss was indeed killed, but not of course removed. The dead moss formed a layer which, after a dry spell, shed water like a thatched roof. It was necessary to pre-wet the moss, wait for some time for the water to soak right through its carpet then add more slowly. I had pointed this out to Sean, but it takes experience to know whether the water is really penetrating right into the trough.

Fortunately we already had the solution to this problem in the deeper top-dressings and flatter outcrops on our more recent troughs.

(Diagram 2). Any water applied to these fills the interstices in the gravel which lies below the rim. From here it has no choice but to soak downwards into the bulk of the compost. Thus moss suppression and ease of watering are achieved in one go. Adopting such a style of outcrop does make our troughs look more like containers; but in this garden the needs of plants always come before purely aesthetic considerations. In any case, the rim soon grows lichen, and plants spread across it, softening the outline.

DIAGRAM 1

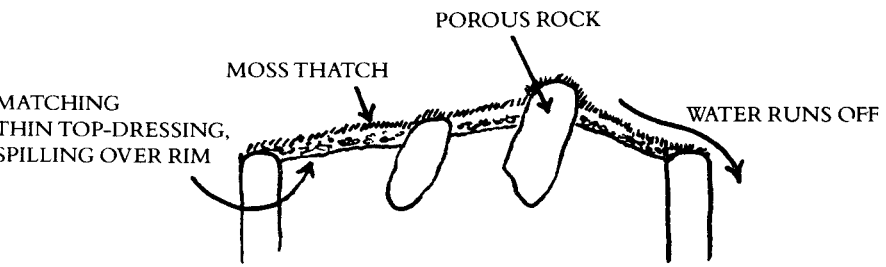
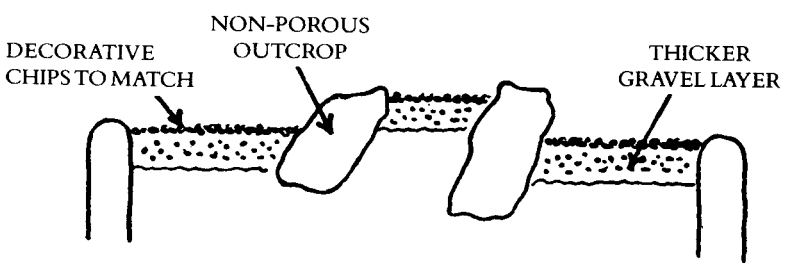


DIAGRAM 2



A Tale of Scorch and Striga

Now that it is possible to view our troughs dispassionately again, it is actually very instructive to note how plants with divers growth habits coped with the enforced drought. Some, such as most of the auricula primulas, simply flagged and recovered within an hour or two of the soaking mentioned above. Ramondas and haberleas were much more shrivelled, and took several days to plump up again; but they lost no foliage. By contrast a number of creeping shrubs, *Salix serpyllifolia* and *Arctous alpina* for example, dropped their leaves prematurely. The former put out a new lot in August. At this time, other delicate growing herbs, like *Campanula excisa*, which had disappeared altogether in July, popped up again and burst into a second flowering. Amongst the rare total losses were some selected dark coloured forms of *Primula farinosa*.

As things stand at present (September), by far the most lasting damage has been to cushions, especially some kabschia saxifrages. The south sides of a fair number are disfigured by ugly brown patches of dead rosettes. This is often called "scorch"; but why and how precisely does it occur? I was pondering this problem when I came across an article in the New Scientist on parasitic plants.

The family Scrophulariaceae contains many genera that are, to some degree at least, parasitic. Walkers in Scotland and the Alps will be familiar with Pedicularis species, while in the Rockies it would be hard to miss the flamboyant Castillejas – Indian paintbrushes of many colours. One needs to go to the wild to see these at their best. They can be cultivated on a suitable host but rarely with lasting success. While we gardeners in the luxury of the affluent west may indulge ourselves by tempting a parasite to accept cultivation, for farmers, especially in the Third World, it is stopping parasitic weeds, not starting them, that is the problem. Here in Europe, Rhinanthus used to be a serious pest of cornfields but is at present under control. In Africa however an attack of Striga or "Witchweed" can still be disastrous for subsistence agriculture: reducing the yield of sorghum or maize by up to 90%! Germinating near a crop plant, the Striga plumbs itself into the host's vascular system. Then in order to steal water and nutrients, the parasite must exert a greater pull on the sap than that of the victim. It does this by a high transpiration rate.

A team from University College, London, working in the Sudan, investigated the use of anti-transpirant sprays, like those helpful when "shuffling" evergreens. Not only did the spray block the theft of nutrients, it killed the Striga within a few hours! It turned out that the parasites were using the high evaporation rate of water from their leaves to keep them cool. Deprived of this they scorched and died.

To see the relevance to brown patches "burnt" onto kabschia saxifrages we have to consider the energy budget of a plant leaf:

Energy from sunlight absorbed by leaf	=	Energy lost by re-radiation	+	Energy lost by convection of heat	+	Energy lost by transpiration of water

If the incoming energy is greater than the combined losses then the leaf's temperature will rise until balance is restored. It is this rise which produces the damage we call "scorch"

Now, plants have to take in CO_2 which they use as a feedstock to photosynthesise carbohydrates. CO_2 is a dense gas and tends to sink to the lower part of the atmosphere, so proportionally there is less of it available at 2-3000m than near sea level. Alpine plants therefore require rather more

stomata in their leaf surfaces to allow in sufficient CO_2, compared with lowland equivalents. In turn more stomata allow out more water vapour and lead to a higher transpiration rate. This does not matter so long as adequate water is available to the roots.

Here the argument comes full circle: the cushion shape adopted by many alpines is a very poor one for heat transfer, it serves to conserve heat not lose it. (If I wanted a plant with a high heat transfer, it would need small, well spaced, lobed leaves, like the fins on a motorbike cylinder, with silvered surfaces to reflect incoming sunlight. Come to think of it, I've just designed Fred's favourite Sagebrush!). Removed to our lowland gardens, cushions have to rely on their high transpiration rate to keep themselves cool, just like the Striga. Subjected to a long northern summer day,* with no wind to assist convection cooling, it is hardly surprising that they overheat. Watering may not be a remedy; the rising leaf temperature can cause the stomata to close anyway and a vicious circle of heating kills the leaf. Shading is the only answer, but we, personally, cannot leave this in place continuously as they do in America, because the cushions would grow lax and out of character. Had we been at home, slatted tomato boxes would have been put out.

One final point, it was noticeable that the worst afflicted kabschias were the green ones such as *Saxifraga sancta, S. x semmleri*, and another we have as *S. "pseudo-kotschyi"*. The *S. burserana* forms, even a recently transplanted 15cm wide mat of "Gloria", were resistant, perhaps because their more silvery leaves reflect a larger proportion of light and heat.

*In spite of the surrounding hills, in midsummer sunrise here is at 4.30am, sunset 9pm, giving 16½ hours of possible sunshine.

Bulbs in Frames

DAVID MOWLE

GROWING bulbs with rock plants is a natural progression from growing rock plants on their own. The dwarfer bulbs generally have vertical foliage which contrasts well with the low growing or cushion form of most rock plants. The flowers can either augment the main display or provide useful colour in autumn or early winter when the rock plant flowers run thin. The readily available bulbs from crocus, iris, narcissus, scilla and tulip soon add a new dimension to our gardening and the quest for more unusual examples begins in earnest.

Growing bulbs from the seed offered in our seed exchanges is an attractive way to gain new species, often in sufficient quantity to allow the exchange of small bulbils with your friends. From seedlings up to flowering size takes about four years and can be carried out in pots or in beds. Success will be helped if some protection can be given. An alpine house can, of course, be used but a garden frame uses less space, is less expensive and, particularly if it is raised to knee height or above to give easy access, is excellent for the job.

Pots in a Frame

Sowing bulb seed in pots in a frame follows the usual rock plant techniques. A compost made up from 3 parts by volume of John Innes No 2, 2 parts of coarse grit and 1 part of leafmould or peat will grow nearly all bulbs in pots from seedling to maturity. Plastic or clay pots can be used but mixing the two makes it tricky to gauge the watering as plastic pots need less watering than clay and bulbs do not enjoy over-wet composts. Clay pots will need to be plunged up to the rims in sand and this reduces the number of pots that can be accommodated in the frame. The ideal solution is to use 7cm square plastic pots and pack them tightly together on a 5cm deep (2") bed of sand with the tops flush with the top of the supporting walls of the frame. Round plastic pots can be similarly packed together but with a slight waste of space between them which encourages the slugs and snails!

Seed should be sown as soon as it is available and germination may occur from October to May, with the largest number appearing in April and May. Use the frame lights to protect the grass-like seedleaves from harsh winds and beating rain but keep the lights well open in milder weather. If the sun threatens to scorch them, net shading will keep them healthy and a little half strength liquid feed will encourage them to form their first bulbs or corms.

With care the seedleaves will still be growing when September comes and decisions must be taken about what methods are going to be used to grow the bulbs on. The bulbs from now on will nearly all appreciate drier summer conditions than during their first year of growth so it will be easier if they are separated from future seedlings.

If growing in pots is to continue, potting into fresh compost each September will speed their growth to flowering. Don't try to find the tiny bulbs among the compost in the seed pot, just turn out the whole potful into a larger pot already partly filled with compost. Often the tiny bulbs will be seen right at the bottom of the seedpot compost and the need to use a deeper pot will then be obvious. Once the year-old bulbs are settled into their larger pots and plunged once again in the sand of the frame their management becomes the same as that of bulbs planted out in a frame, which is described below.

The Bulb Frame

After a first season of growth from seed there is little advantage in continuing to grow bulbs in pots and the raised bulb frame comes into its own. The height of the frame not only makes access for cultivation easy but, combined with the use of the glass to keep off summer rain, ensures that the bulbs have a fairly dry, warm resting period in which to form the flower buds for the following season. Very few species need the dry baking which is meted out to potted bulbs in the alpine house and a larger number can grow very well in comparatively moist situations. The big advantage of growing bulbs planted out in a bulb frame is that the conditions suit a very wide range of species and the growing of bulbs whose exact preferences are not known becomes a practical proposition.

If a choice of sites is available, choose one in full sun where the natural drainage will carry away the moisture from the bottom of the frame. A rich, fertile soil is needed in the frame so aim at a filling made up of one part of topsoil, one part of leafmould or composted vegetable material and two parts of a coarse horticultural grit. Since some bulbs, notably tulips, will burrow down to considerable depths, half a metre (2 feet) of this compost is not too much.

A glass-to-ground frame is preferable. Aluminium will need less maintenance than steel or wood but will be more expensive. Look very carefully at the way in which the top lights fit onto the frame and where the rain water is expected to go. Even some expensive and reputable frames allow the water to finish up inside which is worse than useless! If you are going to build your own design it is useful to have the top extend several inches beyond the sides, casting the rain water well clear. It will then be possible to dispense with the sides for most of the year so that the

good ventilation will reduce the chances of neck-rot to a minimum. If this top can be removed and replaced easily (and securely!) rain can do some of the watering for you but if, as I hope, you choose the bulbs to cover a long flowering season, you will find that the top light will be left increasingly in position to protect the flowers and the watering needs will be supplied from a carefully directed watering can or hosepipe.

It is not desirable to mix the bulb plantings too freely. The soil around the dwarf Spanish narcissi needs to be moist from early August and this suits most crocuses, too. Many autumn flowering bulbs are stimulated into flower by a slight increase in moisture during September whereas the Juno irises prefer not to be watered until October. Careful plantings along the frame can make all this possible in one frame.

While turning out the potfuls of seedlings into the frame and planting your bulbs do remember to label them well. If the labels are pushed right down into the soil they will not be unsightly and can be rediscovered when needed. It is also a good idea to introduce a few groups of small stones to break up the flatness of the bed surface and use differing foliage height to add interest. Has anyone tried to introduce any of the small, spiny Turkish plants to a bulb frame? The regimented plantings preferred in the botanists' bulb frames are not necessarily the plantings preferred in the small garden where our aim is to show to best advantage the beauty of our favourite bulbs.

One of the first problems which will arise from the bulbs enjoying the good conditions in the frame is that a good crop of seed will develop. With fritillaries the seedheads are attractive, varying in colour and shape. With crocuses the pods sometimes barely appear above the ground. In all cases it is essential to collect the seeds before they scatter or in a very few years the frame will become crowded out with the most vigorous species. Give this point careful thought before introducing any little known alliums into your collection. The gathered seed will be very welcome by the seed exchange.

The second problem can be avoided with a little planning. The bulbs should grow vigorously but at different rates. If a clump grows well it can be split up, planting a few back into the frame and trying the surplus in the open garden or offering them to a friend. Removing a few bulbs when they are dormant is infuriatingly difficult and usually results in incomplete recovery of the bulb in question together with a selection of specimens from the surrounding plantings. Gathering is rather easier if attempted just as the foliage starts to die back, though the bulbs will not be as strong. The appearance the following year usually suggests that the planting has been thoroughly stirred. You may decide that it is better to plant the bulbs from the start in plastic lattice pots sunk below the surface of the soil. This technique works well except for a few species which increase by stolons. Some crocuses and tulips are in this category.

And so to the final advice. Bulbs really do not like too wet a compost. Once watered in the autumn to start growth, the great bulk of soil in the frame in contact with the ground is most unlikely to become too dry. Keep the frame lights on to deflect the rain and with enough ventilation to dry the surface of the soil. The autumn flowers need only this slight moisture. When the frosts come, close up the frame tightly.

Once growth is seen in the new year the moisture levels can be slowly allowed to rise and reach a maximum with the spring flowers. Now is the time for dilute liquid feeds, continuing until the leaves begin to yellow. Aim now to keep moisture off the bed until August, but always with good ventilation.

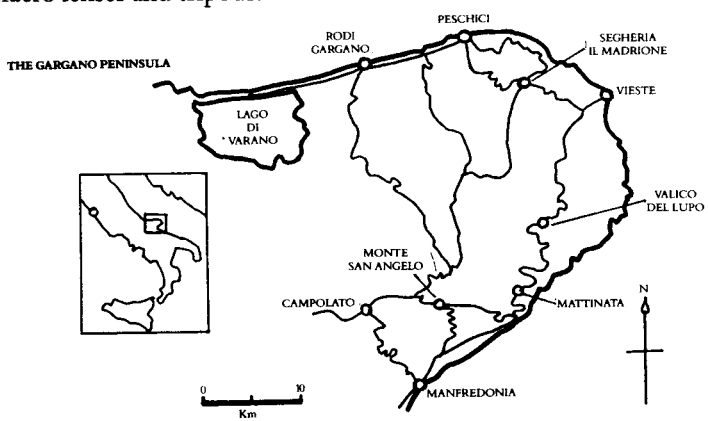
With this simple routine the bulb frame will bring great pleasure. I'm sure that you will find yourself seeking out new species to link the flowering seasons and returning more and more often to enjoy the flowers in this small part of your garden.

Narcissus triandrus albus. *Edith Clark*

The Gargano

CHRIS AND MARIE NORTH

THE Gargano is a hilly limestone peninsula some 50 x 35 km which reaches out into the Adriatic Sea on the east coast of Italy opposite to Rome (see map). It is sometimes referred to as the 'Spur of Italy'. Around its coasts there are seaside resorts which are popular with Italian and German visitors but hardly known by British tourists. From a plant enthusiast's point of view it is a Mecca for orchid hunters. Some 61 species occur there and often in larger numbers than in any other part of Europe. During our short stay in the region we met up with Swiss, German and Dutch travellers on their knees paying homage to the orchids with their macro lenses and tripods.



We took with us an excellent publication in German entitled 'Die Orchideenflora des Gargano' (Lorenz and Gembert, 1987) which gives distribution maps and precise sitings for all the species and varieties of orchid encountered there. However, one has to get used to the 'revised' nomenclature by which, for example, *Ophrys fuciflora* = *O. holoserica* and *Ophrys speculum* = *O. vernixia*. The entire flora of the district is included in Pignatti's 'Flora d'Italia' (1982) and a series of articles on plants of the region are dealt with by Fenaroli (1966–75) in the Italian botanical journal Webbia.

Since we were unable to find any tour operator who organised spring holidays in the region we made our own arrangements by flying to Rome on the 5th of April and then on to Bari where we had a hired car waiting for us and we took a chance with the accommodation. We were accompanied by Marie's sister Jean Bieri who, after we had given her a

short course in orchid recognition, turned out to be a 'natural' and was nearly always the first to spot an endemic. As a start we drove to Manfredonia on the coast in the south of the region. This town was founded in the thirteenth century by Manfred, the king of Sicily. Today it is the only industrialised town of the region and a moderately important port. It has an interesting castle which was, unfortunately, shut for reparations when we were there.

Our first sortie was to the small hill town of Monte San Angelo north east of Manfredonia. It is an important place of pilgrimage with an interesting baroque church on the site where the Angel Gabriel is said to have occurred in a vision. It also has rows of interesting medieval houses facing south, and probably built originally as facades to caves in the limestone. We went down the steep hill to the valley on the north side and noted that the rocks were covered in places with aubrieta, probably *Aubrieta columnae*. It was accompanied by the familiar *Alyssum saxatile*, a white arabis, *Saxifraga granulata* and *Doronicum orientale*. Lower down in a grassy area we came upon:

Anemone hortensis
Arabis vernalis
Bellis sylvestris
Helianthemum appeninum
Helianthemum jonium
Hermodactylis tuberosus
Lamium garganicum
Saxifraga granulata
Viola aethnensis

We are not absolutely certain about the identification of the bellis which was considerably larger than our own common daisy. Although *B. sylvestris* generally flowers in the autumn, Pignatti (1982) states that some forms flower in spring and that hybrids *Bellis sylvestris x perennis* are relatively common. *Helianthemum jonium* is an endemic with heads of small, hanging yellow flowers that never open wide. Hermodactylis, the green iris, grew in profusion and was beginning to go over its peak flowering period. The lamium was aptly in its homeland. It grows well in our garden from plants collected in Corfu and has showy pink flowers but gives off a rank smell in warm weather. The real prize amongst this group was the Mount Etna pansy *Viola aethnensis* which is endemic to Puglia and eastern Sicily. It resembles our own *Viola lutea* but the lower petal of the flower has a 'nipped in' appearance and the spur is especially long. Both yellow and purple-flowered forms occur in about equal proportions and occasionally some are bicoloured.

Amongst the above species there were, of course, several orchids:

Ophrys bombyliflora
Ophrys fusca
Ophrys lutea
Ophrys sphegodes atrata
Orchis italica
Orchis papilionacea

On our second day we made our way from Manfredonia to the seaside town of Vieste on the east of the peninsula, using route 89 rather than the twisting coast road. After some 15 km the road rises steeply past Mattinata to a height of some 300m. The area by the town is rather dry with olive and almond orchards and there are some spectacular bushes, or rather small trees, of the interesting *Euphorbia dendroides*. This uncommon species resembles some of the euphorbias seen in the Canaries and the bracts around the inflorescences turn bright orange or yellow after flowering. Higher up the countryside becomes greener and in a field by the roadside we saw an extraordinary profusion of orchids:

Barlia robertiana
Aceras anthropophorum
Ophrys arachnitiformis
Ophrys bertolonii
Ophrys bertoloniiformis
Ophrys garganica
Ophrys lutea ssp melena
Orchis italica
Orchis quadripunctata

Ophrys arachnitiformis is an enigmatic species which is rather variable and thought by some to arise as a hybrid between *O. sphegodes* and *O. fuciflora*. *Ophrys bertoloniiformis* is another questionable species and of limited distribution, sometimes claimed as a hybrid between *O. bertolonii* and *O. sphegodes atrata*. *Ophrys garganica* (see fig 51, p.345) is a Gargano endemic and quite common in the area. It is often classed as a subspecies of *O. sphegodes* and can easily be confused with the subspecies *O.s. atrata* which is also common here. However, it has a rather rounded lip without side 'bumps' and fewer hairs. The form of *Ophrys lutea* mentioned above is rather uncommon and has a lip which is entirely brown or brown with a very narrow yellow margin.

With the orchids there were hundreds of *Ranunculus millefoliatus*, which is a buttercup that has carrot-like leaves and small tubers like our lesser celandine, *Psoralea bituminosa* and a red-flowered anthyllis. This was probably a sub-species of *Anthyllis vulneraria* but the group is difficult to identify with certainty though it is very well dealt with by Pignatti (1982). There were a number of shrubs dotted around including; *Coronilla emerus, Pistacia lentiscus, Quercus coccineus, Rosmarinus officinalis* and *Spartium junceum*. The coronilla, sometimes called the scorpion senna, was especially noticeable covered with its yellow flowers.

Further on we came to woodland near a place called Valico del Lupo. At times it comprised mainly holly oak, but in parts had mixed deciduous trees including acers, hornbeam and the hop hornbeam *Ostrya carpinifolia*. In places the ground under the trees was carpeted with *Anemone appenina* with about equal numbers of mauve and white flowered forms. At times we were not certain whether it was, in fact, that species, for many plants had broader and fewer petals and could well have been the wood anemone *A. nemorosa*, which also grows in the region and often has mauve flowers. To confuse matters further, there were also plants of *Anemone hortensis*.

These anemones were accompanied by *Doronicum orientale* and a cyclamen which showed no signs of flowering and may well have been *C. hederifolium*. There were scattered plants of *Daphne laureola* and *Ruscus aculeatus*. In one area the ground was carpeted with *Artistolochia pallida* and *Lamium bifidum*. The latter is a small dead nettle that sometimes has variegated leaves and with white flowers in which the 'hood' has two projections, like fingers making the 'V' sign. In places there were leaves of an autumn-flowering crocus – probably *Crocus longiflorus* or *Crocus thomasii*.

By the roadside here there were attractive bushes of the sweet-scented *Daphne oleoides* with lilac flowers that fade to brown as they age. Other shrubs included *Euphorbia characias, Spartium junceum* and *Juniperus communis*. We also noted *Anchusa arvensis* and an ornithogalum we were unable to identify. Approaching Vieste the road verges were lined with a showy cerinthe with bright yellow flowers, but no dark base to the corolla. We have been unable to name this with certainty but it is probably a form of *Cerinthe major*. With the cerinthe there was a flax very like the cultivated variety. It had pale blue flowers veined with darker blue. It was *Linum bienne* which has, in fact, been cultivated at times as a fibre crop.

We stayed three days at a pensione near Vieste and one of the most interesting trips we made from there was to travel north westwards along route 89 until we reached a crossroads at a place called Segheria il Madrione. From here we turned south westwards to Monte San Angelo which took us through the Foresta Umbra. The edges of this forest are of mixed deciduous trees, much like what we had seen at Valico del Lupo, but towards the centre at a height of some 500m these give way to magnificent beech trees. The light filtering through the new leaves produced a wonderful effect and the ground was carpeted in places with flowers. The main species were *Anemone appenina* and *Dentaria bulbifera*. The latter had nearly white flowers and some leaves with 3, instead of the usual 5, leaflets. It was probably the variety which has been described as var. *garganica*. Other plants we saw here included:

Alliaria petiolata
Arum italicum
Asperula odorata
Cyclamen repandum
Doronicum orientale
Euphorbia biumbellata
Ranunculus ficaria
Sanicula europaea

Several of these are familiar plants of northern Europe including jack-by-the-hedge, woodruff and lesser celandine. In the Foresta Umbra there are several picnic sites, nature trails and a small zoo of native animals but the forest is large and one can easily escape from company.

Continuing south-westwards the beech trees again gave way to mixed

woodland and amongst the plants we had noted earlier we were delighted to see *Narcissus poeticus* growing under the trees. In this situation they were most impressive being more spaced out than the clumps we usually see at home. They looked very white and the scent was magnificent. Before returning we saw many plants of *Orchis morio* growing in a field and a fine group of *Orchis pauciflora* by the roadside.

Back at Vieste again we made a sortie round the coast road northwards to Peschici. The roadside was colourful with the refined dandelion-like *Urospermum dalechampii*, and a somewhat similar plant but with heads of pink flowers that hang down when in bud. This is *Crepis rubra*, a species of limited distribution which puts one in mind of the Greek pink dandelion *Crepis incana*, but it has less indented leaves. With these two species there was much borage and some plants of the tassel hyacinth *Leopoldia comosa*. In a field with scattered bushes of spartium and hawthorn in flower the ground was pink with plants of *Orchis papilionacea* dotted with *Orchis morio* and *Orchis italica*. A few kilometres north of Vieste the coastline has many holiday camp sites which were empty in April. At places where the road passed by sea cliffs we noted that there were numerous bushes of the rather uncommon, white-flowered *Cistus clusii* mixed in with *Cistus monspeliensis*.

After Peschici we travelled westwards along the coast road towards Rodi Garganico. On the roadside by light pine woods there was a good show from the scented bushes of Spanish broom *Spartium junceum* and a number of small trees of *Pyrus amygdaliformis* – the almond pear with narrow leaves, hawthorn-like white flowers and small, nearly round, bitter little pears. It is closely allied to the willow-leaved pear *P. salicifolia* of our gardens. In the grass there were plants of *Ophrys garganica* and the pyramidal orchid *Anacamptis pyramidalis*. Further on, past Rodi Gargano and along the plant-colonised sandspit that separates the large lake Lago di Varano from the sea there were extensive eucalyptus plantations. These plants are something of a nuisance in the Mediterranean as they tend to seed freely and kill much of the native flora. As we had expected little grew under the eucalyptus, but there were plants of *Smilax aspera, Asparagus maritimus* and madder *Rubia peregrina*. Since the area did not hold much floral promise, we went on to Monte San Angelo and Manfredonia via Ischitella. On the way we saw *Orchis purpurea* and a tall growing geranium which we later identified as a form of the bloody cranesbill *Geranium sanguineum* growing amongst tree heather *Erica arborea*.

We also drove north out of Manfredonia up a winding road to join the 272 route at Campolato. High up on the rock face grew a white-flowered onosma, which we finally decided was a form of *Onosma echioides* which normally has light yellow flowers. By the roadside was the miniature

asphodel *Asphodelus tenuifolius* which is like a small version of the common *A. fistulosus*. It has a limited distribution in Puglia and Sicily but is also found in the Almeria province of Spain. Higher up there were fields with hundreds of *Asphodeline lutea* and *Iris pseudopumila*. This is endemic to the Gargano and Sicily and resembles *Iris chamaeiris*. It occurs in both yellow and mauve flowered forms. In one place it was growing with *Iris revoluta*, endemic to the Gargano and slightly larger with more rounded purple flowers. It belongs to the *I. germanica* group and is distinguished by having a long perianth tube (twice the length of the ovary). These irises were accompanied by the miniscule *Ophrys bombyliflora*.

We had come to the end of our short visit to the Gargano and in retrospect we feel that we should have planned to stay longer. The area is not merely a 'Mecca' for orchid enthusiasts, there are many other interesting plants and it is charming countryside. However, it can be a relatively expensive area to visit with no really cheap flights and with car hire rates some of the highest in the world. Nevertheless, we feel sure that any plant enthusiast who goes there in spring will feel that the trip has been well worthwhile.

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Flowers of the Gargano Peninsula (p344)

1. Ophrys garganica
2. Daphne sericea
3. Ranunculus millefoliatus
4. Ophrys bertolonii
5. Viola aethnensis
6. Ophrys lutea melena
7. Lamium bifidum
8. Ophrys sphegodes atrata

FLOWERS OF THE GARGANO 1989

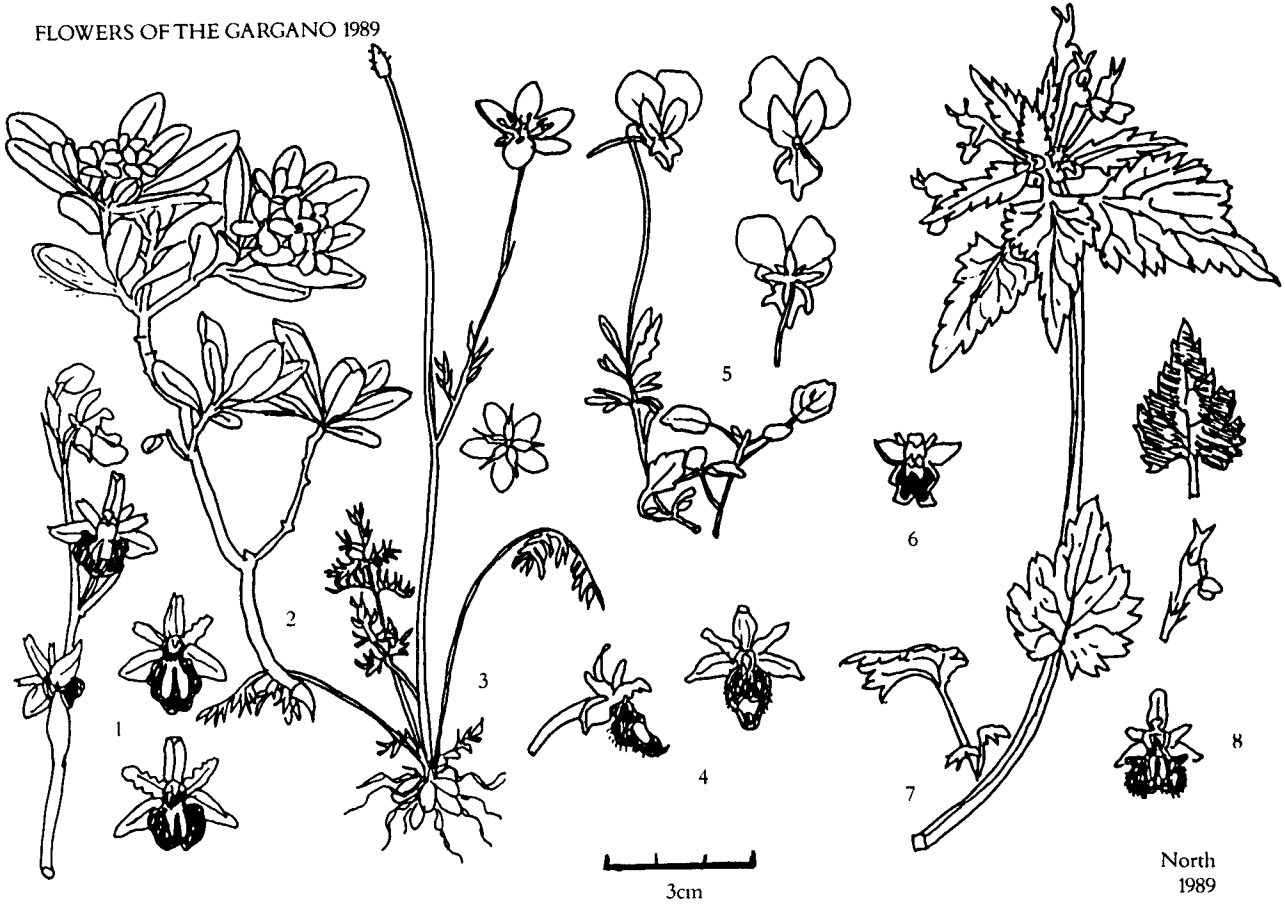


Fig 51 *Ophrys garganica* Gargano, Italy (see p340) C. North

Fig 52 *Senecio halleri* Schachen, Austria (see pp327,357) Catherine Buchanan

Fig 53 *Lilium carniolicum jankae* Schachen, Austria (see p357) Catherine Buchanan

A House for Alpines

IAN AND MARGARET YOUNG

THE term 'alpine house' is commonly used in The Rock Garden, but what is an alpine house? The traditional picture of an alpine house is a low spanned glasshouse, with a hardwood frame having windows along both sides and roof, sitting on a brick base. Inside, a deep plunge is constructed of brick so the top is level with the glass. While this type of house can be very attractive to look at, how many of us can afford such a structure and is it really essential to grow alpines?

We will describe here how we have adapted regular aluminium greenhouses, readily available at garden centres, to create an environment agreeable to most alpine plants.

The first essential is to build a good, solid, level foundation on to which the aluminium structure can be secured; concrete blocks are most suitable. Many greenhouses were blown away in the gales experienced last spring due to insufficient anchorage.

For the staging we use the type of steel angle iron with holes along its length, like a giant Meccano set. This is easily erected with legs set at about one metre spacings. Angled tie bars from the top to the legs make a strong and steady structure to carry the weight of the sand plunge and the pots of plants. It is worth taking some care when building the staging as we reckon that a 2.5m x 60cm stage complete with 10cm of sand and pots of plants can weigh upwards of half a tonne. Across the top of the steel frame we attach a strong rigid wire mesh, onto which we lay polythene sheet, then screw on the sides, to contain the sand of the plunge, to the angle. We use thick rigid plastic for the sides, but wood or thin metal sheet may also be used. Under each leg we compact the ground well and place a brick to prevent sinking. As the sides of this alpine house are all glass, allowing good light penetration, we also build a plunge bed under the staging. This way, with a U-shaped construction, along both sides and across the end, we can get 11m of plunge, 60cm wide, in a 2.4 x 1.8m (8′ x 6′) greenhouse. We find that a ten centimetre plunge is sufficient for the upper level. A much deeper one can be made below, if necessary, by the use of edging to increase the depth. About one tonne of builder's coarse sand will be needed for a 2.4 x 1.8m house.

Ventilation is perhaps the most important factor when growing alpines under glass and we achieve this in the summer by removing a row of panes from the sides. This is fairly quick and simple due to the way the 60cm

square glass panes are held in place by easily removable spring clips. The central panes from the end of the house may also be taken out if you like. It would be unwise, however, merely to open up the house in this way and leave the sides completely uncovered, for birds or cats will surely enter and horrible damage may be done! Attach some small gauge chicken wire across the open areas, and fashion a 'door' of fairly heavy netting, the sort sold for shading or windbreaks, so that the door may be left open with impunity. This leaves little more than just the roof glazed so that we can control the watering of the plants. The plants are not liable to be roasted, even in strong sunshine, because of the free passage of air throughout the structure. In addition to this we have installed small electric fans at the end of each stage to circulate the air on either still or hot days. In one of our houses we have an electric extraction fan fitted in the end opposite the door, mostly used in winter. This was fitted by removing a pane of glass in the end panel and replacing it with a perspex sheet with a hole cut out for the fan, it being rather easier to cut a hole in perspex than glass.

We find the cushion plants and high alpines particularly enjoy this forced ventilation and so we place them nearest the fans. The danger of formation of rot or mould in plants is averted by the flow of air from the fans.

The fans, all connected to thermostatic and timer controls, can readily be programmed to cope with occasional use when the house is open (roughly from late April to mid September) or more frequent use during winter, when the glasses in the sides are re-fitted and good movement of air is even more vital. It is important not to force freezing air over the plants, and a thermostatic device is the easiest way to prevent this. Our extraction fan is set to switch off when the outside temperature drops to 2°C and similarly the inside fans switch off when the inside temperature drops below 2°C, they automatically switch back on as soon as the temperature rises above this level again.

We find that after a very hot day we can mist the plants with water to refresh them, knowing that the breeze from the fans will quickly dry out their foliage before any damage can be done.

Care must be taken to regulate the watering of plants and plunge as they can dry out more quickly than normal because of the air flow. Under these conditions we do not have to shade the plants so much from sunlight as there is not the same build up of heat, so they are less likely to be drawn. Many androsaces, saxifrages and other such cushion plants need all the sun our part of Scotland (Aberdeen) can provide to ripen the growth and stimulate flowering for the following spring; by using the fans to prevent excessive heat build up we can give them all the available sunshine.

Almost everything used in the construction of the staging, all the fans, timers and so on have been reclaimed from scrap materials; e.g. the fans

are from old refrigeration units, the thermostats and timers from central heating systems. These items can be bought new, of course, should you wish, but if you are at all cost-conscious it is worth making a visit to a friendly local scrap merchant, who may well be able to supply anything needed for a more modest outlay.

The running costs of the electric fittings are equally modest; four or so small fans may be used for about the same price as burning a 100 watt lightbulb.

We need hardly add that every care should be taken when dealing with electricity, and reclaimed components should be tested before use. We have all the power to our alpine houses protected by a built-in circuit-breaker at source. We recommend this, and that anyone not experienced with electrical work should employ an electrician to install power supply, fittings and lights for you. A few pounds saved is little consolation in hospital, or to your grieving family!

Once the house is completed, there is the pleasant business of filling it with plants. The upper staging will hold cushion plants, choice silver or hairy-foliaged specimens and all those little gems that are so hard on the eyes and back to admire in the ground or in a low frame! Other plants such as *Primula allionii* and *P. marginata* are placed on the upper level while in flower and moved to the lower level once their period of maximum growth has passed. Care must be taken to ensure that plants are not put in the lower plunge too soon or the reduced light will cause them to grow loose or be pulled. Similarly plants requiring a summer rest such as *Lewisia cotyledon* can be plunged in the lower level after flowering where they require a minimum of attention.

With this rotation of plants from one level to the other, plus the many plants we also bring in from outside plunge beds or frames to admire when they are in flower, the upper level is rarely without interest and colour. Some plants requiring a shadier spot, such as ramondas, haberleas, cyclamen and many other woodland and shade loving plants live permanently on the lower level only coming up occasionally so that we may admire their flowers.

Pleiones and ferns are also ideal subjects for this lower level though we now have a separate area in one house for these, with shading over the roof and sides with a permanently running fan providing conditions where they thrive. Some of the pleiones and other orchids seem to particularly enjoy this flow of air.

So, although the aluminium type of house may not be the prettiest, you can still grow alpines perfectly well and with great economy of space in one. We believe that with our system of forced ventilation, plants do even better than in a traditional alpine house. Such a system is not of course

essential, it merely makes life for the growers a little easier by removing stagnant air so reducing the likelihood of botrytis.

In an ideal world (are you listening ERNIE, keeper of our Premium Bonds?) we would like to have hardwood houses, with opening windows all along the roof and sides, but with deep glazed sides and with fans. However, all that really matters is that one has a structure capable of good ventilation that will keep the rain off the plants and the gardener, anything else is icing on the cake!

After all, when an alpine house, of whatever design, is full of healthy plants, who notices what it is made of?

Erodium reichardii roseum Edith Clark

Karawanken, Obergurgl and the Schachen Garden: Travels in the Austrian and Bavarian Alps

CATHERINE J. BUCHANAN

DURING the months of June and July 1988 I was fortunate enough, as a second year student at the Royal Botanic Gardens, Kew, to be financed by both Kew itself and the Scottish Rock Garden Club in undertaking a study trip to the Austrian and Bavarian Alps.

I travelled alone and, as a result, not only have a series of vivid memories in my mind's eye of the places I visited, but also a sense of accomplishment in having planned and executed the whole journey single-handed. You'd think, actually, that I'd spent a month trekking in the Himalayas!

More by chance than good planning (although this entered into it too!) I chose a series of three locations offering quite contrasting experiences of mountain landscapes and plants – and also a first true understanding of the threats and pressures to which our only European wildernesses are subject.

After a week camping in the warm, well-wooded and low-lying limestone Karawanken Mountains bordering Austria and Yugoslavia, I travelled up to the cold, granitic valley of the Otz to stay near Obergurgl, highest inhabited village in Austria, located in the central Austrian Alps. Finally, I worked for a fortnight at the tiny Schachen Alpine Garden, perched on the kind of plateau called an "alm" in German and where, normally, a smallholding would be located. This lies at 1850m, just above the treeline in the Wetterstein Mountains of Bavaria, four hours walk from the town of Garmisch-Partenkirchen.

The Karawanken Mountains

Carinthia and the Karawanken Mountains are popular with Austrians for walking and lakeside holidays, but not well-documented florally, although Bacon (1979) speaks in justifiably glowing terms of Hoch Obir, the tallest (2142m) and most floriferous of the range. The area closest to this mountain around the villages of Zell Pfarre (in which I camped, courtesy of a farmer) and Terkl are blessedly free of tourism. However, the trails leading over the mountains are nonetheless extremely well-maintained, thanks to the efforts of the provincial naturalist group. The flowers here show little sign of dwindling due to the depredations of many feet.

The mountains are gentle and wooded with larch and Norway spruce almost to the summit and the beautiful white soapy limestone is easy to

walk on – until it rains! Quite close to the summits (such as on Hoch Obir), woodland peters out into scrub of *Pinus mugo* and *Juniperus communis*. Consequently woodland flowers are a real delight – great stands of *Dactylorhiza fuchsii, Cirsium erisithales*, the rather poignant yellow thistle which hangs its head giving it a common name of "Melancholy Thistle", *Aconitum vulparia, Digitalis grandiflora*, and the superb *Orobanche flava* – parasitic on the widespread butterburs and coltsfoot in this area. Round the back of a pleasant little mountain called the Freiberg beneath which I was camped, I was lucky enough to find one *Cypripedium calceolus* in flower – my first ever encountered in the wild – and a number of the lovely deep orange lilies common to the area – *Lilium carniolicum*, a turk's-cap lily of about the same stature as the Martagon lily.

Hoch Obir itself was a very special mountain for its flowers – and the day particularly special for me in that it blew a gale at the top and I, lulled by a number of hot relaxing summer days spent scrambling along woodland paths, was wearing shorts. The morning on which I took the bus the half hour journey up the road from Zell to Terkl at the mountain's foot was promising and sleepy-hot while I climbed through the wood. These woods are full to brimming with *Helleborus niger* and *Anemone trifolia* (giving way to *A. nemorosa* higher up) – and heavily scented with *Daphne striata* (the Freiberg more so than Hoch Obir). What a sight the hellebores must be earlier in the season. In July a few *Cyclamen purpurascens* can be found and you can also catch the purple and yellow form of *Polygala chamaebuxus* which seems to prefer growing right in the middle of the stony, compacted paths. Large plants of *Atragene alpina* in full flower sprawled through all manner of trees and shrubs.

A mass of flowers is still waiting for your pleasure at the top of the mountain. Whole north-west facing scree slopes covered with furiously-buffeted *Ranunculus traunfellneri, Papaver rhaeticum* and *Alyssum ovirense*, named for the mountain itself. And beautiful Saxifrages – blue-green foliage of *SS. caesia, squarrosa* and best of all *S. burseriana*, unfortunately not yet in flower at the beginning of July. *Petrocallis pyrenaica* and *Androsace villosa* were widespread, even on the flat scree path – and are always easy to photograph, pressed flat against the surface as they grow, so compact that they are barely stirred by the wind. A little damp hollow facing south yielded large numbers of cerise-coloured, white-eyed *Primula wulfeniana* with bright sticky green leaves. Associates on another steep north-facing slope of rock and grass where surface water was visible were *Pinguicula alpina*, a rather delicate looking white-flowered butterwort with a yellow throat, a solitary flower of *Rhodothamnus chamaecistus* and very frail, shelly-pink flowers of *Soldanella austriaca* with the occasional plant of what I took to be *Corydalis pumila*, although flowering did seem very late. When I next

have my long trousers on and am in the area, Hoch Obir ranks on my "revisit as soon as possible list"!

Obergurgl

I am afraid that I shall probably not return to Obergurgl, a village lying above the treeline (1910m) in the granitic valley of the Otz. In the fifties this little place was described as idyllic by amateur botanists looking for *Ranunculus glacialis* and *Androsace alpina* at the top of the Gaissbergtal in the moraine just below the glacier. They found these then in large quantities but I had to be content with one plant each of the Ranunculus and of *Primula halleri*. I had the impression that all the plants in the area cowered (both these two grew under overhanging rocks!) from continual threats on many fronts – the pressure of skis in the winter, millions of feet in the summer and the apparent overgrazing by sheep. In many cases it would be hard to see how any vegetation except grass could survive. It is perhaps a good idea therefore to try the less popular valleys such as the Konigstal where I found great drifts of *Primula glutinosa* (almost purple in richness of colour) towards the glacier edge and relatively undisturbed. *Leucanthemopsis alpina*, the alpine oxe-eye daisy, although extremely common, is such a happy plant that great healthy clumps bring a smile to the tiredest walker's face. *Campanula barbata* and *Androsace obtusifolia* are satisfyingly frequent on the rocky meadow path down from the Konigstal into Obergurgl itself.

Some common hay meadow plants were *Campanula scheuchzeri*, large groups of *Orchis ustulata* and clumps of yellow-flowered, purple-spotted *Gentiana punctata* growing on sunny slopes. In spite of these, I found Obergurgl a depressing place. I'd come looking for a village with one church and a couple of hotels and found a place transformed into a massive building site, complete with discotheques.

There is a little *Pinus cembra* woodland above the village, tracks beaten down like three-lane highways by feet, and you can tell that the guardians of the National Nature Reserve in which Obergurgl stands are living in fear that some careless smoker will send the thousands of years of continuity with an afforested past, which the little wood represents, up in a cloud of smoke. Meanwhile the bronze walker in the village square points the way up the mountain to the next desirable site for ski-hotel expansion.

The Schachen Garden

Walking in Bavaria is unforgettable for the rather misty, lowering mood of the mountains and also for the ease with which it is done, simply following tracks up and down continually to an inevitable Gasthof with decent meal,

beer and bed (if not hot water!) at the day's end. My first taste of Bavaria was in a very wide truck travelling up a very narrow mountain track on a very wet Bavarian July day when the soapy limestone, usually so easy to walk on, became a death trap under heavy mist and rain. There were some stomach churning moments while Axel (the driver) negotiated skilfully the hairpin bends for which the "Unimog" seemed far too wide. A good deal of the journey was spent eyes shut.

Our destination was the Schachen Alpine Garden which lies a good hour's drive from the main road to Garmisch-Partenkirchen. (The mountain road is closed to the public and the journey is four hours on foot). Half way up the mountain we stopped for coffee in the two hundred year old "Wetterstein Alm". To enter is to step back into Bavaria's past. About one hour's walk below the Schachen Garden, it is lit by tiny windows, giving out onto the mist and pines of the forest at the flat "alm" edge. In the corner is a large open fire with literally heaps of wet boots and socks belonging to family and walkers steaming dry. The walls and tables are hung and decked with stuffed squirrels, and the boughs and cones of *Pinus mugo* which is the dominant species at the tree line. Very old and much less common specimens of *Pinus cembra,* which likes to seed itself into rocks until the tree grows twisted and clawing, perched on the rock itself, are treasured by those interested in the natural history of the mountains. This pine grows rapidly in its first years, slowing to change mostly just in character as it gets older.

After another half hour's drive, we eventually reached the Schachen Garden. It was established as a satellite garden to the Munich Botanic Garden in 1901 by a botanist, Dr Karl von Goebel, whose experiments into growing plants at high altitude seem, judging by available photographs, to have been conducted on cairn-like mounds, looking like the proverbial "dog's dinners". The garden (re-landscaped in the post-war years) covers approximately one hectare and lies under a cover of snow from about September to the middle of June. It is staffed during the summer by only two gardeners.

The situation allows the Munich establishment not only to grow certain plants appreciating the higher altitude, heavy and long winter snow cover and higher summer rainfall levels, but also hopefully plays a valuable educational role in bringing plants, their huge variety and the importance of their conservation, to the attention of the many walkers passing the garden daily. On a good weekend the garden may receive over 250 visitors. The gate requests visitors to "protect and conserve".

The mountains at Schachen are largely limestone, however there are small outcrops of sandstone forming a lovely crumbly soft top soil, called "Raibler" by the gardeners, which supports a flora enjoying acid conditions. The

juxta-position with the limestone flora provides a particularly rich alpine experience. The gentians for instance: in the alkaline meadow surrounding the gardens, one encounters *Gentiana clusii* replaced in those more acidic areas by *G. acaulis*. *Gentiana verna* occurs "willy-nilly" in acid or alkaline conditions as long as these are damp – *Gentiana bavarica* is similarly easy-going (though preferring acid ground) and can be distinguished from the former by the overlapping leaves crowding up the flower pedicel, whereas in *G. verna*, the leaves occur in a basal rosette. And again, *Gentiana punctata* occurs in the occasional acid patches, but not on the alkaline meadows.

Other interesting markers of alkaline or acid conditions are the rhododendrons. *Rhododendron ferrugineum* (common in scrub above the treeline in Obergurgl) prefers acid ground, while *Rhododendron hirsutum* (common in Zell Pfarre) prefers alkaline slopes. Both of these are found at Schachen as well as an interesting hybrid between the two, *R. x intermedium*, which sports the scaly brown lower leaf surface of the *R. ferrugineum* parent and a certain hairiness of leaf margins from R. *hirsutum*. *Alnus viridis* is another indicator of acid outcrops.

The different availabilities of these soil types have undoubtedly been a great boon to the Schachen garden-makers since any materials carted the four hour drive up from Munich must obviously be essential for work above, because of the expense involved. Luckily, therefore, the small quantities of "Kies" or limy scree and the acid, rocky soil of "Raibler" (whose crumbly structure unfortunately deteriorates fairly rapidly) which are required are fairly accessible.

The meadows outside the garden are rich in plants such as the tall composite with huge butterbur-like leaves and flat heavy heads of purple flowers – *Adenostyles alliariae*. Also common are *Aconitum napellus, Geranium sylvaticum, Cicerbita macrophylla, Pulsatilla alpina, Cirsium spinossissimum* and *Veratrum album*. Traditional management entails inclusion of these meadows for two weeks in a cattle-grazing rotation. Numbers of cattle are such that by the end of the second week the whole area is churned and poached with occasional corpses of Adenostyles, *Gentiana lutea* and Geranium scattered about. The tall Veratrum, unpalatable to the cattle, is left to flower. In consequence of this, one garden policy is the maintenance of lush, tall borders of meadow flowers around the garden perimeter (within the fence) to enable visitors to see the characteristic flora of the meadows in which they are walking. A particularly beautiful meadow plant, and fairly common if one looks on steeper slopes less disturbed by grazing, is deep purple *Aquilegia atrata*.

Other less frequent meadow plants were *Valeriana montana, Allium victorialis* (a bold and striking yellow-flowered onion), *Gymnadenia conopsea, Trollius europaeus* and the beautiful globe-flowered orchid,

Traunsteinera globosa. In rock-strewn meadows were some beautiful examples of small willows such as *Salix retusa* and *Salix glabra* – in one place the former occurred as a single plant, possibly as much as forty years old, spilling over the south-facing rock in a mass of neat, shining, dark green foliage.

Up away from the meadows, for example around the base of the "Schachenwand" near the garden, the screes yielded an interesting selection of crucifers. Although common, the neat purple, scented flowers of *Thlaspi rotundifolium* are beautifully set off by the clear white of the scree, growing in associations which include *Biscutella laevigata, Hutchinsia alpina, Arabis alpina*, and, higher up at the Meilerhutte, a few plants of *Petrocallis pyrenaica*. Some scree on the slope down from the Schachen garden into the Reintal was full of *Acinos alpinus*, with pleasing little purple snapdragon flowers running through the white chippings. The small, tight blue rosettes of *Saxifraga caesia* were just coming into flower. These tended to occupy the grassier rocky slopes rather than scree itself as did *Androsace chamaejasme*. Up on the lovely sweep of high level damp meadow just below the Meilerhutte were abundant *Silene acaulis* in huge mats of perfect condition usually in close company with gentians and *Primula farinosa* – with the odd plant of *Primula auricula* flung in (still in flower) for good measure. On the Meilerhutte screes (and not below this level) were, predictably, *Saxifraga oppositifolia* and *S. aizoides* and occasionally, nestling in crevices formed by a rock fall or the rocky slopes of steep climbs, *Cerastium latifolium*, woolly pale green leaves backing off-white slightly veined flowers in the shady places in which it grew. An interesting find, right above the Meilerhutte, was a single plant of *Valeriana supina* – spoon-shaped leaves surmounted by tight little posy-like mauve flowers. At the lower Schachenwand level, the snow patches contained *Soldanella montana*, while higher up on the Meilerhutte meadow it was *Soldanella pusilla*.

The Schachen Alpine Garden has benefited since the von Goebels era from the continuous curatorship of the Schacht family, father and son (Wilhelm and Dieter). They have applied not only their undoubted practical expertise but also knowledge acquired through travel and collecting both in the Alps and the Himalayas. And their personal, unbroken attention to the garden (Dieter Schacht is in residence from July to September when the garden is not covered by snow, with one gardener from Munich to assist) has resulted in detailed understanding of the problems involved in garden-making on the site.

These are largely due to the very short season for cultivation and the winter pest problem during a long period of snow cover when the place is deserted. It must be completely fenced to a height of well over 2.5 metres, since deer and chamois would strip the vegetation completely. As it is,

mice show a preference for the juicy roots of Asiatic primula species such as *Primula waltonii, P. sikkimensis*, and *P. alpicola* which are a speciality. Fritillaries such as *Fritillaria tubiformis* (from the limestone areas further south in North Italy and the Tyrol) and *F. involucrata* (of southern woodland) are planted in small baskets as protection against this winter devastation. These fritillaries were some of the new "trial" species which are "dared" under Schachen conditions when Munich stock allows. Lilies are given the same treatment.

All the plants are propagated by Dieter Schacht in the early spring in his other guise as plant propagation manager at the Munich Botanic Garden, to be transported by lorry up the mountain in July and planted out generally in the first part of the day before the public enter. Occasionally plants with short seed viability (like members of *Ranunculaceae* – notably *Ranunculus seguieri* and *Ranunculus parnassifolius*) are sown in situ in the garden, from seed just collected. In good weather, light may be so strong that new plantings of, for example, *Primula parryi* (coming from very wet streamside conditions in North America), require the protection of some herbaceous matter cut from the side borders. However, generally after watering-in initially, the garden receives more than its fair share of summer mist and rain which will prevent flagging and so further watering is usually unnecessary.

The main tasks are therefore planting, weeding and splitting up or dividing plants which are overcrowded or weed-infested – such as the great mats of *Primula mimima* and *P. warshenewskiana rhodantha* which do so well here. Plants are usually top-dressed with either granite chippings brought by lorry from Munich or the "Kies" or scree from nearby mountain slopes. Other additions to the soil are of the "Raibler" mentioned previously (to, for example, new plantings of *Primula parryi* or *P. warshenewskiana rhodantha*) and also peat brought from Munich in cases where additional organic matter is required.

Other plants which thrive in the garden are a variety of lily species (like *Lilium pyrenaicum* and *L. carniolicum ssp. jankae* Fig. 53, p346), the difficult *Senecio halleri* (Fig. 52, p346: impossible to cultivate in hot Munich) and the squat, papery *Berardia lanuginosa* from the south-western Alps. *Corydalis cashmiriana, Dianthus glacialis, D. alpina* and *Geranium farreri* seed themselves about (selectively!). *Saponaria pumilio* is particularly beautiful with pink crimped petals lying prostrate, the different textures of scree and petal being very eye-catching. The striking woolly biennial, *Campanula thyrsoides* (Fig. 54, p363), has almost become a weed as has purple *Campanula pulla.*

While I was at the garden, it was fortunate that a tall Himalayan crucifer was in full glory – *Megacarpea polyandra* must be at least two metres tall. Although twenty years old, the three plants here have only flowered three

times. They are believed to be the only ones in cultivation on the continent, and flowering is probably poor due to the shorter, cooler season when compared to its Himalayan home. Luckily, I was still around to see the equally beautiful green seed pods – like the swirls of a "Paisley" pattern.

Many visitors are, of course, blind to the majority of these highly desirable plants – asking instead interminably for the "edelweiss". Still, better an appreciation for this one single plant which they love, than a complete lack of feel for all flowers, since they are so much subject to the ignorance and carelessness of the human feet which trudge up and down the mountains of Europe each winter and summer. My tours in the Alps and the encounters of the Schachen garden have left me even more than ever conscious of the fragility of this last European wilderness and its inhabitants. And gardens such as Schachen have a crucial role to play in educating us all as to the true nature of the alpines we grow and of the mountains which they really prefer to the pots we like to provide.

Reference

Bacon, L. 1979 Mountain Flower Holidays in Europe. AGS.

Plant Portraits

Silene acaulis

John Richards

Silene acaulis, the moss campion, (see front cover) is one of the most familiar and widespread of all alpines. It may well be the first 'real' alpine a tiro encounters on his first mountain trip. Many years later, he will still delight in its faultless charms, perhaps remembering that first thrilling encounter. Forming compact domes or tight mats liberally sprinkled with stemless pink flowers, in many ways it is the quintessential alpine.

Moss campion is one of a select breed of alpines which are staple plants of mountain and arctic regions throughout much of the northern hemisphere. Perhaps only *Dryas octopetala*, our symbol, or *Saxifraga oppositifolia* can claim a similar status as a 'universal typical alpine'. Moss campion ranges from the Pyrenees, Alps and Carpathians to the Faeroes, Scandinavia, Iceland, Novaya Zemlya, Svalbard, arctic Russia, Greenland, arctic Canada, Alaska, Kamchatka, and some disjunct regions of the mountains of north America south to Colorado. It is so widespread, and so important in the areas where it occurs, that its absence from the Caucasus, Urals and the Asian mountain ranges is conspicuous.

In the British mountains, moss campion is associated with calcareous rocks in Snowdonia and the Lake District, where it is rather uncommon. In the central Highlands of Scotland, too, it prefers basic soils, but in the west and north of Scotland it can be an important component of the summit-top vegetation of the most unpromising and acidic of mountains. On the north coast of Sutherland, and in the northern and western islands, even on St Kilda, it drops to sea-level and can be a common plant of sea-cliffs and even stabilised machair, where blown shell-sand gives rise to soils with a basic reaction.

As might be expected for such a widespread plant, it is very variable. However, as a cross-pollinating species, much of this variability occurs within populations, and no geographical races or subspecies can be distinguished. A single population in the European Alps can yield the tightest Androsace-like rock-hard buns in which minute flowers no more than 4mm across are sunken (often called subspecies *exscapa*); and the loosest mats with 10mm diameter flowers on 20mm long stems (often called subspecies *longiscapa*, which is probably the same as 'elongata' (Farrer) and 'pedunculata' (Ingwersen)). Flowers may vary in colour from

white through the palest pink to a good cherry-red and rarely an intense purple; in a large population, every plant seems to be a different shade. White plants are rare in the Alps, but are common in the north although rare in the south of Greenland. It would be interesting to know if white flowers are typical of moss campion in other high arctic areas. There is at least one garden clone which is white flowered, while another clone, 'Frances', has golden foliage.

Moss Campion has a confused sex-life, which has yet to be fully investigated. Many, if not most plants in the Alps have hermaphrodite (male and female) flowers, while in Iceland populations are dioecious (individuals either all male or all female) or nearly so. In Scotland, male, female and hermaphrodite plants occur, a condition known as trioecy. To complicate matters still further in Scotland, some males are slightly female, and some females are slightly male (a condition known as polygamy), and some Scottish populations have been called trioecious-polygamous! From the gardener's point of view, the relevance of this complexity is that single clones seem to rarely if ever set seed in cultivation. In the wild, butterflies and moths are frequent pollinators, although sawflies and small long-tongued bees are also effective flower visitors.

Moss campion is relatively easy to grow in freely drained, well-lit garden sites, and is available from most leading rock-garden specialists. It has a reputation for flowering poorly, but this is probably a function of some fast growing poor-flowering clones than of the species as a whole. Buy your plant in good flower, and it will probably flower well for you. A form, said to have originally been collected on Snowdon by Randall Cooke in the 'bad old days', seems always to be free flowering, and is probably the Award of Merit form. Pests and problems are few, although blackbirds are convinced that moss campion harbours fat grubs, and tend to tear it to pieces. In a hot dry spell such as that being encountered as I write in the summer of 1989, it needs regular watering if it is not to dry up and blow away.

Roscoea humeana 'Alba'

George Kirkpatrick

In naming Roscoea, J. E. Smith in 1804 commemorated William Roscoe, one of the founders of Liverpool Botanic Garden, who had a keen interest in the Zingiberales and is known to have had several collections in cultivation. The genus is found growing at elevations between 1200 and 4850 metres; due to the inaccessibility of some of the regions, the exact distribution is probably not yet known. Roscoeas can be found in the Himalayan mountain range from Kashmir in the west to Assam and western China and northwards to Tibet.

Two plants of *Roscoea humeana* 'Alba' were collected in 1987 during the Sino-British-Lijiang Expedition into China and were given the SBLE number 636. However, the two plants are quite distinct in flower, the one in the photograph (Fig. 55 p364) having a pink tinge to the reverse of the flower, whilst the other has a green/yellow tinge.

The plants were found growing in a meadow which is quite dry in the spring before the monsoon, but receives plenty of moisture during the growing season.

As regards cultivation, these two plants have been grown in 'long toms', in a semi-shaded frame, in a John Innes compost with the additon of extra humus. They are given occasional liquid feeds. In general, Roscoeas are quite happy outside, in a humus-rich soil provided you can locate them somewhere free draining with plenty of water during the growing season. They should be planted on the deep side to afford them protection from frosts. Seed is set fairly readily and is best sown fresh; the seed collected this autumn has already been sown, I await germination with anticipation.

Clematis marmoraria

Fred Hunt

Clematis marmoraria (Sneddon) is a fairly new plant to cultivation, but has been firmly established over the last year or two. It was first discovered by Dr Barry Sneddon, of Victoria University, as recently as 1970. It was found growing above the tree-line as a crevice plant in hard marble rock (marmoraria – of, or belonging to marble, refers to habitat of the species) near the summit of Hoary Head (at an altitude of 1450m), Arthur Range, in the north-west of Nelson Province, South Island, New Zealand. In May 1975 another site for the plant was found on Crusader, a marble peak (1428m) about 1.6 km south-west of Hoary Head, plants being fairly numerous on the northern side of the peak in rocky sites above the tree-line.

Clematis marmoraria grows as a short semi-woody, non-climbing sub shrub of suckering habit forming small mats, the evergreen leaves being variously dissected.

The cup-shaped creamy-white flowers (2-3 cm diameter), at first with a greenish tinge, are carried well clear of the foliage on separate male and female plants, the males having slightly larger flowers and being the more showy. The picture (Fig. 56 p365) is of a male plant.

Generally an easy and trouble-free plant, *Clematis marmoraria* responds favourably to regular liquid feeds throughout early spring and summer, while also enjoying a copious supply of water at this time. It also benefits from repotting, at least annually.

Freshly sown seed seems the best method of raising plants, but, if desired, particularly good plants may be successfully propagated by way of cuttings. Although plants have been grown in the open garden and would appear to be fairly hardy, they give of their best when offered alpine house treatment. A plant from the alpine house was awarded an F.C.C. on 23rd April 1988.

Clematis marmoraria hybridises with other New Zealand species, such as *C. paniculata* to produce *C. x cartmanii* 'Joe' (see Vol. XX pp39-41). However, though the chromosome number 2n = 16 is similar to that of *Clematis alpina*, as yet there are no reports of successful hybrids with species outwith New Zealand.

Lithodora diffusa 'Picos'

Ronald McBeath

Lithodora diffusa is a popular garden plant, most often cultivated in the clones 'Heavenly Blue' and 'Grace Ward'. Both produce beautiful dark blue flowers in some abundance throughout the year, but often the stems get long and straggly and do not always respond to pruning. Unfortunately identical plants are often obtained under both names, as they are often mixed up in the trade. Propagation by cuttings in summer is the normal method of obtaining new plants, but is not always easy and straightforward. In some years they will all root, in other years very few will root.

In its natural habitat I have seen *Lithodora diffusa* growing along the Spanish side of the Pyrenees and in the Cantabrian Mountains. It may occur on other mountains across south west Europe, where it prefers warm, well drained hillsides and is tolerant of both limestone and acidic rock formations. It may occur amongst short grass, through heaths and Genista scrub or in scree.

On the Picos de Europa in the Cantabrian Mountains of Spain in 1980, under the collection number Gardiner and McBeath 1028, a few seeds were collected from very compact plants growing in limestone scree at an altitude of 1900m. The resulting seedlings have retained this compact habit when cultivated in the rock garden or raised bed and are particularly fine when planted above a rock over which they can creep downwards (Fig. 57 p365). The stems remain well clothed with dark green leaves and the dark blue flowers are freely produced during mild spells throughout the winter, with the peak flowering season in the spring. Pruning should not be necessary and cuttings root reasonably easily in mid summer. This compact clone is very distinct and is now stocked by a number of nurseries. The cultivar name *Lithodora diffusa* 'Picos' has been used to remind us of its origin.

Fig 54 *Campanula thyrsoides*, Schachen, Austria (see p357) Catherine Buchanan

Fig 55 *Roscoea humeana* 'Alba' (see p360)

R.B.G. Edinburgh

Fig 56 *Clematis marmoraria* (male) (see pp361,376) Fred Hunt

Fig 57 *Lithodora diffusa* 'Picos' (see p362) R.B.G. Edinburgh

Fig 58 *Rhododendron canadense* (see opposite, p378) I. & M. Young

Fig 59 *Ramonda myconi* pink form (see opposite, p381) I. & M. Young

Rhododendron canadense

Ian & Margaret Young

Rhododendron canadense (Syn. *Rhodora canadensis*) is the most northerly occurring of all the azalea species, growing fairly widely in North East America, from Labrador south to New Jersey.

Growing naturally in swampy places and river banks, it is a slow-growing deciduous shrub, rarely above two feet high, with flowers borne in April, before the leaves break through.

The leaves, blue-green above, with reddish hairs, are especially bright when young; autumn colour can be good too, with the brighter colours on the darker-flowered forms.

The deceptively delicate flowers vary in colour from deep rosy purple through to white. The flowers, held in trusses of three to six at the tips of the twiggy branches, have a deeply divided corolla and starry stamens giving a very charming effect (Fig. 58 opposite).

R. canadense, while particularly attractive when grown in a slightly raised peat bed, where the effects of sunlight through the dainty flowers can be appreciated, is equally happy grown in a pot outside, plunged in sand to cool the roots, and may then be brought into the alpine house to enjoy the flowers. This very hardy plant likes a peaty compost that never dries out, and if in a pot, a weak liquid feed in August to boost the forming flower buds is beneficial.

Rhododendron canadense, though available from only a few nurseries, with seed sometimes in the seed exchange, really does deserve to be more widely grown.

Ramonda myconi

Ian & Margaret Young

Ramonda myconi (Syn. *pyrenaica*) is one of the four European species of the family Gesneriaceae. It grows in rock crevices, shady crags and rocks in mountain woods in the central and eastern Pyrenees as well as the mountains of north eastern Spain.

It produces a rosette of large deeply wrinkled and toothed deep green leaves covered in long tawny hairs. The five lobed lavender blue flowers with yellow anthers are produced in clusters of three to five on a four inch scape. In cultivation (and in the wild) the colour can vary from lavender blue through shades of pink to white (Fig. 59 opposite).

When in flower *Ramonda myconi* is easily distinguished from its closest relatives, *R. nathaliae* with four lobed flowers and *R. serbica* with lavender blue anthers.

R. myconi is available from many of the nurseries advertising in 'The Rock Garden' and seed is usually available through the seed exchange. Seed germinates relatively easily but the resulting seedlings are extremely small and great care must be taken at this stage to prevent them from being swamped by moss or damping off. A seed compost of peat and sand with charcoal added has given us the most successful results. We also favour pricking out the seedlings into trays at a very early stage. This requires great care and patience but helps combat the problems of the moss. With weekly half-strength liquid feeds and potting on after the first year we have produced flowering plants in three years. Propagation can also be done by pulling a leaf, complete with the tiny bud at the base, from the plant and treating this as a cutting. We only use this method to raise plants from a good clone as it is no quicker than raising from seed. There can be a considerable variation in flower size and colour so it is best to select plants to your own preference.

Plants are best grown on in pots in a shady frame, open to the elements in summer, and taken into the alpine house to enjoy the flowers, but always avoid strong sunlight as the leaves are quickly scorched. Plenty of water with occasional liquid feeds during the growing season and repotting every second year after flowering in an open compost with equal parts of loam, leaf-mould, peat and grit, or a similar mixture, is satisfactory for mature plants, and will ensure healthy flowering plants in May. Sometimes there are some bonus flowers in late summer and early autumn.

Plants can also be grown in the open garden, in a shaded wall for preference, where they will grow and flower quite happily but watch out for the slugs who enjoy not only the leaves but also the young flower buds that form some time before they extend above the leaves.

The plants have a remarkable ability to withstand a period of drought. We have often seen the plants in a wall in our garden brown and shrivelled as though dead, but do not despair, as after some rain leaves revive remarkably quickly. We have not, however, risked the need for such dramatic resuscitation with our pot grown plants.

The Cultivation and Exhibition of Some Silver Foliaged Plants from Australasia

HAROLD McBRIDE

ONE section at our shows which seems to always attract a lot of attention from the public is the classes reserved for silver foliaged plants. The "silver" section is usually well supported, most shows having a two pan silver foliaged class as well as the single entry class. These are usually very competitive classes, with entries in double figures being quite common.

In addition to making interesting and desirable exhibition plants, the well grown "silver" can prove to be a most attractive addition to the rock garden, peat bed, trough or indeed alpine house.

While some silver foliaged plants can present a very considerable challenge to grow outside in the higher rainfall areas, others, particularly those from New Zealand, actually seem to prefer the cooler conditions which prevail in the northern parts of Great Britain. In high rainfall areas a combination of excellent fast drainage and some cover in winter, during the worst conditions, can increase the variety of "silvers" that can be grown outside.

Availability

Most specialist alpine nurseries include a variety of silver or grey-foliaged plants in their catalogues at a wide range of prices. Beware, however, of some catalogue descriptions of plants which are sometimes depicted as being of the sheerest silver when a "dull grey" would be a more fitting description! The S.R.G.C. and A.G.S. seed exchanges also offer a wide variety of silver foliaged plants although germination of Celmisias and Raoulias from the southern hemisphere can be patchy. Many S.R.G.C. members grow a wide variety of "silvers" and propagate extensively for club sales and swops with fellow members. In this way many rare plants which are not available commercially remain in widespread cultivation.

Helichrysums

There are also many interesting plants which come under the heading of "grey-greens", such as the whipcord Helichrysums and Hebes from New Zealand. While such plants are not usually shown in "silver" classes at shows they can be exhibited in a "plant from Australasia", a "mixed

foliage" or dwarf shrub class. When grown in an alpine house or rock garden their unusual appearance causes considerable interest to garden visitors.

Amongst the more interesting whipcord Helichrysums are *H. coralloides, H. selago, H. selago tumidum, H. selago intermedium* and *H. plumeum*, all of which display contorted and twisted branches with adpressed scaly grey-green leaves, and curious white composite flowers. The natural habitat of these Helichrysums is rocky outcrops and rock crevices, so in the open garden they require fast drainage and winter cover in areas of high rainfall.

When resident in the alpine house they require very little moisture during the winter months. A new Helichrysum of garden origin, *H.* 'County Park Silver' is proving to be a top class addition to our range of "silvers". Its silver appearance, vigour and ease of propagation from cuttings make it a "must" for all gardens. This plant seems quite hardy when grown out of doors but appreciates some winter cover. When resident in the alpine house it requires annual re-potting.

Most Helichrysums can be propagated by cuttings in the July/August period. The whipcord Helichrysums frequently set seed which I sow fresh in August, although it doesn't usually germinate until spring.

Celmisias

The cushion Celmisias, *C. argentea* and *C. sessiliflora*, thrive well in northern gardens when grown out of doors in a free draining peaty raised bed – where they never dry out at the roots. When suited, both these plants form tight flat cushions – which blackbirds seem to delight in pulling apart! I also grow *Celmisia sessiliflora* 'Mt. Potts form' which seems to be intermediate between *C. argentea* and *C. sessiliflora*. All three set seed and from time to time provide self sown seedlings in my raised bed. These plants may be grown in a pan which spends winter in the frame and is then plunged outside for the summer months. This means they can be exhibited at any time without disturbance to the root systems.

Indeed the wide variety of Celmisias available provide the gardener with a considerable range of form and colour. Many of the large leafy varieties are possibly hybrids, but all are attractive. The better silvers include *C. longifolia* and *C. sericophylla* from Australia and *C. semicordata* in its various forms from New Zealand, including ssp. *stricta* which has narrow stiff, intensely silver leaves. In Ireland we grow a form of *C. semicordata* which has large silver felted leaves. It is indeed a very beautiful plant and recently has been named *C. semicordata* 'David Shackleton's form'. The late Mr Shackleton was a great Celmisia enthusiast and I counted over 30 species growing in his famous garden at Beech Park, Co. Dublin during a visit in 1985.

Perhaps my most favoured exhibition Celmisia is *Celmisia hectori* (Fig. 60, p383). This plant, the sheerest of silvers, must be grown in impoverished gritty soil for it to remain in character. *C. hectori* can be propagated by cuttings in July or August but remains quite a scarce plant in cultivation.

The New Zealand Edelweiss

Leucogenes is a genus endemic to New Zealand. *L. leontopodium* is known locally as the North Island Edelweiss and favours a rich moisture-retaining peaty soil. In Northern Britain it can be grown well in full sun. *L. leontopodium* makes a strong, spreading silver clump and is easily propagated by detaching "Irishman's" cuttings.

A friend from New Zealand tells me that a new form of *L. leontopodium* has been discovered on Mt. Peel in South Canterbury. This new discovery is described as a top class silver cushion plant – silver plant enthusiasts can only be filled with anticipation for its arrival in the north!

South Island, New Zealand has, I think, provided us with an even more beautiful plant in *Leucogenes grandiceps*, the South Island Edelweiss. It is shorter lived and harder to please than its North Island cousin, although it is easily propagated by cuttings or sometimes will germinate from fresh seed. I grow *L. grandiceps* in a well drained gritty soil and provide it with a pane of glass from October to March. When top condition is achieved it is indeed a fabulous exhibition plant.

The Raoulias

The Raoulias are popular and much sought after garden plants. They have two distinct forms of growth; the cushion form or vegetable sheep, such as *Raoulia eximia* and the mat forms such as *R. australis* and *R. hookeri*, also known as scabweeds.

Raoulia eximia provides a considerable challenge in cultivation to even the most experienced grower. I have managed to grow the plant from seed and keep it alive for several years. However, the dense cushion of pale grey hairy rosettes seems to resent our high humidity and dampness in winter and as a result slowly succumbs. They should be grown in a compost which contains a minimum of 50% grit by volume and at least 2cm of grit beneath the cushion, if they are to stand a chance of surviving our climate.

There are several other cushion Raoulias which are equally delightful and which I have found to be more amenable to cultivation, namely *R. buchananii*, known as the Blue Vegetable Sheep, and *R. youngii*. Both should be grown in a similar fashion to *R. eximia*.

The mat forming Raoulias are popular garden plants of which two are good silvers. *R. hookeri* is a variable plant of which the best forms make good

exhibition plants. Both a large leaved form, *R. h. albosericea*, and a small leaved form, *R. h. apice-nigra*, can be found in cultivation. *R. hookeri* is easily propagated from cuttings and is easily catered for in a pan or raised bed. When growing in a pan, *R. hookeri* should have some grit or coarse sand worked into the mat annually. After several years of this treatment the "mat" becomes a "cushion". I treat *R. australis* in exactly the same manner and they have proved to be successful exhibition plants.

In their natural habitat, where Raoulia and Leucogenes grow in close proximity several inter-generic hybrids have been found. Perhaps the most widespread in cultivation is generally known as *Raoulia x loganii* though as its parents are thought to be *Leucogenes leontopodium* and *Raoulia rubra,* it should perhaps be called *X Leucoraoulia loganii*. Hybridisation between Raoulia, Leucogenes, Helichrysum, Haastia and even Gnaphalium has caused great problems for New Zealand botanists. Regardless of its name, this plant has become a very popular exhibition plant, its hairy green rosettes forming a tight cushion. When grown in a pot it must have well drained compost and a good layer of grit under the cushion, with care in watering and excellent ventilation at all times.

I have tried *R. x loganii* out of doors in a vertical rock crevice (Fig. 61 p383) where it can be given a pane of glass from October to March. However, may I suggest that before one risks this quite expensive plant in the rock garden that a replacement stock is built up by rooting a number of rosettes!

First time exhibitors often find difficulty in getting their plants to flower on the date of their local show. With silver foliage plants timing is not so imperative and so they provide an excellent opportunity to make your show secretary very happy and add considerable public interest to the exhibition.

Show Reports

Stirling–25 March 1989

After one of the mildest winters on record, it was anticipated there would be some different plants on view at the first of the Scottish home shows for 1989. Although this proved to be so, many of the usual plants associated with Stirling show still featured, with fritillaries and narcissi being well represented. On the other hand, Asiatic primulas, normally strong at this venue, were less in evidence as was the genus Corydalis, no doubt the reason for this being the early flowering season being experienced generally.

However, it was heartening for show secretary Sandy Leven that entries were up on last year, with exhibitors from the north of England, Northern Ireland and as far north as Caithness. Another encouraging factor was the number of new exhibitors, some showing for the first time. As a seasonal gesture to tempt exhibitors to return next year, chocolate Easter eggs were distributed to the "early birds" while staging exhibits! What has now become a regular feature of this show is the Easter lecture given in the morning while judging takes place. On this occasion Miss Julia Corden of Wisley spoke on a recent trip to see New Zealand.

In Section I the Ben Ledi Trophy, for three pans different genera, was won by Fred Hunt, Invergowrie, with a fine pan of *Fritillaria michailovskyi* displaying some twenty blooms which gained a certificate of merit, *Narcissus watieri* and the magenta *Saxifraga oppositifolia x biflora*. In "three pans rock plants from seed" Sandy Leven came out on top with *Paraquilegia grandiflora, Fritillaria crassifolia ssp. kurdica* and *Draba mollissima*, while runner-up Alan Furness of Hexham featured *Ranunculus nivicola, Celmisia semicordata ssp. aurigans* and a four-year old plant of the desirable *Saxifraga florulenta*. Margaret and Henry Taylor, Invergowrie, took the No. 1 spot in the class for three pans different genera from Amaryllidaceae, Iridaceae and Liliaceae with *Tulipa ferganica, Fritillaria tubiformis* and *Narcissus rupicola* 'Mono Dwarf'. A fine plant which took the eye in this class was Sandy Leven's well-grown pan of *Fritillaria lutea*, alas only showing two blooms on this occasion but with many more soon to follow. Jean Wyllie's *Crocus scardicus*, which hails from Southern Yugoslavia, not only won for her the class for crocus but also gained a certificate of cultural commendation from the Rock Garden Plant Committee which met at this show. Irises were much in evidence and R. J. Lilley, Castletown, one of the first-time exhibitors, won classes with *Iris x sindpers, I. graeberiana* and a very fine plant of *I. nusairiensis*.

F. bithynica and *F. bucharica* won for Mr Fred Hunt the two-pan Fritillaria class, *F. bithynica* receiving an award of merit while *F. bucharica* received a cultural commendation. An interesting species, not often seen, was *Fritillaria davisii* grown from seed and exhibited by Henry and Margaret Taylor. Sandy Leven again produced the goods in winning the three pans Primula distinct class with a fine exhibit of *P. allionii x* 'White Linda Pope', *P. miniera* and *P. allionii*, while runner-up Evelyn Stevens featured a magnificent specimen of the N.E. Turkish species *P. megaseaefolia* which was awarded the Spiller Trophy for best primula in the show along with a certificate of merit. The same pair vied for first and second places in the two-pans primula hybrid other than Asiatic class, Sandy again coming out on top with *P. allionii x* 'White Linda Pope' and *P. allionii* 'Boothman's Var.' while Evelyn exhibited another large plant *P.* 'Beatrice Wooster'. Six entries in the Cyclamen class gave way to Fred Hunt's *C. repandum rhodense* while Ian and Margaret Young of Aberdeen were runners-up with a well-flowered *C. coum*. Joyce Halley's *Pleione formosana* 'Clare' gained first prize with Doreen Fraser's *P. formosana* 'Oriental Splendour' runner-up. Another fine pan of pleiones was that of *P.* 'Shantung' exhibited by Jim Cobb, Kingsbarns, which helped him win the two-pan class.

First in the two-pan class for silver/grey foliage plants was Harold McBride from Lisburn, Northern Ireland, with two excellent specimens in *Celmisia longifolia* and *Calcocephalus brownii*, the former gaining a preliminary commendation. Peter Semple's superb *Raoulia x loganii* won the single pan silver/grey class and with it a justified certificate of merit. Ian and Margaret Young took the honours in the dwarf conifer and rhododendron classes, their exhibits including *Pinus strobus* 'Reinshaus' *Rhododendron x* 'Snowlady', and *R. lysolepis* KW4456. The best plant in show emerged from the ericaceous classes with the Forrest Medal and Institute of Quarrying Quaich for best non-European plant being awarded to Harold McBride's outstanding *Cassiope lycopodioides* 'Beatrice Lilley' which more than filled a 14-inch pan. The Carnegie Dunfermline Trust Trophy for most points in Section I went to show secretary Sandy Leven.

Section II produced some very good exhibits, none more so than Gerald Wilson's well-presented *Anchusa caespitosa, Draba mollissima* and *Clematis x cartmanii* 'Joe' which won from four entries in the three-pan class. Bob Drummond's large specimen of *Draba polytricha*, grown from seed sown April 1983, gained a first prize as did R. J. Lilley's *Fritillaria aurea* and *Iris x sindpers* in the two-pan dwarf bulb class.

The former was adjudged best plant in Section II exhibited by a person who has not exhibited before at an S.R.G.C. show thus winning the special prize of £10. Other plants featuring in this section were Sam

Sutherland's well-presented large *Saxifraga jenkinsae*, which received a certificate of merit, and Gerald Wilson's *Townsendia grandiflora*, while David Atkinson, Alford, gained a first prize with *Iris bucharica*. R. J. Lilley capped a successful day by winning the Fife County Trophy for most points in Section II and also the Bronze Medal. The R.B.G. Edinburgh once again provided a superb display of plants which earned a gold medal. Notables among these were *Fritillaria caucasica* and the diminutive *F. japonica var. koidzumiana, Tecophilea cyanocrocus*, a superb pan of *Helichrysum pagophilum* and several plants of the unique *Primula sherriffiae*.

Fred Hunt

Newcastle upon Tyne–8 April 1989

Winter arrived early with blizzards in November, and spring arrived even earlier. I recorded no frosts between December and the first half of March in Hexham. Consequently, some traditional Newcastle plants were over by mid February. However, late March and early April were cool, and the vast array of plants on show were a curious mixture of the early and the late, so that some classes, normally suitable for the date, seemed curiously inappropriate. However, this did not noticeably hinder the largest show entry ever, of over 500 entries, held this year under AGS rules. This stretched the capabilities of the Ponteland Memorial Hall to the limit, and Show Secretary Alan Furness, Assistant Secretary Alan Davis and their willing band of helpers capably undertook some last minute shuffling to accommodate all the plants on benches groaning with colour.

For a few years, exhibitors have been following the development of a most interesting Cassiope, the property of Mrs Jephcott of Penrith. Closely resembling *C. wardii*, and bearing this name, this plant flowers not only on one and two year old wood, but all the way down the plant, creating a beautiful and most individual effect. This plant has come of age and justly gained the premier award for this exhibitor for the first time.

She was also successful with a magnificent form of the familiar *Primula rosea*, labelled "grandiflora", with a very large flowered *Fritillaria pyrenaica*, and with a superbly flowered *Saxifraga georgii*. *S. georgii* is said never to exceed 4cm diameter in nature, so in doubling this limit, Mrs Jephcott richly deserved a certificate of merit. Her plant closely resembled a small flowered form of the not very closely related *S. hypostoma*.

Geoff Rollinson acquired the R. B. Cooke plate, not for the first time, for the maximum points in section A. His *Primula gaubeana* won in two places. This plant bears scant resemblance to the description of this rare and localised plant from the mountains of northern Iran, and is much finer than others seen under this label. Perhaps it is a hybrid with *P. verticillata*? Geoff also introduced us to *Douglasia idahoensis* which was only discovered

in its isolated locality seven years ago. It is a pretty little scree plant with stemless deep rose flowers.

Sometimes it seems that plants appear on the show bench almost before their discovery in the wild. *Clematis marmoraria* is now so well established in cultivation that it is surprising to remember that it was only discovered in its remote locality on Hoary Head, Nelson in 1970. At Newcastle we not only saw male and female plants in flower (Fred Hunt showed a magnificent 9" pan smothered in male flowers, see Fig. 56 p365) and the splendid hybrid *C. x cartmanii* 'Joe' raised by Henry and Margaret Taylor, but also an exciting backcross to *C. marmoraria* which the Taylors have selected from a galaxy of seedlings. A female, appropriately named 'Sharon', it is almost as dwarf as *C. marmoraria*, but is more floriferous with large flowers of good substance.

Of the other major awards at the show, the AGS medal for six large pans was closely contested by three exhibitors, the 18 pans making a splendid group. These plants included Alan Spenceley's *Cassiope* 'Muirhead', Fred Hunt's very good form of *Ranunculus parnassifolius*, proving that this variable species can produce other excellent forms apart from 'Nuria', and Lionel Clarkson's pan of *Linum elegans* coming into flower, much more neat and elegant than it is on the Greek Olympus. Alan took the day in a hard fought contest.

It was fitting that the Show Secretary, Alan Furness, should win the other AGS (6" pan) medal. There is a floriferous and apparently vigorous form of the difficult *Saxifraga diapensioides* about at present which both Alan and Clare Brightman presented. Alan also showed his excellent strain of *Lewisia brachycalyx* with large satin pink flowers and that excellent form of the variable *Dianthus microlepis* named 'Rivendell', a tight pink dome. Elsewhere Alan was given a certificate of merit for his splendid *Kalmiopsis leachiana*, grown from seed.

One of the delights of joint shows such as Newcastle is that exhibitors are attracted from a wide radius. Sandy Leven not only brought a wide range of the fritillarias he grows so well, but also two magnificent plants of *Paraquilegia grandiflora*. The larger had 35 of its elegant flowers open, with as many buds to come. This lovely exhibit was made up by exceptional forms of *Pulsatilla vernalis* and *Fritillaria olivieri*. The range of South African helichrysums available continues to increase as the Drakensberg is more thoroughly explored, and several make graceful silver-plated hummocks. Sandy brought *H. appendiculatum*, while J. Dennis showed the equally unfamiliar *H. pagophyllum*. The *H. sessile* of cultivation is now correctly called *H. sessilioides*, and is clearly becoming a common plant, appearing at least five times at this show.

Henry and Margaret Taylor brought another beautiful Helichrysum,

an erect plant with narrow white leaves. This plant is circulating under the name *H. ambiguum*, a species which is endemic to Mallorca. Plants from that island look quite different with broad horizontal grey leaves. The Taylors also staged another plant which attracted much attention. *Gentiana carinata* could have been the smallest exhibit in the show, but is quite exquisite, and fittingly won "new, rare or difficult" against stiff opposition. It was collected as seed from the summit of the Rohtang La at 4000m in north west India. In this class it was good to see the rarely grown dark blue Farinosae *Primula sharmae* from very high levels of Nepal (Brian Burrow), while amongst the newly introduced Himalayan saxifrages on view were *S. neopropagulifera* (J. Mullaney) and *S. rhodopetala* and *S. clivorum* (John Richards). Following the successful expeditions of Ron McBeath, George Smith and others, the cultivation of Asiatic Porophyllum saxifrages is becoming quite a cult. Some, such as the 'legendary' *S. lowndesii* are proving both variable and a handful. Duncan Lowe yet again demonstrated his prowess in growing these plants outside with minimal protection by showing a 15cm cushion with more than 50 relatively large purple flowers, so like the familiar *S. oppositifolia*.

Among many other good plants John Mullaney deserves credit not only for his magnificent *Primula* 'Blairside Yellow', for which he rightly received a Certificate of Merit, but also for the kingfisher blue *Corydalis cashmeriana* with more than 50 spikes just coming into flower.

In section B, the outstanding exhibit was a lovely pan of the exquisite and rare *Trillium pusillum* shown by K. Dinsley. Mr E. Rainford of Leeds took the Gordon Harrison Cup for the most points in that section.

Trillium cuneatum, with dark petals of red and green caught the eye in section C (A. Newton of Ponteland). His wife, Mrs B. Newton, presented the rare *Fritillaria phaeanthera*, delightful with four orange-scarlet tessellated bells, flared at the apex. Mrs M. Taylor of Alston won the Cyril Barnes Trophy for the most points in section C. As in so many recent AGS shows, section B was rather thinly supported, but with over 100 entries in section C the competition was intense, and this augurs well for the future.

An exhibit of beautiful photographs by the local member David Millward earned an AGS special Gold Award. David had accompanied the AGS trek up the Marsyandi Valley, Nepal in 1988. Plants such as *Lilium nepalense, Androsace zambalensis*, the 'snowball' *Saussurea tridactyla*, and *Stellera chamaejasme* showed us all how much more there was to aim at.

As ever, there was much labour behind the scenes. Perhaps 30 people worked uncomplainingly all day. Alan Furness is to be congratulated on his first very successful show as secretary, and wished every luck for next year, when the Newcastle Show is to be part of the Gateshead International Garden Festival (May 26th and 27th).

A. J. Richards

Edinburgh–15 April 1989

After a mild winter and a spring of widely varying temperatures when many plants and shrubs came into growth and flower early in the year, the day of the Edinburgh Show started warm and sunny and was held, as last year, in the Cluny Centre at Morningside.

The George Forrest Memorial Medal was awarded to a remarkably beautiful pan of *Pulsatilla vernalis*, in perfect condition, shown by Sandy Leven of Stirling. The Henry Archibald Rose Bowl was won by Evelyn Stevens of Dunblane with *Lewisia tweedyi*, *Cassiope wardii* and *Primula* 'Linnet', three lovely plants. Evelyn also won the Corsar Challenge Trophy for the best European or American Primula in the show with *Primula* 'Mrs J. H. Wilson', as well as the R. E. Cooper Bhutan Drinking Cup for the best Asiatic Primula, with *Primula* 'Linnet'.

Ian and Margaret Young of Aberdeen were awarded the Reid Rose Bowl for gaining the most points in Section I, and they also won the Midlothian Vase for their *Rhododendron canadense*, (see Fig. 58 p366) the best Rhododendron in the show. The Henry Tod Carnethy Quaich for the best bulb, corm or tuber was won by Lyn and Ron Bezzant with a large pan of the yellow *Pleione confusa*, which also gained one of the three Certificates of Merit given by the judges for notably well grown plants. The other two Certificates of Merit were awarded to Jean Wyllie of Stirling with *Clematis x cartmanii* 'Joe', and Mrs C. Jephcott of Penrith with the conifer, *Chamaecyparis obtusa caespitosa*.

Taking first place in the one pan Fritillaria class was Betty Graham's *Fritillaria tuntasia*, which grows on the Islands of Serifos and Kithnos, off the mainland of Greece, and which is now an endangered species – it was nice to be able to see such a plant and to admire the blue-black flowers at close quarters. Pleiones also were well represented, and Betty Craig of Edinburgh took first place with her large pan of *Pleione limprichtii*, which was a stunning colour. A beautiful form of *Androsace ciliata* with dark pink, almost red, flowers on a tight compact cushion won a first for Bette Ivey, who also had an interesting pan of *Synthyris lanuginosa*, a native of the Olympic Mountains in the U.S.A., and not often seen on the bench.

Iris narynensis won first prize for D. Martin of Scotlandwell – it is a rare iris found in the Tien Shan. Robin Brown of Hexham received the Boonslie Cup for his miniature garden, and also a first prize for a large pan of the double *Sanguinaria canadensis*. Harold Esslemont of Aberdeen was a worthy prize winner, as he so often is, with *Trillium grandiflorum*, while among the Ericaceae an equal first was awarded, one plant being Ian and Margaret Young's *Cassiope* 'Muirhead', in full flower; the other in fruit – Edith Armistead's *Pernettya tasmanica*, the white berried form.

Entries in Section II were both numerous and of a high standard. The

Bronze Medal awarded for the most points in the Section was won by David Rankin of Edinburgh while the Kilbride Cup for a lovely flower arrangement was won by his wife Stella Rankin. Mrs C. Jephcott of Penrith had some nice plants on show – among them a fine *Saxifraga georgei*, a dainty plant covered in flowers, which won for her the Midlothian Bowl for the best plant in Section II. Mr Gerald Wilson of East Linton took first prize with *Helichrysum x Raoulia* 'County Park' as did his Scottish native – *Polygala calcarea*, and David Brown of Edinburgh showed a good plant of *Primula rubra*, grown from seed.

In the Junior Section we were pleased to see some good entries, a nice pan of *Narcissus triandrus* 'Albus' won a first prize for Peter Rankin, and Michael Rankin, his brother, also won first prize with *Primula denticulata*.

Many thanks to Mrs H. Salzen of Aberdeen for her display of some lovely watercolours of alpine and spring flowers, as well as to all those who helped to make it a good and happy show.

Edith Armistead

Perth–22 April 1989

The second successful year at Rodney Pavilion on the banks of the River Tay was blessed with excellent weather and plants. The Forrest Medal was awarded to Evelyn Stevens with a perfect plant of an old favourite, *Primula marginata* 'Linda Pope'. This plant was part of an outstanding six-pan entry which won The Alexander Caird Trophy and included beautiful plants of *Lewisia tweedyi* and *Rhododendron pumilum*, which took the E.H.M. Cox Trophy for the best Rhododendron in the Show. Evelyn completed her successful day by winning the R.S. Masterton Memorial Trophy with a well-flowered *Primula* 'Linnet'. The Masterton influence was very much in evidence this year with the keepers of the National Asiatic Primula Collection, John Mattingley and Peter Burnett, giving an excellent morning lecture on Asiatic primulas and also enhancing the Show with a display of these charming early flowering species that grow so well at Cluny House Gardens.

The 'other' displays and exhibits are all worthy of mention, adding further colour and great interest to the Show. Laurence Greenwood's outstanding exhibit of flower paintings was awarded a Gold Medal with all other displays gaining a Certificate of Merit – Heather Salzen's charming paintings of 'Poppies', Margaret and Henry Taylor's excellent photographs of their exciting Himalayan trip. It was also very encouraging to see a good display of alpines from Peter Foley, and Ian Christie's array of colourful lewisias. The Show was also pleased to welcome the new nursery Ardfearn as well as old faithfuls.

Back to the plants – everyone has their own favourites – my attention

was particularly drawn to *Clematis x cartmanii* 'Joe' that grows in stature each year – a superb new introduction for the alpine gardener.

Margaret and Henry Taylor's 'Joe' fittingly picked up 2 awards – The Major-General D. M. Murray-Lyon Trophy for the best plant in the Show exhibited by a member in the Tayside Region and for the second year running The Joyce Halley Award – best plant grown from seed.

Cyclamen repandum var rhodense also caught my eye as an outstanding plant exhibited by Fred Hunt, who also won The Dundas Quaich – 3 pan class. The delightful miniature garden exhibited by Carole and Ian Bainbridge always seemed to have someone looking at it. Other trophy winners were Betty Craig with a pan of *Pleione limprichtii* in perfect condition which won the Bulb Trophy, Richard Salvin was the Perth member gaining the most points and was awarded The Perth Trophy. Allan Spenceley, all the way from Cleveland, made his journey worthwhile by gaining the most points in Section I which gave him the L. C. Middleton Challenge Trophy. One of his many outstanding plants was an immaculate domed plant of *Saxifraga pubescens* 'Snowflake' grown to perfection and given a cultural award. The displays in Section II were up to a high standard – *Tulipa linifolia* being a good example, displayed by section winner D. Atkinson from Alford who was awarded a Bronze Medal and the Perth Salver for his plants.

The up-and-coming Junior Section Prize this year went to Ayley Salvin from Perth.

Richard J. Salvin

Glasgow–6 May 1989

Glasgow Show, held in Milngavie Town Hall, was blessed with the wonderful sunshine which was so general in May 1989. In spite of the difficult (summery!) climatic conditions during the earlier part of the year, there was an excellent entry in both Sections 1 & 2. We had the unusual event of the premier award, the George Forrest Memorial Medal, being awarded to a plant shown in Section 2. It was to Mrs Audrey Leach's superbly flowered *Leptospermum scoparium nanum* (Fig. 62 p384). The previous occasion when this happened was many years ago at a Dunfermline Show, when the plant so honoured was another New Zealander, *Pygmaea pulvinaris*.

Plants which stood out were, in Section 1, Mr David Mowle's *Iris afghanica*, a most elegant and subtly coloured plant, in immaculate condition. In class 43, A. & V. Chambers' *Rhododendron* x 'Snipe' was beautifully flowered. It was a pleasure to see Drs C & I Bainbridge's *Primula tschuktschorum* – this nivalid from Alaska and the Chukchi Peninsula tends to be a rather fleeting visitor in our climate. Mrs Fraser's *Silene hookeri* demonstrated what an excellent plant it can be, when well

grown. I was struck too, by those excellently grown members of the Campanulaceae, in neighbouring classes, *Edraianthus serpyllifolius* exhibited by Sandy Leven and *Campanula tridentata* shown by Dr Peter Semple.

The Ian Donald Trophy, for a Scottish native plant, was awarded to Andrew Rankin, of Lasswade, for our common Primrose, *Primula vulgaris*, a plant which can compete in its best forms with any primula, except for rarity.

Apart from the Forrest Medal Leptospermum, I was particularly struck, in Section 2, by Dr & Mrs Rankin's *Trillium grandiflorum* and *Celmisia spectabilis,* which contributed to their winning both the Wilson Trophy and a bronze medal in Section II. Mrs Leach also showed a well flowered *Leucojum nicaeense.*

Certificates of Merit were awarded to *Rhododendron* x Snipe and to Mr Tattersfield's non-competitive *Daphne petraea grandiflora.*

Joan Stead

Aberdeen–20 May 1989

Having had a dry mild sunny winter followed by a very pleasant early spring there were fears that most alpines would have completed flowering and that for 1989 at least, our show date would be far too late for exhibitors.

Show day brought a cold misty drizzle, a typical east coast haar. In spite of, or perhaps because of the weather visitors flocked into the Cowdray Hall to enjoy one of the best shows we have had for years. Entries were boosted by many friends from the central belt and one stalwart from Caithness. There were for example seven entries in the three pan class and fifteen in the usually large 'not eligible' class so the judges had plenty of thinking to do.

The George Forrest Memorial Medal was won by Mr Robert Maxwell with a large pan of *Primula auricula.* This pan was shown last year when it won the Craig Cup for the best primula in the show but a further year's growth and perfect timing produced both the Craig Cup and the Forrest for the grower. In contention for the Forrest were *Cypripedium pubescens* with seven perfect flowers flanked by 2 buds just about to open (Mr Fred Hunt) and *Ramonda myconi* (Fig. 59 p366) with many pale pink flowers (Margaret and Ian Young). Both plants were awarded Certificates of Merit.

The Walker of Portethen Trophy for most points in Section One and the Simpson Salver for the best rhododendron in the show were awarded to Margaret and Ian Young. The winning cultivar was *Rhododendron* 'Sarled', a cross between *R. sargentianum* and *R. trichostomum.*

In the new, rare or difficult class was *Nassauvia revoluta* (Fred Hunt), a composite with a loose dome of tight rosettes of grey hairy leaves each

having many rayless white composite flowers. Among plants grown from seed by the exhibitor was *Tropaeolum azureum* adding blue to the many spectacular colours produced by this genus. Both these plants are from South America and illustrate the recent introduction of plants from that region following several trips by Colonel and Mrs Anderson and more recently by Watson and Pern. From southern African (Lesotho) we saw *Rhodohypoxis x Hypoxis parvula* (Mr W. Robertson), an arresting flower, predominantly white with a deep red heart and having a central boss of bright yellow stamens. From New Zealand came *Celmisia holosericea* shown in a very small compact form by Drs Carole and Ian Bainbridge. *Iris ibirica,* described by Brian Mathew in The Iris as 'a rather dramatic plant from the Caucasus', was shown by Fred Hunt. How so few small leaves can sustain such a large flower is amazing.

Fritillaria grayana (Margaret and Henry Taylor) took first place in the Liliaceae, a neat 20cm tall herb with twin flowers. A vigorous floriforous plant of *Primula yargonensis* (Glassford Sprunt) formed part of a large primula entry together with several scented and attractive *P. reidii* both in white and the more usual pale mauve forms.

For massed colour, Lewisias with 21 pans, lit up their section of the bench with a first going to *Lewisia wallowensis.*

Section Two had a very large entry in great variety, probably the best we have seen. *Rhododendron* 'Yaku Fairy', covered with pale green yellow flowers, was judged the best plant in Section Two and won for its grower Mr B. Ball the Aberden Quaich together with a Certificate of Merit. The Special Prize for the best plant shown by a first time exhibitor went to Mr N. Ramsay's *Gentiana acaulis* and the Bronze Medal for most points in Section Two went to Mr R. J. Lilley of Castleton, Caithness.

A non-competitive display was staged by the Aberdeen District Council Leisure and Recreation Department with dwarf hybrids of *Rhododendron yakushimanum* highlighting an attractive rock garden. The Cruickshank Garden showed a variety of plants including the spectacular *Ixia viridiflora, Tropaeolum azureum* and a very well flowered *Saxifraga granulata.* Mrs H. Salzen was awarded a Gold Medal for her wide ranging display of flower paintings.

Wilf Holmes

Fig 60 *Celmisia hectori* (see p371) H. McBride

Fig 61 *Raoulia x loganii* (see p372) H. McBride

Fig 62 *Leptospermum scoparium 'nanum'* (see p380) I. & M. Young

Fig 63 *Meconopsis bella* (see p413) M. Taylor

Fig 64 *Gentiana algida,* Beartooth Plateau, Wyoming (see Part 2 p140, p389) Polly Stone

Fig 65 *Phlox diffusa,* Mt. Hood, Oregon (see p393) Polly Stone

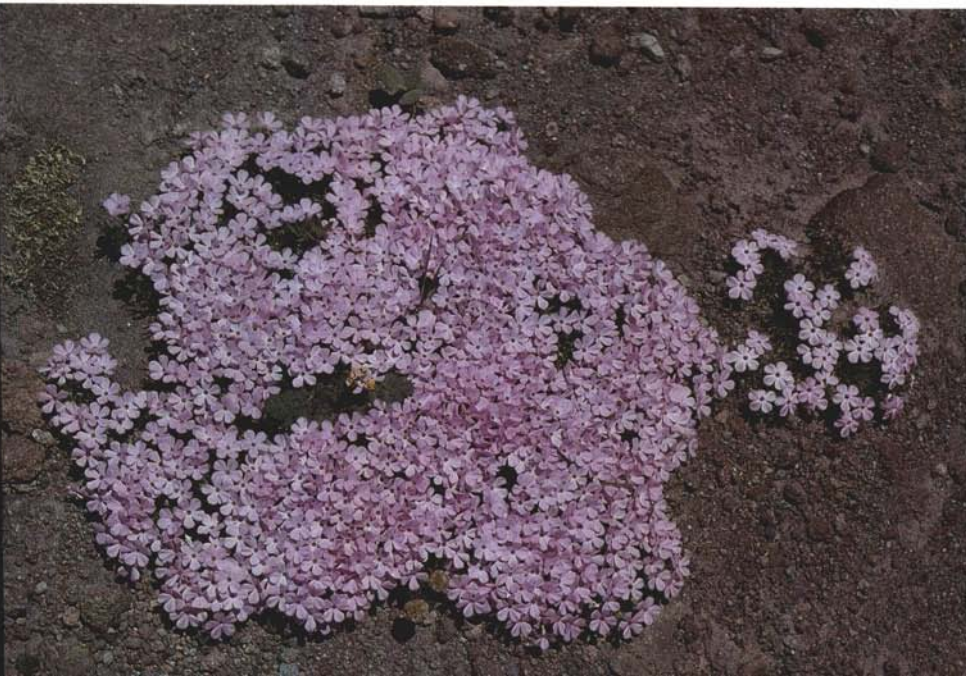


Fig 66 *Polemonium viscosum* – dwarf form. Beartooth Plateau, Wyoming (see p396)
Polly Stone

Fig 67 *Polemonium viscosum* – tall form. Beartooth Plateau, Wyoming (see p396)
Polly Stone

Discussion Weekend, Stirling – 9 September 1989

It was most encouraging to see such a large number of entries at the Discussion Weekend Show with the good summer being reflected in the quality of the silver/grey classes.

The East Lothian Trophy for Three Pans (different genera) was won by Margaret and Henry Taylor with *Erigeron compositus, Lewisia* 'Pinkie' and *Scilla scilloides*. Mrs S. E. Jephcott won the J. L. Mowat Trophy for the best conifer with a beautiful compact *Chamaecyparis obtusa caespitosa*.

For the fourth time, Mrs A. R. Spensley won the Forrest Medal with her *Cyclamen graecum*. One wonders if any one plant has ever won so many such awards.

Ian and Margaret Young won the Peel Trophy for three pans gentian with *Gentiana vorna, G.* 'Devonhall' and *G. farreri* – the *G. farreri* being awarded a Certificate of Merit. They also won the Mary Bowe Trophy for the most points in Section One.

In the silver/grey classes, Margaret and Henry Taylor were awarded a Certificate of Merit for their *Helichrysum rupestre*. Other plants in this group which attracted much comment and admiration were a superbly grown *Celmisia longifolia* shown by Susan Tindall and Doreen Fraser's beautiful *Senecio leucophyllus*.

Alan Spenceley was awarded a Certificate of Merit for his large tight cushion of *Pygmaea pulvinaris,* which for most of the year is grown in an open frame and watered overhead.

The 'Grown from Seed' class was won by David Mowle with *Campanula lasiocarpa* (A.G.S.J. 291) from seed collected by the A.G.S. expedition to Japan in 1988. The seed came from plants at 1700m on east facing rocky slopes of Mount Rishiti and was sown in a 50/50 leafmould/granite chips compost in an open plunge bed. The Campanula was about 8-10cms high and of compact habit with small almost hyacinth blue flowers.

The 'New, Rare or Difficult' class was won by Susan Tindall with *Hymenoxis cooperii canescens*. The *Gentiana paradoxa* shown by Betty Craig raised much interest. This herbaceous member of the Gentianaceae has single flowers at the end of long (30-60cm) stems which carry many whorls of as many as six narrow leaves. It has a limited distribution – mainly in the Caucasus where it grows at 600-2500m in oak woods, stony ground and alpine meadows.

The Logan Hume Trophy for a miniature garden was won by Dave Kershaw, who also won the Bronze Medal for the most points in Section Two.

The best plant in Section Two – The East Lothian Cup – was won by R. J. Lilley with *Picea abies* 'Little Gem'. He was awarded, also, a

Certificate of Merit for his *Raoulia haastii*.

Roger Robinson won the Wellstanlaw Cup for the best arrangement of flowers with a miniature arrangement on a 10cm diameter stone he had found in Switzerland.

The Holiday Photographic Competition was won by Margaret and Henry Taylor with 'South Yugoslavia'. They were also awarded a Gold Medal for their exhibition of beautiful photographs of the 'High Pyrenees' which complemented their lecture on that subject, and Laurence Greenwood was awarded a Gold Medal for his watercolours of flowers.

R. H. Drummond

Some Western American Alpines, A Personal Commentary: Part Two

MIKE & POLLY STONE

THIS article is a continuation of one started in the Stone Column for January 1989 (No. 83, pp129-141). It has now been separated by request, and forms the second part of a series on western American alpines. A bibliography will be included in the concluding part. Part one covered Asteraceae to some of the Gentianaceae, alphabetically by family.

Gentianaceae (continued)

Apart from the smaller alpine gentians, including the striking *Gentiana algida* (Fig. 64, p385), described in Part 1, there are a number of taller herbaceous species in the Western States. Since David Wilkie wrote his classic book on "Gentians", lumpers have been busy amalgamating a number of species in this group, and these changes are worth recording.

The most widespread species is probably *Gentiana affinis*, found over a huge range from Minnesota to British Columbia and south to New Mexico. It usually favours streamsides and other moist places, and can occur at up to 3800m in the Rockies, thus qualifying as an alpine. We have some 3 year old seedlings from A.R.G.S. seed collected in Colorado, which have yet to flower. In general appearance they remind us of a narrower leaved European willow gentian, *G. asclepiadea*. As a garden plant the American is probably inferior as it is said only to open in bright sunlight. The westernmost form from east of the Cascades was once separated as *G. oregana*; and *G. bigelovii* of Colorado is connected by intermediates, so has also been merged with *G. affinis*.

Still in Colorado, we missed seeing *G. parryi* in the wild although it is actually quite common. Perhaps we were too early for the flowers. We do have a germination from Sonia Collins' seed, but they have yet to be pricked out, so it is obviously too early for us to personally comment on garden value. However, since it has been compared with both *G. calycosa* and the useful summer-flowering *G. septemfida*, it should be worth growing.

A somewhat shorter plant than *G. affinis*, as befits its sometimes drier habitats, *G. parryi* lacks the latter's axillary flowers. The individual corollas more than make up for this by being somewhat larger. They are

carried, 2-4, in an upright terminal cluster. *G. parryi* has a purely Rocky Mountain distribution from Wyoming to Arizona, and now includes *G. bracteosa*.

We used to grow the far western, boggy ground species *G. sceptrum*, but our plants were overgrown in a herbaceous bed and died out. Although described by Wilkie as one of the finest American species we found it disappointing, as the flowers stubbornly refused to open. That said, we have raised it again since, from seed originating on Vancouver Island; but then we always were inveterate collectors. A dwarf form, from right on the coast, was once separated as *G. orfordii*; and *G. menziesii*, which only differs in minor calyx detail, has also been lumped with *G. sceptrum* in current floras.

Much finer than the above, in our experience, is a gentian we had been growing, for over 15 years, under *"G. linearis"*, a name which appeared to suit its narrow lanceolate leaves. When Reggie Kaye was at Askival a year or so ago, he saw it in flower and immediately requested seed, in due time. Really, no further recommendation should be necessary! When Jim Jermyn also expressed an interest this year, I decided to check its identity. From "Britton and Brown" I discovered that our plant was in fact *G. puberula*, which has spreading ovate corolla lobes, much longer than the cleft plicae in between. The true *G. linearis*, an Eastern species, has blunt rounded lobes, only slightly longer than the plicae.

G. puberula is a prairie species growing from Ohio westwards to the Dakotas and so qualifies for inclusion. It could be compared with the Japanese *G. triflora*, but is a much more graceful plant. The opposite pairs of long thin leaves are well spaced on the upright 30–40cm stems. With only 2-3 stems per plant, and no basal rosette, this species can add height to a planting while occupying little space. The typical gentian flowers are 3–4cm long and a clear bright medium blue, like Crater Lake! They open well on mild dry days, with good light. Direct sun is unnecessary.

Like many gentians, *G. puberula* has deep-diving thong-like roots, and resents disturbance. Propagation by seed is therefore indicated; seedlings can in our experience take several years to really establish and show their true worth.

Leaving Gentiana itself, we come to the unmistakable monument plant: *Frasera speciosa,* with its huge spikes of 4 petalled, greenish-yellow flowers above a large pale-green basal rosette. For garden use it has no advantage over several Veratrum species, which in addition are true perennials. Frasera is monocarpic, and dies after flowering.

To end on a higher note, the same Idaho slopes where we found *G. calycosa asepala* were also home to a really fine form of *Swertia perennis*, with striking violet-purple flowers. It was rather dwarfer than the general

run of this widespread circumpolar species, at only 15cm high; and the elliptic basal leaves were relatively broad. The corolla lobes, about 12cm long, are only joined at the base, and spread widely giving rise to the American vernacular name of "Star Gentian". The species as a whole has been condemned as dowdy, and indeed we would not wish to grow the slaty-blue forms we have seen in Europe; but we thought the Idaho plant, if not a super-star, at least a mini!

Polemoniaceae

Florally speaking, this, the Phlox family, is superficially very similar to the Primula family. They both have a corolla made up of 5 lobes joined together at the base to form a tube. Their calyces, of 5 joined sepals, appear equally similar. In both, the stamens are fused to the inside of the corolla tube, but they differ in their positioning. In Primulaceae, the stamens are opposite the petals, in Polemoniaceae the stamens alternate with the corolla lobes, as in the related Gentianaceae.

If, regarding gentians, the New World gives precedence to the Old, the tables are here turned with a vengeance. Polemoniaceae is predominantly North American; it takes up precisely half a page in Flora Europaea, and even then one of the two genera is represented by garden escapes from California! After the comparatively easily separated species of gentian mentioned above, we are now on less certain taxonomic ground, especially in the major genus, Phlox.

In Europe we are very fortunate in having an extensive and well-established literature on our alpine flora. There are well illustrated handbooks available to help identification, many with drawings which are superior to photographs for this purpose. Less easy for the amateur are diagnostic keys in, say, a local Flora. These keys nearly always give one a straight choice of two alternatives at each step, sometimes not easy to make for a wild specimen.

In the wild, plants grow in populations; groups of individuals which interbreed exchanging genetic information. The taxonomist has to assign these populations to various compartments labelled species, subspecies, variety etc., and then devise a key to separate these compartments unambiguously.* If, as in the case of many phlox, the plants are widespread, growing in a range of habitats which can alter their growth habit, his task is further complicated as:

Genetic Make-up + Environmental Influence = Physical Appearance.

*It is ironic that, at a time when new techniques of genetic and biochemical analysis can provide much additional data on the interrelation of plant populations, British taxonomy is in decline. This is possibly because it is not seen as a "useful" applied science. Yet, how can one screen plants for possible drugs if the plants have no names and cannot be identified?

Those plants which are more liable to be modified by their environment are said to show greater "plasticity". Obviously certain features of a plant are more plastic than others; floral structure is virtually unaffected whereas stem height, leaf size and flowering time can be subject to considerable variation. Thus these latter are not in general "good" characters to be included in any key. *Moneses uniflora* is an excellent example of a "clear" stable species, quite distinct from all its relatives. In spite of a huge circumpolar distribution it is instantly recognisable wherever it is encountered. Phlox, on the other hand, show a high degree of plasticity; delineation of species is open to argument, which does not help the gardener trying to find a name for his plant. This is especially true of the western cushion phlox, called Microphlox by Wherry in his monograph. Although typically alpine in form, they are by no means confined to high places, their wide range, horizontally and vertically, enhancing their variability.

We were already aware that many of our garden phloxes were not really alpines, *Phlox adsurgens, P. divaricata* and *P. stolonifera* are woodlanders, while *P. bifida* and the very well known *P. subulata* are found in dry rocky or sandy areas at relatively low altitudes, the last a sort of Eastern American equivalent of *Aubrieta deltoidea*. Nonetheless it was still quite a surprise to encounter cushion Microphlox in the open coniferous woodland, between tall prairie grasses, under sagebrush and even in the gravel of car parks! The one place we hardly ever saw them growing was in crevices as saxatile plants. Even the alpines we saw seemed to prefer talus, scree, and other disturbed areas.

Dr. Wherry's monograph on the genus phlox is now over 30 years old, and not surprisingly more recent studies have changed some of his names and relationships. As an example of the complication that can arise, let us consider the name "*Phlox douglasii*" found in virtually every catalogue of alpines. The plants grown in this country under this catch-all label do not of course represent a wild species any more than do the European *Primula x pubescens* hybrids. Like the latter, the variously coloured clones of *Phlox douglasii* "hort" are of garden origin; Lincoln Foster suggested they originated as crosses between *P. subulata* and one or other of the Western Microphlox. Since it is at present uncertain exactly to what entity the name *P. douglasii* originally belonged, it has been discarded in the current Floras. Thus there is no real reason why it cannot continue to be used for the garden race.

There are now considered to be 3 species within what was once the orbit of *P. douglasii: P. caespitosa* (ex *P. d. rigida*), *P. diffusa* (ex *P. d. diffusa)* and *P. hendersonii* (ex *P. d. hendersonii*). We had hoped to see *P. hendersonii* in the Northern Cascades, where it is found at high altitude from North

Oregon to Central Washington, but unfortunately we did not manage to get high enough in the right place. From Ruben Hatch's slide at the A.R.G.S. A.G.M. in Oregon, it appears a compact mound, the leaves adpressed to the tightly packed shoots and solitary terminal "off-white" flowers. *P. caespitosa* is found further East, from North East Oregon to North West Montana, an area we did not visit, but should be recorded as its name has been transferred from a different Rocky Mountain species now known as *P. pulvinata* (q.v. below). A similar change of names has occurred in the genus Primula, *Primula nutans* now refers to an Arctic Farinosae species, not the well-known Soldanelloides primula, which in turn has become *P. flaccida*. *Phlox caespitosa* is apparently not a cushion-plant, but of erect, loosely tufted habit, up to 15cm high. A plant we acquired as *P. caespitosa* is not this at all, but most probably a form of the ubiquitous *P. hoodii*.

Phlox diffusa (Fig. 65 p385) is so-called, not because it is widespread in the Cascade-Sierra region from California northwards, but because it is relatively wide-spreading, forming cushions or mats rather than buns. We saw many plants in flower at moderately high altitudes on four of the Cascade volcanoes, but apparently it can occur at quite low altitudes near the northern end of its range. We thought these plants strongly reminiscent of the "douglasii" hybrids, lacking only the strident reds and rich violet-purples of some cultivars. The wild plants varied from lavender, through clear white to a rich pink. They were also much tighter in growth, the largest around 0.5m across. Plants we raised from wild seed of *P. diffusa* resemble the spreading arms of an octopus more than a cushion – the plasticity of phlox again! So powerful is the influence of our softer, wetter, garden climate on all these western phlox that it is impossible for us to get them to grow "in character". Their loose growth allows the same mosses that infest our mown areas to invade. Untouched the plant becomes a mossy dome, with only the tips of the flowering shoots peeping out. We do try to manually remove the worst of the moss by hand during our autumn clearing up.

From the gardener's point of view small forms of *P. diffusa* merge with the quite well-known and widespread "steppe" species *P. hoodii*. The vegetative characteristics of these phlox really are very similar. All are needle-leaved, described technically as linear (narrow, with a relatively long parallel-sided centre section) to subulate (awl-shaped i.e. a long thin triangle). The degree of hairiness, usually on the margin, varies a great deal even within Dr. Wherry's narrowly defined taxa.

On the one hand, the "douglasii" hybrids have somewhat larger leaves than typical *P. diffusa*, of a glossier green and more crowded into tufts, a characteristic possibly from *P. subulata*. On the other, *P. hoodii* has shorter

stiffer leaves, often with arachnoid (like the sempervivum) hairs on the lower half. The plants we grow as *P. hoodii* are relatively smaller, but as usual do not make the tight cushions we saw in the wild. Whatever their pedigree, they make good trough plants for full sun.

Moving on down the scale of size, *P. hoodii* in turn merges into *P. muscoides (bryoides)*, another dry ground species. The tiny leaves around 4mm long are adpressed to the stems like a woolly cassiope or some helichrysums, the stems packed into dense buns. As we saw these during the 1988 U.S. drought, they were completely brown and dormant. Seedlings we are growing on one of our winter-covered troughs are far too loose; they resemble tiny three-dimensional candelabra. It is a species perhaps more suited to southern alpine houses.

P. multiflora is found over a wide altitude range within the Rocky Mountains proper, giving us the opportunity to both see flowers and collect seed. We now know why so little wild phlox seed appears in the exchanges; to quote the late Dr Worth; "Seed is extremely difficult to procure, for it is scattered the instant it is ripe". If one does find the odd capsule at just the right stage, there is generally only a single seed in it. Yet seed remains the only really viable way to introduce these tap-rooted gems into cultivation.

In Idaho's White Cloud peaks there was a very large-flowered population growing on a ridge at 3000m. This could represent the *P. multiflora depressa* of Dr Wherry's monograph. Some specimens were absolutely superb, with overlapping corolla lobes, their solid mats and domes of white recreating, along with scarlet castilleja and blue penstemons, the national colours of many nations. *P. multiflora*, in spite of its name, is single-flowered like the foregoing species, but has a laxer more tufted growth habit with softer leaves up to 3cm long. Some patches were quite large, several metres across.

High in the Bighorns we saw many smaller white-flowered cushions we believe also represent *P. multiflora*. They were growing in disturbed areas on the roadside. Hardly an alpine situation, but then the Bighorn Range is not very alpine in character. Up on top it reminded us of the Yorkshire Dales: rolling grassy fells, limestone edges and flocks of sheep, just "trucked-in" and suffering from altitude sickness. They looked so miserable Poll, having suffered herself on Mt. Evans earlier, almost commiserated, then remembered just what their next meal might be! Inevitably, *P. hoodii* was also present, but here is easily distinguished by its shorter, hairier, leaves.

Across the Bighorn Basin, we found a lavender-flowered population of *P. pulvinata*. They were a little more compact than the two last species as befits their more rugged habitat on the Beartooth Plateau. Another species native to the Rockies, but unlike *P. multiflora*, not confined to them, being found

right across the Great Basin to the East Cascades and Sierra, this is the plant once known as *P. caespitosa*. It resembles the less hairy forms of *P. hoodii*, but the calyx is glandular. This is also a feature of *P. sibirica* (including *borealis*), the only phlox species to extend from Alaska into Asia, and Weber has made *P. pulvinata* a subspecies of *P. sibirica*.

Good as the last was, we have kept the ultimate alpine phlox until last. One of Poll's slides, taken on a ridge-top at around 4000m shows cushions of *Eritichium nanum* and *Silene acaulis* in full flower. At first glance it could have been taken on a European mountain, until one looks carefully at the tight spiky-leaved bun protruding into the bottom left. The silvery-white flowers of *Phlox condensata*, with their contrasting dark eyes, proclaim the Colorado Rockies. This was by far the smallest and most purely alpine of the many phlox species found during our travels. We raised a few plants from Panayoti Kelaidis' seed several years ago. They have grown quite well, especially one on a winter-covered trough, where its foliage contrasts beautifully with that of *Androsace vandellii*.

There is little doubt from the alpine gardener's point of view, that phlox rather dominates Polemoniaceae. The family does however have other suitable gems tucked away. We described one, *Linanthastrum nuttallii*, in our January 1987 Column. Since that time of writing our plants have survived two contrasting winters outside on the scree and raised bed without protection. Although semi-woody, we find it preferable to cut them back in early spring. We were pleasantly surprised to find this "new acquaintance" in Idaho, hundreds of miles north of the origin of our seedlings in Arizona.

Another odd-plant-out in the family, but this time totally unfamiliar to us, is the well-named *Gilia (Ipomopsis) globularis*. High up on a ridge in Colorado, amongst other choice alpines, we came across a plant we could only call "Blue-Ball". Apart from placing it in the Polemoniaceae, we had no idea of its identity. Our handbook, by Ruth Nelson, gave the flower colour of *Gilia globularis* as cream, possibly following the Colorado Flora by Harrington. Therein he compares it with the off-white *G. spicata*, saying "flowers darker brown on pressed material but are probably cream or whitish when fresh". It is a little sad to think that he had not seen the beautiful violet-blue globes of the living plant. These are carried singly on stems of around 15cm, well above the basal tufts of linear hairy leaves.

After phlox, polemonium itself is probably the best known genus in this family, containing the "Sky-pilots" and "Jacob's ladders". It is perhaps convenient to start with one of the latter, *Polemonium pulcherrimum*, as it is quite well known and easy to raise from seed, sometimes a little too easy! It has the typical narrowly pinnate foliage of the genus, with up to 20 opposite leaflets. The flower-heads appear somewhat messy, owing to

the presence of bracts. The individual corollas are saucer-shaped, usually purplish-blue, with an orange or yellow eye. Said to vary from 5 to 30cm high, our plants have been around 10–20cm. This species has a very wide distribution on rocky slopes, from the Californian Sierra east, just into Montana, and "North to Alaska". In Colorado it is replaced by *P. delicatum*, sometimes made a variety of the former. As we saw it in the krummholz transition zone, it looked very different, running about under wind-blasted conifers. The flowers are slightly more funnel-shaped, of a lovely pale lavender, delicately veined internally, and with a smaller greeny-yellow eye.

In the alpine zone on the Cascades of Washington and Southern British Columbia grows *P. elegans*, a close ally of *P. pulcherrimum* with similar, if more congested, opposite rows of leaflets. Judging by the foliage, we are fairly sure we found this in the Olympic Mountains. The seed was not yet ripe, but a friend collected some later and it has germinated well. Our findings were long past flowering, so we had no certain way of telling if they were indeed *P. elegans*. The calyx and corolla of the latter should be longer than wide, the lobes not so wide-spreading as those of *P. pulcherrimum*. According to Clay the flowers, in a tighter head, retain the yellow eye. It could be that there is a continuous upward progression from *P. pulcherrimum var calycinum* of mid elevations, through the dwarfer, distinctly tap-rooted *P. pulcherrimum var pulcherrimum*, to *P. elegans*, with its more glandular foliage and open flowers.

P. elegans is included in an excellent survey of the Sky-Pilot group by Margaret Williams and Roger MacFarlane in AGS Bulletin No. 155. Here it is the odd man out, the other three having a quite different foliage. Their leaflets are divided into several segments, appearing to form condensed whorls around the rachis. For some reason we had always thought of *P. viscosum* as a scree plant, possibly misled by photographs of the Sierra Sky-Pilot, *P. eximium*. It was therefore quite a surprise that most of the plants we saw, from Colorado northwards were flowering in the alpine turf. They were also taller than we expected. Seedlings we had raised flowered on stems of about 15cm, whereas most of the meadow plants were around 20cm, sometimes a little more. This form has relatively long tubed corollas, of a dark violet-blue, the lobes not spreading widely. There is no eye (Fig. 67 p386). In some places we found a quite different form – rather dwarfer with fewer, larger flowers (Fig. 66 p386). The corollas were shorter tubed, the lobes slightly more wide-spreading, and a much paler lavender colour. In the Beartooths the two phases appeared to be quite distinct, we saw no intermediates. This supports the name *P. grayiana* given to the dwarfer paler plants but back in Colorado we had seen a full range of intermediates. Incidentally the name *P. confertum* used by Farrer and in some of the early S.R.G.C. Journals has now been discarded.

There is obviously a complicated taxonomic situation within the Rocky Mountain Sky-Pilots, perhaps a fitting point at which to bow out of this personal sketch of the alpine Polemoniaceae, and move on.

Polygonaceae

This is a family through which the wise alpine gardener treads very warily indeed. It contains some terribly persistent weeds, such as sheep sorrel; some real thugs like Japanese knotweed, and an awful lot of coarse growing, rather boring plants. Hidden away however, there are a few real gems, some of which we considered to be amongst the most beautiful alpines we have ever seen growing wild.

Polygonum newberryi is definitely not in the last category. As we saw it in the Cascade pumice deserts, it must rank as one of the world's least attractive alpine plants. According to Ken Love it can produce a good red autumn colour (like a docken dying from glyphosate?). The American bistort *P. bistortoides* was very common in the alpine meadows of Colorado, but with small white heads on rather weak, straggly, stems of 30cm or more, it is not of much garden value. *P. affine* and *P. vaccinifolium* have nothing to fear from the New World.

The gems are to be found not here, but in the exclusively Western American genus Eriogonum. The genus is a large one, with something in excess of 150 species. Fortunately for the writer if not for alpine gardening, the vast majority are either tall annuals or rather coarse growing perennials.

Eriogonum, in common with polygonum, has a compound inflorescence, but differs in that each flower cluster is subtended by a cone or bell-shaped involucre. In the alpine species the flower heads are more or less globular, but some of the annuals are openly branched. The individual perianths are rather papery, and like helichrysum can last a long time. Indeed we found it difficult to tell if the plants were in seed. This, coupled with their tendency to be summer flowering anyway, gives them the potential to provide colour in the alpine garden or house at a valuable time. They are deep rooted, often rather woody plants, their branches covered with the withered remains of many seasons' foliage. This could present a problem with mould for outdoor cultivation in a damp climate. The branches terminate in rosette-like tufts of generally hairy leaves, from which spring the flowering scapes.

As to names, Eriogonum appears to have evolved the same sort of species complexes that we see in phlox. There seems to be something about the Wild West; nature way out there does not grow'em in neat convenient taxa. It could be that across this vast territory the successful plants are those with sufficient plasticity to cope with the extremely

variable environment – from tundra, through forest, to desert and steppe. The situation being thus, the alpine gardener is well advised to seek out, if at all possible, a particular form of a species with his or her desired characteristics. The prevalence of woody tap-roots once again indicates seed-raising as the most promising method of introduction.

For many years we had only one representative, a form of *Eriogonum umbellatum* originally from the late R. B. Cooke's garden near Hexham. This species is often mat-forming, the rosettes of flat leaves, on horizontally spreading woody branches, can root down. In the larger forms the flower stems are multi-headed, with a whorl of leaf-like bracts where the stems divide. The heads can be any colour from pale sulphur yellow through orange to a rich red, sometimes in the same stand. We saw particularly good reds on Targhee Pass, west of Yellowstone, but these roadside plants are a little tall, at 0.5m, for the rock garden. High altitude races of this polymorphic species are much dwarfer with capitate inflorescences; our plant is one of these.

A few years ago it was joined here by *E. ovalifolium var nivale* raised from Wayne Roderick's seed. Their small rosettes of thickish leaves are by far the whitest of any plant we grow. Similar plants made a unique sight for us on the black lava fields at Craters of the Moon in Idaho, each beautifully spaced from its neighbours as if bedded out. These were long past flowering but further north in the White Clouds, *E. ovalifolium var depressum* was still at its peak. A little larger in leaf, and only slightly less white, from a small mat of rosettes spray decumbent flowering stems. The heads varied from delicate cream to a subtle crushed strawberry. Truly, as Gwen Kelaidis says in her seedlist, one of America's greatest alpines. The warning mentioned in the introduction applies to this variable species, not all forms are so superb.

In the Olympics, the foliage mats were equally good, but they have smaller rich cream to soft yellow heads on longer upright stems. Quite nice really, if we had not seen the Idaho plants.

The White Clouds were eriogonum territory par excellence for us. Growing alongside *E. ovalifolium* were two other populations, a dwarf form of *E. umbellatum* with good sized yellow heads (Fig. 68 p403), and a species new to us, *E. caespitosum*. This formed cushions of more upright, smaller, oblanceolate leaves, silky–hairy, and with a slight, but distinctive brownish cast. The flower heads, somewhat flattened on top, varied from good yellow to rusty red, scape length depending on exposure. The species is not wholly or, even chiefly, an alpine one. A few seeds have germinated, and we intend to try this species in a winter-covered trough. They came through the 1989 "August Monsoon".

Away from this centre, two other species are well worth mentioning.

Above the Colorado treeline lives *E. flavum var xanthum*, the alpine race of yet another very widespread species, *E. flavum aquilinum* being found in Alaska. The grey haired leaves are revolute, making them appear thicker, and the bright yellow heads, with just a hint of green, are very short stemmed in the wild. Once again, we have seedlings coming on, and, being a true alpine, we have high hopes of this species.

At the other end of our trip, on the Cascades we met another genuine alpine, *E. pyrolaefolium*. As its name suggests, the long petioled rounded green leaves resemble those of Pyrola. Pink in bud, the flowers open silvery-white, speckled with the violet of protruding anthers. A distinctive glabrous species with which to conclude our dip into this epitome of American alpine genera.

Portulacaceae

Just as Polemoniaceae means Phlox to the alpine gardener, so does Portulacaceae mean Lewisia. This genus has many fans and really needs no propaganda from us.

We find *Lewisia columbiana* and its variety *L.c. rupicola* the best plants for the garden, seeding themselves freely in any well drained soil. Our finest plants of *L. cotyledon* are not, as convention would have them, growing sideways in a wall, but on the flat right at the base of a pine tree. They found this position for themselves, the pioneer is now over 6 years old and still increasing in size.

We missed seeing either of these wild, but we did find *L. pygmaea* in flower in Colorado. After but a cursory glance, it was obvious that the plant we had been growing under this name was not the true species. It should be very close to *L. nevadensis* (bane of the seed exchange) differing only in its toothed glandular calyx. The typical wild plant has bright magenta pink flowers on short stems, but Poll found a nice group of white flowered plants, eyed and veined in green, which reinforced the kinship with *L. nevadensis*. A tiny, snow-patch plant at high altitudes, *L. pygmaea* should be appropriate for a trough if it tolerates our environment. *L. nevadensis* is very easy here.

Claytonia megarhiza bears an obvious family likeness to the lewisias: the same sort of thick fleshy rootstock, capped by a rosette of succulent foliage, frequently suffused with deep red. The flowers are actually in racemes but this is not obvious in the wild as they are held very close to the foliage.

They are generally white, sometimes veined or tinged with pink. We found occasional individuals in Colorado with quite rich pink flowers. Deep pink flowers are the rule for the Wenatchee variety, *Claytonia megarhiza var nivalis* which is available in commerce in Scotland.

As the name suggests, this Claytonia has enormously deep roots, so yet again seed propagation is recommended, and early planting out, before the fleshy taproot is irretrievably coiled in its pot.

The "Pussypaws" *Calyptridium umbellatum* (= *Spraguea umbellata*) was quite eye-catching, especially in the pumice sand on Crater Lake and Mt. Hood, but there was something about the combination of dark green, thick, leaves and dry papery-pink sepals which did not particularly attract. To the uninitiated it might be mistaken for an eriogonum but the alpine species of this genus have far more class.

Primulaceae

Like Lewisia, Primula has an extensive literature of its own, and the American species are well-covered in the A.G.S. Monograph by Smith, Burrow and Lowe (1984).

We have found *Primula parryi*, as it grows for us at Askival, but a miffy shadow of the glorious stands lining melt-water streams in Colorado (Fig. 69 p403). How does one grow a plant which likes to be soaking wet in spring, drier in winter, in a climate which provides moisture the other way round? A stream on tap, and winter covers are an obvious, but highly artificial, solution.

Primula angustifolia, a much smaller relative of *P. parryi*, we found generally higher up in the tundra zone, right up to 4350m on the summit of Mt. Evans. A plant put out in one of our winter covered troughs in 1982 has steadily expanded its tuft of lanceolate leaves outwards, while remaining below 5cm high. The single flowers have appeared regularly every year since, below the leaf-tips but clearly visible in the thin foliage. No viable seed has been set; perhaps it needs a mate, a situation we can now rectify. In the wild the corollas varied to quite a rich pinky-purple; these darker specimens are well worth selection.

We cannot agree with the statement in the A.G.S. Monograph that *P. angustifolia* grows in relatively dry conditions. Most of the plants we saw were tucked under boulders, or in sheltered snow-melt hollows. On the 3700m flank of one ridge, we came across a flush which contained both *PP. angustifolia* and *parryi* in flower together. Our antennae are tuned, by visits to the Alps, to the possibility of natural hybrids; and, after 10 minutes of so careful search, we found one plant that very probably was *P. angustifolia x parryi*.

It has intermediate foliage, and twin flowers with the glandular calyx of *P. parryi*. Since it had not to his knowledge been recorded before, Panayoti (with the merest twinkle in his eye) wanted to squash it; but we would rather have the live plant than it be immortalised in some herbarium.

There are a number of closely related species occurring to the south and

west of the above two, several with very restricted distributions. We have no experience of trying to grow them. There is however, on one of our winter covered troughs, an American primula which reduces our *P. angustifolia* to the status of a mere youngster: the Sierra Nevada endemic *P. suffrutescens*. Raised from Boyd Klyne's seed, it was planted out in 1978. Since then the mat has expanded and contracted several times as hard winter frosts or summer droughts kill back some of the branching rhizome-like stems, followed by regrowth. Belonging to a different section from the other American species – the Cuneifolia, *P. suffrutescens* does indeed have fleshy wedge-shaped leaves all along the stems, the lower brown ones persisting with us. Said to be shy-flowering in cultivation, our plants bloom intermittently throughout the summer, but never enough scapes at once to make a real show. We have seen photographs of superb specimens in the wild, one very good reason to return to the high Sierra!

It has been said that the Shooting-Stars or dodecatheons make up for the lack of primulas in north America. This is only true up to a point, for there is far less diversity of form in the genus Dodecatheon than among the primulas. Although there are somewhere around 30 species and subspecies, they all follow the same basic pattern: the foliage all basal, the scapes relatively tall carrying umbels of characteristic flowers with reflexed petals and protruding stamens. The flower colour is equally restricted from white through pink to purplish shades, with a dark ring at the mouth. Although there may be yellow zones and rings near the base of the lobes, we have never seen a self-coloured cream, never mind real yellow, or a true violet. From the gardener's point of view the only significant variations are in overall size, leaf-shape, and dormancy period.

Dodecatheon pulchellum has almost attained the status of a weed in one of our borders. It is, however, lighter in growth than, say, *Primula denticulata*, and so self-sown seedlings can be tolerated in places where the latter must be removed lest it overgrow a choicer plant. *D. pulchellum* is in all probability so accommodating in the garden because it has a very wide range both geographically, from Alaska to Mexico, and in altitude. Down on the plains and foothills it was long over by the time of our visit, and we had almost given up hope of seeing a good stand when we came across just such in a snow-hollow on the Beartooth Plateau. These plants appeared very similar to the ones at home, but a few days earlier on the Bighorns we had found some tiny single-flowered dodecatheons in seed, 4–5cm high. Only two species are recorded for the area, *D. pulchellum*, naturally, and *D. conjugens*, which has basically an intermontane distribution from the eastern Cascades and Sierra to West Montana and Wyoming. The key difference requires detail of the anthers, so positive identification will have to wait until our findings flower for us.

The two species so far mentioned both have "typical" dodecatheon leaves, lanceolate or oblanceolate, and tapering gradually at the base, however much they vary in size. *D. hendersonii* on the other hand has quite distinct foliage, the thick ovate leaves taper abruptly to the petiole and tend to lie flat on the ground. They have the same bluish tinge seen in *Primula glaucescens*. The flowers are slimmer than in *D. pulchellum* and less vividly marked around the mouth of the tube. The plants form bulbils on the roots, sometimes to the extent that congestion inhibits flowering. Also, like many true bulbous plants, this species dies down fairly soon after flowering; an adaptation to a summer dry habitat in the Californian Coast ranges and northwards. We have found it has no objection to summer rainfall in Scotland, provided the soil is open.

On the other side of *D. pulchellum*, from both the appearance and growth period points of view, are two closely related species, *D. alpinum* and *D. jeffreyi*. Whereas *D. pulchellum* dies down in late summer, *D. alpinum* has the usual growth cycle of an alpine, remaining green until well into autumn. It forms upright tufts of linear-oblanceolate leaves, noticeably narrow for a dodecatheon; and the flowers are unusual in consistently having only 4 corolla lobes. Plants we raised from seed have a tinge of lavender but we saw a fine clear pink form on Mt. Lassen. The species as a whole is centred on the Cascade-Sierra region, with outliers in Utah and Arizona. We have seedlings coming on from this last State; it will be interesting to compare them.

D. jeffreyi is potentially a much larger species, up to 60cm high with leaves up to 30cm long and over a dozen flowers to the umbel. In the wild we found it in soaking wet places, even in running water, but in Scotland it thrives under the same conditions as Meconopsis. It can have either 4 or 5 lobed flowers (an old synonym was *D. tetrandum*) but is easily distinguished from *D. alpinum* by the spreading stamens.* Plants raised from Wayne Roderick's seed have remained in growth throughout the season.

Another species we have raised from the same source gave us quite a surprise when it flowered for the first time this year. *D. clevelandii ssp insulare* produced striking tricoloured blooms, with a zone of yellow just above the prominent dark ring, shading to palest pink towards the tips of the lobes. Although it hails from the Californian coast, south of San Francisco, it has not proved difficult to grow here in a sunny border. The foliage dies down not long after *D. hendersonii*, but the scape remains for several weeks as the seed slowly matures.

Although white forms of several dodecatheons have been recorded, there is only one species which is normally white: *D. dentatum*. The leaves of this species are broadly similar in size and shape to those of *D. hendersonii*.

* In our experience, both garden and wild, the filaments separate as the flower ages. Some herbarium specimens may be too immature to show this feature.

Fig 68 *Eriogonum umbellatum,* White Cloud Peaks, Idaho (see p398) Polly Stone

Fig 69 *Primula parryi,* Mosquito Range, Colorado (see p400) Polly Stone

Fig 70 *Primula wollastonii* (see p417)

Peter Burnett

More or less toothed, as the name suggests, they are much thinner in texture and of a bright grass green. It is said to require shade but we have found it tolerant of some sunshine up here, providing as always the soil remains moist. It is a rare plant by mountain streams, in the East Cascades from southern British Columbia to northern Oregon, thence across to Idaho, and we did not find it. In the garden it is a favourite food for slugs!

With this genus we have stepped over our self-imposed boundary by including several non-alpine species. There are two reasons: they are widely grown by alpine enthusiasts, and the flower is the emblem of the American Rock Garden Society. We feel it would be appropriate if the A.R.G.S. were to commission a small monograph on the genus Dodecatheon: there are so many differing opinions, and the degree of synonymy is high.

There is no doubt that Dodecatheon is a totally distinct North American genus, no one has suggested that it should be included with Cyclamen for example. Turning to Douglasia, we can see no reason whatever, other than habit, or nationalism, for maintaining their separation from Androsace. Four of the five species with which we are familiar bear more than a passing resemblance to forms of the polymorphic *Ardrosace carnea*. One of them, *Douglasia laevigata*, has in fact crossed with *A. carnea laggeri* in Duncan Lowe's garden. However, as Douglasia is maintained in recent American publications like Rocky Mountain Alpines, we shall keep the more familiar name here.

Of our four species *D. laevigata* is by far the best "doer"; plants have flourished on troughs for over ten years. The rosettes of dark glossy green awl-shaped leaves are very attractive the year round, and the heads of around half a dozen rich pink "androsace" flowers freely produced. Plants we found on the Olympic Mountains were just a shade lighter and smaller in leaf. On the open ridge-top they were in seed, but under krummholz, flowers could still be found. Growing in pure needle-mould, these cushions were only slightly drawn. On the other hand we have found shade here to be totally unnecessary, even this past summer.

Douglasia montana is a purely Rocky Mountain species, ranging from north Wyoming and Idaho northwards, just crossing the border into south-east British Columbia. It is a little smaller in the rosette than *D. laevigata* with paler, narrower, leaves. Our plants remind us more of *Androsace lactea* than *A. carnea*, but their leaves appear quite matt thanks to a covering of microscopic hairs. In flower of course there is no similarity, the douglasia has usually single, occasionally twin, pink blooms on shorter stems. We find that this species requires absolutely full sun, or the cushion opens up and looks untidy. Having seen it in seed, cooking on a dry rocky roadside flat up on the Bighorns, we can understand why.

Plants raised from Club seed from the same general area have survived several years and flower well every spring. A winter cover is desirable but not essential.

Two further species can be passed over fairly rapidly: *Douglasia arctica* is from Alaska and really outwith our remit. It has yet to flower, the dark green cushion very like that of *Androsace carnea laggeri*. *Douglasia idahoensis* is a recently described species, from the County and State of that name. So far it resembles a reduced *D. montana*, but with linear, not awl-shaped, leaves, having similar tiny glandular hairs. It too has not yet flowered for us.

Our last species is the odd one out. *Douglasia nivalis*, as we have it, resembles no androsace we know, neither do our plants look much like the drawing in the A.G.S. book on Androsace. They have fleshy grey linear, leaves with entire margins, standing up from the rosette like some spiky saxifrage cushions. We probably have the variety *D. nivalis nivalis*. In winter, all but the youngest central leaves become suffused with red, when the cushion is most attractive.

We used to have a mat about 30cm across on one of our raised beds which flowered very well for several years, but the past mild, wet winter was too much for it. Another on a winter-covered trough is much smaller, but has remained tighter. It is on the south side of the trough! When the rich claret-coloured umbels of flowers are produced the result is most eye-catching, quite unlike any European androsace. *D. nivalis* is not always an alpine, and comes from drier areas of Washington and British Columbia than *D. laevigata*: so we are not surprised that it needs winter protection.

Turning to Androsace proper, only one species need be considered; there are a few others but they are annuals. The botanical status of *Androsace chamaejasme* as it grows in the Rocky Mountains is open to question; sometimes *A. carinata* and *A. lehmanniana* are made varieties of the circumpolar *A. chamaejasme*. The current flora of Utah even doubts whether the two U.S. varieties can stand separately from one another. As we saw it on several mountains in Colorado, *"A. carinata"* very closely resembled the *A. chamaejasme* we know from the European Alps, just a very little greyer in leaf. The flowers were exactly the same; white with yellow eyes turning to red as they age. The European *A. chamaejasme* is an easy and floriferous trough plant, but seed of its American cousin has yet to germinate for us. In all probability they would offer no advantage other than their appeal to the collectors' instincts. It was interesting to note that whereas our European *A. chamaejasme* prefers the limestone regions of the Alps, we found *"A. carinata"* growing above acid substrates.

to be continued . . .

Book Reviews

In recent years it has been very pleasing to see an increase in the number of books on gardening and related subjects, and especially on alpine plants, both in the wild and in cultivation. ***The Rock Garden*** *will aim to keep you in touch with the wealth of new publications by regular coverage of book reviews. This issue covers six titles published in the last six months or so, spanning interesting plant groups and their cultivation.*

The Genus Lewisia
by Brian Mathew
Published by the Royal Botanic Garden, Kew in association with Christopher Helm and Timber Press.
151 pages, 12 colour paintings, 28 colour photographs, 18 black and white illustrations and 16 distribution maps. Price £17.95.

A Kew magazine monograph, and as one would expect from such an institution and author it is an authoritative taxonomic account of the genus.

Most alpine gardeners may have grown at least one Lewisia in their collection and this book will encourage growers to try others, for there are species to test the skills of all growers from the beginner to the most experienced.

A short history of the genus is given followed by an explanation of the morphology and what is known of the cytology.

Cultivation is dealt with by Mrs K. Dryden and although the chapter is rather short, individual requirements are given for each species which provides valuable information.

The main part of the text is devoted to the taxonomic treatment of the nineteen species. In this the reader will find much authoritative information, and with a basic botanical knowledge will find it easy to understand, including the very useful keys to aid identification. Each species is discussed in detail giving information as to distribution, informative facts followed by a botanical description accompanied by botanical illustrations, and distribution maps in most instances.

Hybrids and cultivars are also discussed together with appendices on new taxa, dates of publication of Lewisia species, dates of introduction into cultivation in Britain and a list of Royal Horticultural Society awards to lewisias.

The colour paintings by Christabel King are excellent but one or two of the colour photographs could have been improved.

As one would expect from Brian Mathew, with his botanical and horticultural background, this book is a must for alpine gardeners; authoritative, attractively produced and good value for money.

J. D. M.

Meconopsis

by James L. S. Cobb

Published by Christopher Helm in association with the Hardy Plant Society.

125 pages, 20 colour plates, 27 figures. Price £16.95.

Perhaps it is a tribute to Sir George Taylor's monograph on Meconopsis that the alpine gardening world has had to wait since 1934 for a new review of this most popular genus in the wild and in the garden. Still, patience is a virtue, and in James Cobb's book we have a work which looks set to become equally indispensible to Meconopsophiles.

Cobb also pays due tribute to Taylor, and notes that we still use his classification of the genus, with very few amendments. Perhaps the major difference between the two is that the new book is written by an author who is clearly smitten with growing these poppies, in contrast to the previous, more technical work, whose section on cultivation was written by Euan Cox of Glendoick, almost as an addendum.

The author deals briefly with the distribution of the genus, and offers interesting insights into the work of those who have brought most of the species into cultivation. He then moves into the habitats and requirements of Meconopsis, giving valuable detail as well as considerable food for thought as regards their cultivation. The section on cultivation itself gives much detail on the general requirements for Meconopsis, and how the author manages to propagate and grow what is considered by some to be a difficult genus in the less-than-monsoon conditions of the east coast of Fife. He certainly tries to dispel some of the myths surrounding their cultivation and goes on to suggest a number of plant associations suitable for the garden.

The detailed account of species starts most usefully with a key to their identification, and then provides a most useful mixture of detail on the identification and description of each species and its distribution, cultivation and requirements; just right for the aspiring Meconopsis grower. The hybrids are dealt with in the same way, if a little more briefly, and the book is beautifully complemented by both the striking colour plates and the painstaking line drawings of Andrew Hutchinson.

In short, a must for anyone with any intentions of growing what Vita Sackville-West called 'the dream of every gardener'. This book should, as James Cobb aspires, 'convince you that Meconopsis are not particularly difficult to grow'.

I. P. B.

Campanulas
by Peter Lewis and Margaret Lynch
Published by Christopher Helm in association with the Hardy Plant Society.
160 pages, 8 colour plates, line drawings. Price £17.95.

The summer garden would be a poorer place without plants from the genus Campanula. It is 38 years since Clifford Crook's monumental work on classification and cultivation was first published and an up-to-date work is overdue. Peter Lewis holds the National Collection of campanulas and Margaret Lynch is on the executive of the Hardy Plant Society which gives the book a bias toward varieties for the border although an appreciable part of the text is given to smaller varieties suitable for the alpine garden.

I enjoyed the opening chapter on history more than usual. The younger Sibthorp's appointment to the chair of botany at Oxford in 1783 at the tender age of 25 years may have owed something to his father's previous occupation of the post but he introduced fourteen species of the genus from Greece even if his notes, like this review, 'were often scanty'. An early death at 38 years must have abbreviated his writing.

A large part of the text is given to individual descriptions of the border plants with a shorter section on varieties suitable for the rock garden. The illustrations are consistently good and the line drawings by Roger Phillipo are a delight. The juxtaposition of *Campanula sibirica* with a snail may not be accidental! The colour plate of *C. latiloba* 'Hidcote Amethyst' prompted an order for my cottage garden. The information that the dreaded but beautiful *C. rapunculoides* is a treatment for rabies (in Russia) came too late to save my brother-in-law from a painful series of injections after a dog-bite sustained in France.

The dedicated alpine enthusiast may be a little disappointed. The section on rock garden plants mentions most of the garden-worthy varieties but dismisses the more exacting species for alpine house or trough cultivation as 'outside the scope of this book'. Amongst those relegated are *CC. alpina, hawkinsiana, morettiana, oreadum* and *piperi*. Even so the book deserves a place on any discerning gardener's shelf. There are useful appendices listing RHS awards, too often omitted from monographs, and sources of seed including the club distribution.

P. S.

Creative Propagation – A Grower's Guide
by Peter Thompson
Published by Christopher Helm.
220 pages, 31 line drawings. Price £15.95.

This book covers propagation in general with a lengthy exposition on the botanical theory supplying the background to propagation. There are good sections on the conditions required for germinating alpine seeds, layering shrubs and bulb scaling. The useful information is supplemented by good clear drawings. Also, there is a wealth of information on the long-term storage of seed, but no mention of techniques of pollination to ensure viable seed in the first place. The tree and shrub sections omit mentioning that seeds from fleshy fruits often contain germination inhibitors in the seedcoat which, prior to sowing, can be removed by washing in acid; vinegar can be used by the amateur.

The book lumps species within a genus under one general scheme of propagation so omits any description of methods peculiar to individual species – we still have to refer to the classic books of Sheat and Hills for detail sufficient to satisfy the enthusiast.

Sadly there is no description of the useful technique of grafting. In some nursery catalogues there is a comical note; "All conifers guaranteed on their own roots." This is code for, "We only propagate easy things and lack the skill needed for grafting". It would have been interesting to read about the new methods and materials now available.

Those seeking a challenge should try looking up a particular plant in the index; in our review copy something appears to be out of order here.

M. H. T.

The Genus Dionysia
by Christopher Grey-Wilson
Published by the Alpine Garden Society.
172 pages, 58 colour plates. Price £24.50.

Just a few Britons have had the luck and the opportunity to seek out and study dionysias in their natural homes, but now war, politics and religion have combined to form a barrier against further expeditions in the foreseeable future.

How fortunate we are that one of the lucky ones was Christopher Grey-Wilson, a tireless plant hunter, blessed with that combination of being a precise botanical observer who also enjoys the plants for their own sakes. He is equally at ease discussing down-to-earth matters of cultivation as he is when dealing with complex taxonomy.

These two attributes benefit the book and give it wide appeal. Those who look for guidance in the practicalities of growing and caring for dionysias will find sound advice. Much of this is drawn from the experience and understanding of noted cultivators who have acquired their skills by raising and maintaining extensive collections for many years. Soil mixtures, watering techniques, propagation and general treatment throughout the seasons are all included in this valuable section. The botanically inclined reader is well provided with concise information on plant relationships, distribution, cytology and taxonomy, all strongly supported by the author's detailed and accurate line drawings. Fifty four species and three hybrids are described, many of which are featured in the excellent colour plates, with crisp portraits of wild and cultivated specimens, plus some glimpses of their strange and hostile habitats.

As the introduction explains, this book adds new discoveries, the fruits of more extensive cultivation and firmer information to the earlier tentative contents of the original monograph from the AGS. It needs to be within easy reach of all who are attracted to these delectable rock-dwellers of the deserts.

D. B. L.

Hellebores
by Brian Mathew
Published by The Alpine Garden Society.
180 pages, 80 colour plates. Price £29.50.

As can be expected from an author of Brian Mathew's experience and standing as a botanist and gardener, this is an excellent monograph, beautifully illustrated, with many original photographs taken in the wild and in the garden. It also contains twelve superb water colour paintings by Mary Grierson who was specially commissioned for this work.

As Brian Mathew states in his foreword, the taxonomist is expected to place all living things in perfect units with precise descriptions and indisputable names attached. Hellebores do not conform, and those studying them may end up more confused than before.

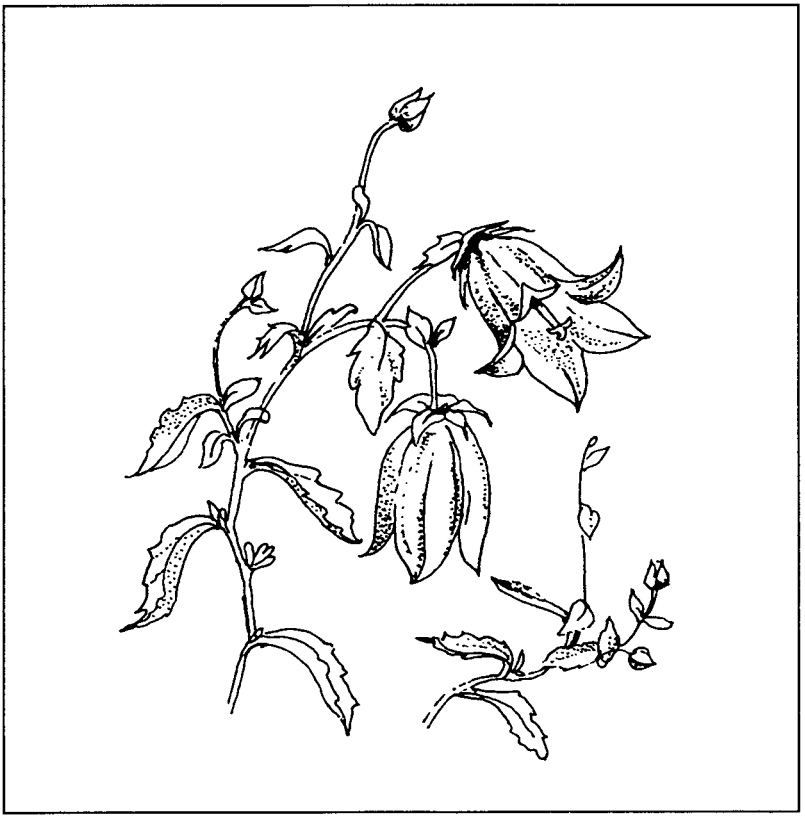
He describes the uses of hellebores in medicine and herbalism through the ages and warns of their toxicity and the symptoms of poisoning. He goes on to describe the classification of the genus with the distribution of the species and their botanical structure. Most important, a key is provided for the fifteen species described, and although a key may not produce a clear result on garden plants since many cultivars are of hybrid origin, I found it a great help in identification.

The chapters on cultivars and hybrids will help to clear up many misnamed garden hellebores, while the description at some length of cultivation, propagation, pests and diseases will be a great help to all gardeners and students studying hellebores.

This is an outstanding production and will be the main reference work for botanists and gardeners for many years to come.

J. H. A. M.

Lewisias, Meconopsis, Campanulas and Creative Propagation are all available from the SRGC Book Service, 17 Claremont Drive, Bridge of Allan, Stirlingshire, FK9 4EE. Hellebores and Dionysias are available either direct from AGS Publications, 282/284 Hoe Street, Walthamstow, London, or from Evelyn Stevens, The Linns, Sheriffmuir, Dunblane, Perthshire.



Campanula cashmeriana Edith Clark

To Bella

MARGARET and HENRY TAYLOR

"What is the best way to grow on my *Meconopsis bella* seedlings?" asked a newcomer to our group. After we recovered our breath – "Suggest asking Jim Cobb, but doubt if anyone can give sound advice on cultivation as it is not commonly in cultivation, to put it mildly."

Three seedlings duly came our way in August 1987, respectable plants 1cm across, not the 3mm seedling which we had proudly raised the year before and photographed. Unfortunately this had proved too much for it. Our friend had obtained his seed from Chiltern Seeds Ltd. and sown it in January 1987. His story was that the pot had been kept in an unheated house porch where the temperature never dropped below freezing. We potted one of his seedlings in a suitable open textured compost, the second was planted in a trough under a rock overhang and the third was stuck on a bump in the same trough. The compost in this trough was a leaf mould, grit and fertiliser mix. After a few weeks the only survivor was out on the bump in the open trough, facing north. It was covered November to February each winter with a polythene roof 50cm above the trough.

The plant slowly formed a rosette 10cm across of strange poppy-like pinnate leaves. Frost down to −8°C on three nights in succession in late April this year damaged the first five flower buds, but three further black-mottled buds appeared in June. Luckily our flowers were a most attractive pale china blue with lilac veining (Fig. 63 p384), not the rather dull lilac of the only other *Meconopsis bella* that we have ever seen. Each flower lasted about a week. Sadly no seed was set, perhaps a separate plant would be needed as a pollinator. While studying the pod we noticed four dark raised patches. The bristly flower stems were 5cm tall bearing four-petalled flowers. The overlapping petals were 2.5cm long by 3cm wide, complemented by orange anthers borne on showy deep purple filaments.

Much loved
Shall we ever see her like again?
Requiescat in pace
Aged 3

A. F. R. Wollaston : A Brief Portrait

PETER BURNETT and JOHN MATTINGLEY

"The mountain shadows and blue sky are such as I have never seen before . . . . . "

The so called 'Sierra Club look' may mean many things to many people, but its explicit veneer of bulging biceps, well oiled pectorals and glass jaws could not, by any stretch of the imagination, be applied to Alexander Frederick Richmond Wollaston, better known to his friends as "Sandy". His benign, rounded face beams out meekly from the portrait (p419) without a hint of malice. His early days at Clifton College and entry to the medical profession suggest no threat at all to the mountain poseur.

Born in 1875, and brought up in an era of optimism, – part naturalist from the echo of Darwinism, and part mountain lover from the Golden Age of Alpinism – he made full use of the extensive feelers of the British Empire. In other words, he was a "go out and do-er".

When still in his early twenties he went out into the Scottish Highlands at a time when these parts still evoked an aura of mystery and the desire for detailed exploration. Sir Hugh Munro had published his tables of the 3000ft mountains of Scotland in the September 1891 edition of the Scottish Mountaineering Club Journal. If pressed, a "Munro bagger" of that era (an occupation awaiting the passage of 70 years) would have chosen the Inaccessible Pinnacle on the Cuillins as the most difficult of all to bag, since it required genuine rock climbing ability for its ascent. Wollaston and his friend Vivian Le Neve Foster went to the Isle of Skye in August 1899 and immediately warmed up on the gently sounding "Ladies' Chimney" presumably King's Cave Chimney on Am Basteir, the Executioner. He records in his diary "route found blocked at top with a big boulder. I could just get my head through and no more, so we had to come down again. Afterwards we shifted the boulder from above so that a man could just get through".

Another typical Skye day followed, with over 11 hours of scree, slabs, walls and knife edge ridges. Then they met Dr J. Norman Collie, one of the mountaineering giants of the time. Collie taught Wollaston the rudiments of map making, a skill put to good use on subsequent expeditions.

After having to decline the "Inn Pin" at a first attempt due to rain and gale force winds, he engaged John MacKenzie as guide for a second attempt. "Frightfully narrow" with mind boggling drops on both sides, they successfully climbed up the long side of this most difficult Munro.

Wollaston soon had his first taste of an ice route, Cust's Gully on Great End in the Lake District, where he glissaded down the route with less than perfect control.

These trips provided the ideal training ground for later expeditions. Two days after his appointment as assistant house surgeon at Addenbrookes' Hospital in Cambridge in October 1905, he was invited as doctor on a trip to the "Mountains of the Moon", the Ruwenzori, in Central Africa. Lying only 30km north of the equator, they possess glaciers at 4500m and difficult approach marches through dense, wet forest and boggy peat hags. Known to Herodotus in 450 BC (thought to be the source of the Nile), rediscovered by Stanley in 1876 and, as befitted Wollaston, it was a naturalist's paradise. Heathers and lobelias over 2m high must have been a constant surprise, with the giant groundsel providing suitable nightmares.

His party was narrowly beaten by the Duke of Abruzzi in the first ascent of the highest point (Margherita) on Mount Stanley at 5109m. However, he must have given a good account of himself since his name commemorates one of the subsidiary tops.

By 1911, his interests in botany and anthropology brought him to Papua –New Guinea where he studied the Papuans (still in the Stone Age) and attempted to penetrate to the Carstenz pyramid at 5000m, but this had to wait until a second trip in 1913 where he reported 3000m cliffs and an ice cap. This must have been a great effort by Wollaston, since all subsequent attempts required aeroplanes and the first ascent was only achieved in 1962 by Heinrich Harrer. He wrote many scientific papers on New Guinea at this time and it must have been a subject close to his heart.

After the First World War, the Royal Geographical Society turned its attention to Mount Everest. Together with the Alpine Club, in 1920 they sent out Colonel Howard Bury (after whom *Primula buryana* was named) to obtain permission from the thirteenth Dalai Lama for a British expedition to attempt Everest from the Tibetan side. This was obtained, and a party, led by Bury and including Mallory ("because it's there"), Norton, Raeburn and Kellas set out in May 1921. Wollaston was engaged as "naturalist and medic" and Major H. T. Morshead as mapmaker.

Morshead had travelled extensively with F. M. Bailey (of blue poppy fame) and explored the Tsangpo River in 1913, where Bailey had been robbed. Fletcher's book on Ludlow and Sherriff (p.160) provides an interesting postscript. The candelabra, *Primula morsheadiana* was discovered by Kingdon Ward in 1924, has small, golden yellow flowers and has probably never been in cultivation.

Sir Francis Younghusband, whose trip to Lhasa in 1904 had such painful repercussions for the greatest of all plant collectors George Forrest, was patron to the expedition and described Wollaston as "a good mountaineer,

keen naturalist, cheery companion, and could deal sympathetically with natives". He also lumped Wollaston with Bury and Mallory as "plant lovers".

For these three, at least, the chosen route must have been keenly anticipated. On the 1921, '22 and '24 trips this consisted of the northern route through Tibet. A disagreement between the Lamas and F. M. Bailey, who was the Political Officer, then severed access until 1932 when the route was reopened by parties including Frank Smythe ("Valley of Flowers") and Eric Shipton.

When the thirteenth Dalai Lama died, the route was closed again. From 1949 Nepal allowed access from the south and a British group including Shipton and the Scotsman W. H. Murray struggled in from Jogbani along the Arun River. The modern approaches start from Kathmandu in Nepal and from Peking into Tibet. Given a choice, the plant enthusiast would follow the early route.

Setting out from Darjeeling in May, the party ascended the Jelep La (= pass) at 4386m, and looked down into the Chumbi Valley in Bhutan. On the descent, at 3650m they discovered the "dark purple and yellow *Primula gammiena**", purple *Incarvillea younghusbandii* "with leaves below ground level", and on the ascent out of the Chumbi on the Lingmatang Pass, *Primula minutissima*. Twelve kilometres on from Phari Dzong (= fort) at Gautsa (3650m), unidentified yellow primulas and a large blue meconopsis helped maintain interest. Wollaston described the Jelep La as having "many beautiful primulas" and made a mental note to return for seed in October on the way back.

Unfortunately the walk in had its share of misfortune. The "cooks are thoroughly bad and the food very bad all the way" and this weakened A. M. Kellas with diarrhoea. He became seriously ill and died near Phari on June 5th from heart failure. A gravestone inscribed in Tibetan and English was erected at the spot and revisited the following April on the 1922 trip. The other veteran, Harold Raeburn, who had been the leading Scottish climber before the First World War, was also giving Wollaston cause for concern and by June 7th had become "seriously ill". Wollaston records that Raeburn was suffering and "not really suited to the strain of this altitude", so much so that he decided to accompany him back to the Lachen Mission, 3 days travel away in Sikkim. This was staffed by two Finnish ladies who were reluctant to take Raeburn in at first but later relented. The mission proved to be unsuitable and eventually Raeburn went to a proper hospital at Gangtok, 80km away. He lived only a few years more, dying in 1926.

Wollaston rejoined the expedition and followed the route through Kampa Dzong, Shekar Dzong and Tingri Dzong, then turned south towards the Rongbuk Glacier. He put up a creditable performance

**Primula calderiana*. Wollaston seems to agree with A. J. Richards on Petiolarids.

reaching 6800m on the Hlakpa La about 3km North East of Everest. He noted the highest altitude at which a plant had been discovered: *Arenaria musciformis (bryophylla)* in "flat cushions a few inches wide" at 6120m and some Edelweiss at 6100m. Interestingly Major R. W. G. Hingston, the medical officer on the 1924 trip, found at 6700m "little attid spiders, immature, black in colour". He had been proposed for membership of the Alpine Club by Bruce and seconded by Wollaston.

On July 13th he and Morshead set out on a botanical excursion from Tingri. Heading south west to Langkor and then south, they reached Nyenyam Dzong on the 16th. This Dzong with its Tibetan official (the "Dzongpen") was passed amicably enough since they had the requisite documents, but it was perilously close to the forbidden Kingdom of Nepal, and in any case, the exact position of the border was a little hazy. On July 20th, at Nyenyam, he records the discovery of *Primula wollastonii* (W 181): "exquisite Primula grows here. It has 3 to 6 bells on each stem, and every bell is the size of a lady's thimble – of a deep blue colour and lined inside with a frosted silver" (see Fig. 70 p404). This is slightly different from the form found by Dhwoj in 1930 on the Nepalese side – it has more farina and has a smaller corolla than the type specimen.

For a photograph of the Nepalese form – the one in cultivation at present – see Polunin and Stainton 1984: "Flowers of the Himalaya" picture 886. This picture was taken at Rolwaling, which leads off eastwards from the Rongshâr Valley under Gauri Sankar (7144m).

Primula wollastonii grows above 4250m in open pastures over a wide geographical area. There is little evidence of the plant propagating by surface root runners in the wild, but seed will germinate freely from one year old capsules. A pure white form with a yellow calyx also exists, forming much less than 1% of the population. In cultivation, we suggest an open position on a slight slope, within a mixed colony of dwarf plants, with plenty of light but not too hot. The species enjoys snow cover from January to April, plenty of moisture during the growing and flowering season through to mid July, summer rain to mid September, and then a dry autumn.

On moving to Lapche then "up valley north" (sic) at 4630m, Wollaston discovered "a white Primula 4 inches to 8 inches high with a delicate primrose scent". This was *Primula buryana* (W 180). Crossing over into the Rongshar Valley, Gauri Sankar made a powerful impression with its icy ramparts towering above their heads, then on return to Tingri and Everest base camp, they caught up on news of the expedition. Mallory and party had reached the North Col at 6985m which was thought to be the key to a successful ascent. The following year a height of 8320m was reached by this route, then in 1924, Norton reached over 8530m, but Mallory and

Irvine were lost during an attempt on the summit.

On the march out through Tibet and Bhutan, Wollaston was looking forward to collecting seeds on the Jelep La. However, on reaching it on October 20th, he found it snow covered – a "big disappointment". Thus ended a memorable trip and it is by such methods that the "gems of the Himalaya" were brought to the notice of the plant lover. Wollaston "wisely decided not to go on the 1922 trip", but settled for the Sierra Nevada Mountains in Colombia as his last big trip in 1923.

While still a comparatively young man in his mid fifties, he died suddenly on June 3rd 1930 in his rooms at King's College Cambridge.

" – these are the days to remember for all time."

Reference

Letters and Diaries of A. F. R. Wollaston, selected and edited by Mary Wollaston, 1933, Cambridge U.P.

A. F. R. Wollaston in 1924

Photo courtesy of the Trustees of the National Library of Scotland.

The Col du Galibier – Accessible Alpines

JOEL B. SMITH

AS part of our Italian expedition this summer, we stopped at the Col du Galibier to search for alpine plants. The Col du Galibier lies to the east of La Grave and is the pass between the lower Col du Lautaret and St Michel du Maurienne, forming one of the high routes from France into Italy.

As we wound our way through the high alpine meadows towards the pass, the air chilled noticeably. A specimen of *Androsace helvetica* flashed past on a rocky face – yet a tight hairpin bend prevented us stopping to examine the plant.

In the upper alpine meadows even by mid-July all meltwater was gone leaving the ground parched. In the turf the violet blooms of *Viola calcarata* mixed with the blue of *Gentiana verna*. There were two forms of the verna-type gentian: a deep blue form flowering singly and a lighter blue form growing in clumps with smaller and more rounded leaves. The turf was besieged by the tiny white stars of *Androsace carnea brigantiaca*, endemic to this region and named after the latin name for Briancon, Brigantium. On the rocky slopes were small flowered forms of *Ranunculus glacialis* and the uncommon *Anemone baldensis*.

Higher up the turf disappeared before rolling screes and loose shale tumbled from the unprotected sides of the road. Fine views were to be had from this pass, the third highest in Europe at 2556m, stretching towards the snow pinnacled Mont Blanc.

Just beneath the pass on the Lautaret side were fine alpine plants. In a very rocky river bed there was an expanse of fine white blooms of *Ranunculus glacialis* (see opposite p317). On the lower scree slopes the rich golden yellow blooms of *Geum reptans* were found, the red runners creeping happily amongst the siliceous shale. Beneath a patch of snow a light pink form of *Saxifraga oppositifolia* nestled. In the turf by the river bed the best clumps of *Gentiana verna tergestina* were to be found, alongside *Androsace carnea rosea* and a yellow-flowered Draba.

This place is well worth a stop as it is readily accessible. It will provide an invaluable source of growing information as I try to emulate the moraine to succeed with *Geum reptans* and *Ranunculus glacialis* in my alpine house away from the rugged screes and icy air of the Alpes du Dauphiné.

The Mysterious Joint Committee

LYN BEZZANT

IF you've ever assisted at setting up shows, you will no doubt at one time or another have heard a harassed Show Secretary say something like 'You can't have that room, I need it for the joint committee'. You will further have wondered what this joint committee is and why it seems to deserve such consideration. At the risk of adding to your confusion, the word 'joint' no longer appears in its official title, which is now 'The Rock Garden Plant Committee'. This committee is one of the Standing and Joint Committees of the Royal Horticultural Society. The reason for the 'joint' in its appellation is that the appropriate specialist societies also take part in the work of this R.H.S. Committee.

These Committees are appointed annually by the Council of the R.H.S., and the one we are concerned with consists of a Chairman, several Vice-Chairmen and ten members each from the Royal Horticultural Society, the Alpine Garden Society and the Scottish Rock Garden Club. The list of members for each year is given in the Club Yearbook. In the past all R.H.S. Committees met in London, but as early as 1955 the Rock Garden Plant Committee held some of its meetings in Scotland each year. It is now extending its activities to other venues in England. Present practice is to hold three meetings a year in Scotland in association with S.R.G.C. shows. My function is to act as Committee Secretary for meetings held at these shows.

Broadly speaking, the objects of the Committees are to encourage the introduction of new species and the production of improved cultivars, to collect and disseminate information, and to recommend awards to plants of merit. The Rock Garden Plant Committee can consider for award all rock garden and alpine house plants, whether they be grown for flower, foliage or fruit. Irises, narcissi, tulips and rhododendrons are excepted from consideration, although the Committee can deal with **dwarf** members of these genera on dates when the appropriate specialist groups are not meeting.

The awards which the Committee can recommend fall into two broad categories, awards to plants and awards to growers. There are three awards to plants which can be made. In ascending order of merit these are Certificate of Preliminary Commendation, Award of Merit and First Class Certificate.

CERTIFICATE OF PRELIMINARY COMMENDATION. This was instituted in 1931, and it is intended for new plants of promise, whether a

a new introduction from abroad or of garden origin.
AWARD OF MERIT. Instituted in 1888, and intended for plants of great merit.
FIRST CLASS CERTIFICATE. Instituted in 1859 and given to plants of outstanding excellence.

Once a plant has been given an award, it cannot thereafter receive a lesser award. Furthermore it is not given the same award again, although there is a qualification which must be made here concerning plants which are **normally** propagated from seed. In these cases an AM or FCC of longer than 10 years standing may be confirmed, but not rescinded. When any award made by the R.H.S. is quoted in a book, article or list, the year in which it was given should always accompany the award, e.g. *Crocus robertianus* A. M. 1989.

There is one award which can be recommended for individuals, and this is the CERTIFICATE OF CULTURAL COMMENDATION, and is given to growers whose exhibits show evidence of great cultural skill.

Full instructions on how to submit plants to the Committee are printed in the Show Schedule booklet, and it is as well to study these if you are thinking of doing so. There is an R.H.S. entry form which has to be filled in which requires details of the parentage, origin, history, introduction, or peculiarities of exhibits. Therefore it is advisable to obtain it well in advance so that, with the grower's records and notes to hand, as much detail as possible will be made available to the Committee. Show class numbers should not be written on the entry forms, since all forms, whether or not an award has been recommended, are forwarded to the R.H.S. Entry forms can be obtained from me about a week before the meeting by sending an s.a.e. Actually getting the plants in front of the Committee is the job of the Show Secretary, but I am sure no Show Secretary will refuse your assistance with the lifting and carrying if it happens that you have entered any particularly heavy pots or pans.

It is possible that this note has been written a few years late, because the R.H.S. has had a working party looking at the whole question of Awards, and as a result of their report a number of changes are due to be implemented in 1991. However no definitive document is as yet available on how the changes will affect the way the Committee does its job. It may be necessary to provide another article at a later date if these changes prove to be significant, but in any case I hope I have now dispelled some of the mystery surrounding 'that joint committee'.

THE ROYAL HORTICULTURAL SOCIETY'S ROCK GARDEN PLANT COMMITTEE

Recommendations made at Scottish Rock Garden Club Shows.

STIRLING, 25 March 1989

AWARDS TO PLANTS

Award of Merit

To *Fritillaria bithynica* as a plant for flower in the alpine house. Exhibited by Mr F. Hunt, 34 Morris Place, Invergowrie, Dundee.

Certificate of Preliminary Commendation

To *Primula spectabilis* as a plant for flower in the rock garden or in the alpine house. Exhibited by Mr A. Leven, 2 Leighton Court, Dunblane, Perthshire.

To *Celmisia longifolia* as a plant for foliage in the rock garden or in the alpine house. Exhibited by Mr H. C. McBride, 10 Waverley Avenue, Lisburn, Co. Antrim.

AWARDS TO EXHIBITORS

Certificate of Cultural Commendation

To Mr F. Hunt for *Fritillaria bucharica.*

To Mrs S. Maule, Hannahfield Quarry House, Balerno, Midlothian for *Trillium rivale* (pink flowered form).

To Mrs J. Wyllie, 1 Wallace Road, Dunblane for *Crocus scardicus.*

To Mr H. C. McBride for *Helichrysum selago* var. *intermedium.*

GLASGOW, 3 May 1989

AWARDS TO PLANTS

Award of Merit

To *Fritillaria pontica* var. *substipelata* as a plant for flower in the rock garden or in the alpine house. Exhibited by Mr & Mrs H. Taylor, 32 Morris Place, Invergowrie, Dundee.

To *Raoulia x loganii* as a plant for foliage in the alpine house. Exhibited by Dr P. Semple, 103 Southbrae Drive, Glagow.

Certificate of Preliminary Commendation

To *Calochortus tolmei* as a plant for flower in the alpine house. Exhibited by Dr P. Semple.

To *Astragalus oxytropifolius* as a plant for flower and foliage in the alpine house. Exhibited by Mrs E. M. Bezzant, Monievreckie, Port of Menteith, Stirling.

AWARDS TO EXHIBITORS

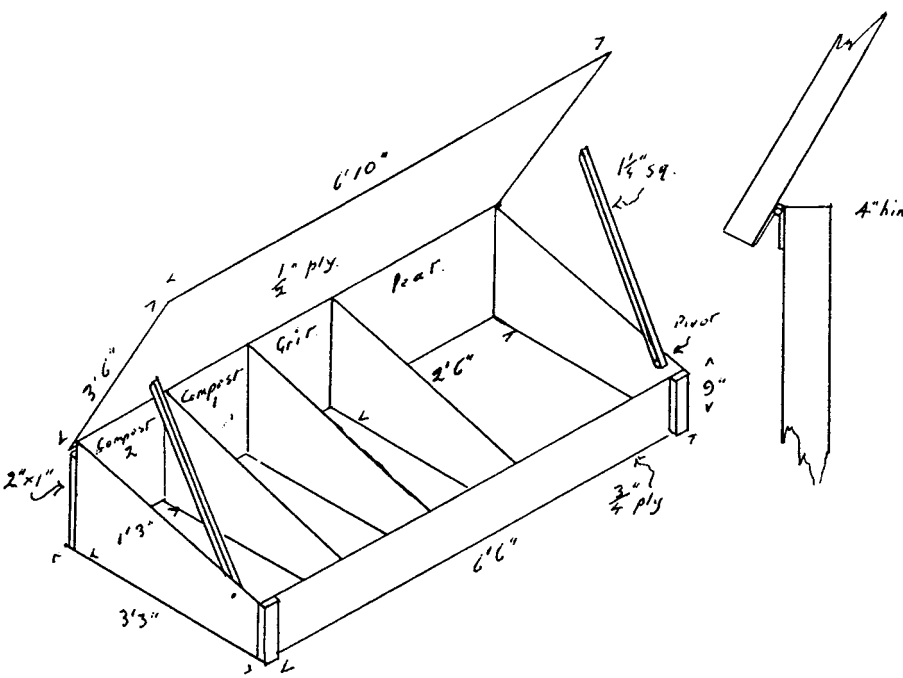
Certificate of Cultural Commendation

To Mr & Mrs H. Taylor for *Iris kamaonesis.*

To Mrs A. Leach, 18 Burness Avenue, Alloway, Ayrshire, for *Leptosperum scoparium* 'Nanum'.

To Mr & Mrs J. I. Young, 63 Craigton Road, Aberdeen, for *Primula petiolaris.*

To Dr P. Semple for *Raoulia x loganii.*



Simple compost bays see opposite. Stan Forrester

Letter to the Editors

Dear Editors,

More About Compost – Saving Labour

It was only just before I retired that I found I could buy a concrete mixer for little more than a hundred pounds, in fact £99 + VAT. I wondered why I had been mixing concrete by hand for most of my working life! It was some time later, with a large garden for my retirement, and needing potting soil by the barrow load, that I realised I was being stupid mixing the stuff by hand. The concrete mixer now does it better, quicker, and with less effort.

Keeping compost in bags involves two awkward operations – putting it in and taking it out. I decided on the same solution as Mike Stone before I saw his June 1989 article in The Rock Garden, but it was probably the article which prodded me into action. In my case I had available second hand exterior grade 18mm plywood, and my range of bays is more modest than that at Askival – a sketch of my plan may be of interest to other gardeners (see opposite). The basic shape was suggested by the cold frame alongside.

Recent supplies of Bulrush Irish Moss Peat have had a lot of lumps and some very fibrous material which was awkward in small pots. Use of the sieve was very slow and left a great deal of coarse material. The Alko shredder made mince-meat of this. I found it was quicker to put the whole peat bale through the shredder which did a marvellous job. Putting the peat through dry avoided clogging of the outlet, but had to be done inside the garage on a windy day!

Yours sincerely,

Stan Forrester.
Acarsaid,
Kishorn,
Strathcarron,
Ross-shire
IV54 8XA.

Obituary

ROY ELLIOTT

VERY occasionally there passes a man whose influence on the world of rock gardeners and alpine plant enthusiasts is so profound that it will continue to affect the way in which we approach our subject for a long time. Such a man was Roy Elliott who died on 10th July 1989.

Born in 1916, he trained for a career in law. This was interrupted when, as a Territorial officer, he was called up for service in the army even before the war started and survived Dunkirk and later campaigns in the Western Desert and Palestine before entering the engineering industry in 1946.

He had become interested in alpine plants, reputedly through his brother Dr Jack Elliott, and was building his well known Birmingham rock garden even before he joined the Alpine Garden Society in 1948. His book Alpine Gardening, based on this garden, appeared in 1962 and still retains the freshness and vigour which startled the readers of the time and drew many people to an interest in gardening with alpine plants. He became Editor of the A.G.S. Bulletin in 1960 and continued until his death. It was in this post that his immense success as an exhibitor and alpine gardener, his capacity for hard work and his vision of what such a bulletin should be, came together to such lasting effect.

He worked also through the R.H.S. where he chaired the Joint Rock Garden Plant Committee, the Rock Garden Group Committee and served on the Council between 1974 and his retirement in 1987. His work was carried forward despite a struggle against arthritis lasting almost throughout his life, but it was only in the last few years that this seriously curtailed his activities.

In his presence one was always aware, not only of his love for alpine plants and places, but of his intense urge to communicate that love with as much accuracy as was humanly possible. He was a formidable man to work with but a thoughtful and hospitable host to those who visited his home and garden.

D.F.M.

Discussion Weekend

September, 1990

Queen Margaret College, Corstorphine, Edinburgh

Friday 7 September to Sunday 9 September 1990

Scotland's capital city can perhaps lay claim to be the cradle of rock gardening in the country, and certainly the Royal Botanic Gardens hosts the best collection of rock garden and alpine plants in the country today. A visit to Edinburgh would not be complete without a visit to 'The Botanics' and this year's programme allows time to do just that, guided by RBG staff if you wish.

The excellent lecture programme covers a wide range of subjects from a series of lecturers who have not previously spoken at SRGC discussion weekends, and several of whom are rarely heard on the 'Scottish circuit'. We will cover a wide spread of the globe, from the relatively accessible Greek mountains to the wilds of China and the rarely-visited south American Andes. We will look at a number of aspects of cultivation, from how to cope with new plants to raised beds and troughs, and will look in detail at that very popular genus of hardy orchids, the pleiones. There will be a chance to exchange dwarf bulbs on Friday evening, and a lecture on an aspect of their cultivation.

Queen Margaret College is situated on the west side of Corstorphine Hill in the west of Edinburgh. It is on Clerwood Terrace off Clermiston Road, which runs between Queensferry Road and St John's Road, Corstorphine. It is of easy access for drivers from almost all directions, and there are bus services available from central Edinburgh; details on request.

Accommodation is available from Friday evening to Monday morning, 10th September, in single study bedrooms. **Members requiring vegetarian meals, or with any other special requirements, should make these requests at the time of booking.** All the lectures and the autumn show will be held on the campus site. A list of local hotels and attractions is also available on receipt of an s.a.e.

There will be a number of trade stalls, and a club plant stall and plant auction, for which plants would be greatly appreciated. In addition, books and paintings will be on display and sale. We hope there will be large entries for the autumn plant show and for the holiday photographic competition (details in the Show Schedules). Please support both of these and add to your and everyone's enjoyment of the weekend.

An informal programme of garden visits will be arranged for those staying on until Monday morning.

Programme

Friday

8 pm **Greek Mountain Plants in the Wild and in Cultivation**
Dr John Richards, Hexham

9.30 pm Dwarf bulb meeting and dwarf bulb exchange

Saturday

10.30 am Guided tours of the Royal Botanic Gardens, Edinburgh. Meet at the West Gate

2.30 pm *The William Buchanan Memorial Lecture*
Unnatural Rock Gardening
Duncan Lowe, Lancaster

4.15 pm **Plant Hunting in China:**
The Jade Dragon Snow Mountains of Yunnan
Dr Chris Grey-Wilson, Suffolk

7.00 pm Reception and dinner at Queen Margaret College
After dinner speaker: Mr Alfred Evans, Edinburgh

10 pm Plant Auction

Sunday

9.45 am **Pleiones and their Cultivation**
Ian Butterfield, Buckinghamshire

11.30 am *The Harold Esslemont Lecture*
The Andes and Patagonia
John Watson, Kent

2.30 pm **The Cultivation of New and Rare Plants**
Brian Burrow, Lancaster

Prices

If booked and paid for by 31 May 1990

Residents

Friday evening meal-Sunday afternoon tea £71.00
Saturday morning coffee-Sunday afternoon tea £53.00

The above prices include the cost of the Saturday evening banquet.
Members wishing to stay for Sunday evening meal, bed and breakfast should add £15 to the above prices.

Non-Residents

Saturday or Sunday morning coffee, lunch, afternoon tea and all lectures on that day £19.00
Saturday evening Reception and Banquet £13.00

Applications for bookings together with the appropriate remittance should be sent to the Registration Secretary, Mrs Jane Thomson, 88 Liberton Drive, Edinburgh EH16 6NR. Telephone 031-664 1512.
Please send s.a.e. for acknowledgement of booking. Members wishing further information should contact Jane at the above address (s.a.e. please).

ANNUAL GENERAL MEETING

The Annual General Meeting
will be held at the
Royal Botanic Garden
Edinburgh
on
Saturday 20 October 1990
at 2 pm

Nominations are required for President and Executive Office-Bearers and for four 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 1990, the nominator having ascertained 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 I. J. Douglas, Mr R. H. Drummond, Mr R. Maxwell, Mrs J. Thomlinson.

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SEED COLLECTING EXPEDITION TO THE EASTERN HIMALAYA, 1990

Chris Chadwell's eighth Himalayan exploration takes his team to wetter, Eastern districts. The location has been chosen since it represents the north-western extreme for many typically 'monsoon' species. This should enhance success in cultivation for the maximum number of shareholders. The following genera are well-represented: Primula, Saxifraga, Meconopsis, Rhododendron, Gentiana, Corydalis, Cremanthodium, plus a wide range of shrubs and peat-garden species. Arrangements are to be made ensuring a rapid distribution of species of probable short viability. £50 or £30 shares are available. Send for a detailed prospectus, enclosing a s.a.e. plus 3 x 2nd class stamps (2 US $ bills or 3 International Reply Coupons outside the U.K.) to the address below.

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ADDITIONAL LISTS ARE AVAILABLE: Japanese; Oriental, Himalayan climbers and shrubs.

HIMALAYAN PLANT ASSOCIATION

The proprietor is planning to start an informal association, with periodic newsletter, to spread information on cultivating, conservation and studies of Himalayan flora. Assistance is being given towards establishing a small private Botanic Garden in Kashmir. Details given upon request.
Send 4 x 2nd class stamps for catalogue (3 US $ bills or 4 International Reply Coupons outside the U.K.) Indicate if you would like a copy of any other lists.

C. Chadwell, (SRGC), 81, Parlaunt Road, SLOUGH SL3 8BE.

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SRGC Publications

Some of the back numbers listed below, as available, are in very short supply. 26 back numbers are still available from stock. The Waiting List for the original Journals 1-8 is closed but reprints are now available (see below).

Discount Offer:
15% discount on orders of 10 Journals or over.
There is NO discount on Journals bought from the Waiting List.

CURRENT AVAILABILITY AND PRICES (PER COPY) TO MEMBERS

Journal	*Pence*	*US Dollars*
1-8 (Waiting List closed)	300 (when available)	$5.10
1-8 (Reprinted version)	250	$4.25
9-38, 40-51, 53, 54, 56, 65, 74	150 (when available)	$2.55
39, 52, 55, 57-64, 66	50	$0.85
67-73, 75	100	$1.70
77-81, 83	175	$3.00
76, 82	300 (when available)	$5.10
Index 1-19	45 (post paid)	$0.77
Cumulative Index 20-69	240 (post paid)	$4.10
Index & Cumulative Index	265 (post paid)	$4.50

Postal contribution 18p (28c) per Journal up to a maximum of £4.30 ($7.40).

PAYMENT
Payment may be by Sterling or US $ remittances – Cheques, Money Orders, Bank Drafts, etc., made payable to SRGC Publications Account or through Giro No. 12 320 4003. PLEASE NOTE that this Giro Account number is **NOT** for subscriptions.

Early numbers of the Journal are now urgently required for the evergrowing Waiting List. I would gratefully receive these as gifts to the Club, or buy them at half the above prices. Those most required are up to No. 56 and also No. 82. Postage for either arrangement will be refunded.

BINDERS
Stocks of binders to hold four numbers of the Journal are available at £2.50 each, post paid.

Journals, binders and books are available from Mr T. G. Sprunt, 17 Claremont Drive, Bridge of Allan, Stirlingshire FK9 4EE, Scotland, UK.
Tel: 0786 833607 (evenings only)

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