



THE ROCK GARDEN

THE JOURNAL OF THE SCOTTISH ROCK GARDEN CLUB

Volume XX Part 2 Number 79

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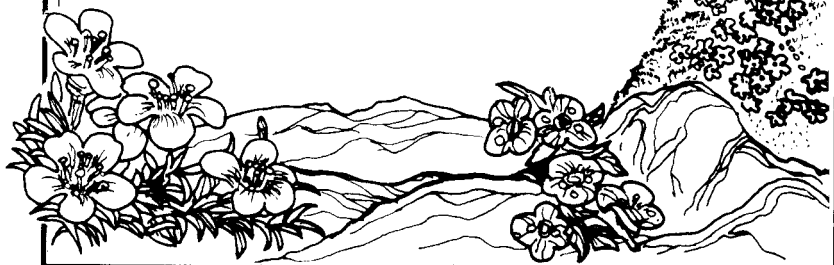
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Globularia cordifolia

Photograph by M. & H. Taylor

Contents

Editorial	129
<i>THE STONE COLUMN</i>	130
What a mouthful Stan Forrester	146
Cultivation of the genus <i>Meconopsis</i> Part II James Cobb	150
The genus <i>Ranunculus</i> Part III – European species D-M Alastair McKelvie	173
<i>Ranunculus ficaria</i> cultivars Richard Nutt	180
Some hardy hebes Derrick Rooney	183
President's Review	193
On making a rock garden Reginald Kaye	197
A beginner's experience of Asiatic primulas J. B. Smith	203
A visit to the Valley of Flowers Roderick Milne	214
Letters to the Editor	216
The Joint Rock Garden Plant Committee	219
Show Reports	220
Control of Pesticide Regulations 1986	228
A plant hunting journey through southern Italy and Sicily	
Stephen Jury	229
Plant Portraits	233
Book Reviews	237
Obituary	240
Twice-yearly competition 1986	243

Editorial

I HAVE just been lucky enough to purchase, at a ridiculously low cost, a complete bound set of the AGS Journal from Volume 1 up to Volume 37, where by chance my own set began.

What a wealth of information lies within these pages – not, I hasten to add, that the SRGC Journals are any the less rewarding. One is tempted to feel that there is little point in anyone writing any more about alpinism because it must all be in print already. Can there be anything more to say?

Perhaps most worthwhile alpine plants for the garden have already been described, but, as can easily be observed in the pages of this issue, there is much new to be said about growing the plants. Take for example the article by Jim Cobb on *meconopsis*. It is so full of excellent information on the growing of this genus that I venture to suggest that there will be a great vogue in their cultivation in the next few years. Who could resist trying out some of his recipes and tips?

He is perhaps fortunate in having a climate fairly well suited to growing *meconopsis*, but the same can not be said for Joel Smith, who, at the age of 15, has managed to grow a wide range of *petiolarid* primulas in Hampshire and describes his methods for us. That achievement must surely give the rest of us confidence in attempting the nigh impossible.

The pages of the AGS Bulletin and of the SRGC Journal must have been to a great degree responsible for the remarkable improvement in standards at Shows, an improvement which is still going on. But I also detect a trend towards a greater interest in growing alpinism outside with no thought of exhibiting. The Stone Column is, of course, the epitome of that approach, but in this issue we also have a welcome return to our pages of Reginald Kaye, who tells us how to make rock gardens. And we have a piece from Stan Forrester who recently retired from his job in the south of England to start a garden from scratch on a hectare of boggy, rough grazing at Kishorn in Wester Ross.

The articles I have mentioned are but a sample of what I hope is varied fare for the wide-ranging interests of our members. Just for good measure, we are including what will be an annual feature, the Review of the Club Year by our President. For those who can't get to the AGM, this tells you most of what is going on in the Club.

ALASTAIR McKELVIE

THE STONE COLUMN



Magnolias at Askival

Time flies, another summer passes, and once again I find myself sitting at my desk on a wet, sleety Sunday afternoon in October, wondering what aspects of our gardening life at Askival would be of interest to readers of a tenth Stone Column.

The weatherman assures us that the summer of 1986 was quite normal; we suppose it just appeared rather wet by comparison with the run of Continental summers prior to 1985. In one respect, 1986 was quite abnormal; the last frost in spring (-2°C) was on the clear cloudless night of May 15-16, and we gave our grass its first cut the following fine day. Even at this late date, there was little growth, after the coldest April for 30 years; it was just a matter of decapitating dandelions. As our grass areas are a major source of humus for our gravelly soil, we do not treat them with selective weedkillers. During the rest of May and into June, usually our driest period, there was a long spell of cloudy, westerly weather, hence the lack of frost. This was the first time this had happened since we started the garden in 1972. A *Magnolia sinensis* planted a year later, in 1973, succeeded in opening undamaged flowers at last. It had tried each year since about 1980, but the buds had always been destroyed. Many's the time we had thought of removing the tree, but it had always been given a reprieve for 'just one more year.'

Rather than give up on magnolias, we sowed Japanese seed of *M. sieboldii* (*parviflora*) in March 1982. Four germinated almost immediately, and were pricked out straight away before they had much root to disturb. They did not grow particularly quickly for trees and were potted on twice: from 3 to 4½" in 1983, and 4½ to 6" a year later. The generally recommended time for magnolia planting is May, but up here we waited until June 1985 before putting out three in a group. The delicate fleshy roots

were teased and spread very carefully, adding a good measure of peat to the soil. Tender, loving care pays off; all three established and two of them produced two flowers each this July (1986) when only 0.5m high! If they continue with this late-flowering habit they will be far more useful than our large *M. sinensis*. Its days will then definitely be numbered. Incidentally, there is a large specimen of *M. sieboldii* in Aberchaldar gardens, about 18 miles away in Strath Nairn, which also flowers late enough to escape frosts.

It could be that we chose the wrong species back in 1973, but the literature we consulted was not written with Central Highland gardens in mind. The quite well-known *M. wilsonii* we rejected, because it was said to be somewhat less hardy than *M. sinensis*, and to grow less vigorously in cold districts. We did try THE magnolia recommended for 'general planting', *M. x soulangiana*. This was a complete failure, losing its young growth so often that it made no progress, and was discarded. Its parent, *M. denudata*, flowers even earlier, so we did not consider it, nor the shrubby *M. stellata*. According to 'Bean', the latter's flowers have such delicate petals they are susceptible to damage by wind and rain. And that in March or April! Perhaps we should leave the magnolia growing to West Highland gardens and drive up to see the *M. campbellii* in flower at Inverewe.

Meconopsis cambrica 'red form'

During a visit to the south of England in the summer of 1985, we were given some seed said to come from a red form of *Meconopsis cambrica*. We accepted gracefully, but must confess to having had uncharitable thoughts about people who could not tell a meconopsis from a papaver. We were aware of an orange form of this meconopsis, but do not grow it since we actually prefer the clean, clear yellow of the type. It is naturalised in the Fort Augustus area, and turned up in our garden of its own accord. We don't cultivate it, other than to remove most of the seed pods; allowing colonisation of those difficult dark places under shrubs.

We sowed the seed, more in hope than expectation, in September 1985. The donor had told us that the seed was old (1984?) and that no one had been able to germinate it. A cold Fort Augustus winter did the trick, and it came up very well the next April. Like all our meconopsis, it had been sown on a 7" square pot, so we can thin rather than prick out. The whole potful was eventually tipped out, teased apart, and planted out in August. The leaves looked like typical *M. cambrica*, and when buds formed in September 1986 we could not wait for them to open. One was assisted, it really was red, and yes, it had a style! When the flowers opened naturally they were a uniform light scarlet, quite different from the orange *M. cambrica*

aurantiaca. In spite of the late flowering, seed has been set. If the colour break can be fixed, this form will be an accommodating addition to the alpine garden; much more in keeping than the similarly coloured *Papaver orientalis*.

Linanthastrum nuttallii, an alpine from Arizona

Mention Arizona, and most people will probably think of deserts, an image fostered by Western films. However, there are Arizona native species of rather more interest to alpine gardeners than the saguaro cactus *Carnegiea gigantea*. Our first foray into the flora of Arizona was *Lilium parryi*, which we described back in 1980 for the SRGC Journal No. 66, although this beautiful yellow lily is also native to southern California. Our eyes were further opened by a couple of articles in the ARGS Bulletin for 1983 and 1985 written by Sonia Lowzow and entitled 'Don't discount Arizona'. Should our preconceived notions need any further dispelling, the lady herself was able to enlighten us when she visited Askival in May 1985.

Isolated as they are in the centre of the continent, the Rocky Mountains are said to have a dry climate, with strong insolation, rapid temperature changes, and high evaporation rates. Droughts are frequent, especially in summer, and the plants grow 'hard'. However, simply because a plant can tolerate summer drought, does not mean that it requires or prefers it. In the preview to the Alpines '86 Conference in Colorado (ARGS Bulletin Vol. 44 No. 1), the author states, perhaps with an element of advertising, that traditional rock gardens are designed to grow plants from the European Alps, Himalayas, etc., and that new techniques will be required to grow plants from the Rockies. Really? It's a good thing the Rocky Mountain plants in our garden cannot read! To give but one example, in March 1983 we were sent 19 packets of seed from Denver Botanic Garden which had been collected in the Colorado Rockies between 2700m and 3900m. Two did not germinate, and we lost three more while still in pots (two *Castilleja* species – no hosts? – and *Eritrichium aretioides* from the usual autumn mould problem of the family). Two more proved to be monocarpic, but the remaining twelve are still established out in the garden.

When comparing the climate of the Rockies with, say, the Alps, it is not really good enough just to look at the rainfall maps in the atlas, even if these are divided into summer and winter. Mountains create their own weather, increasing rainfall locally by causing air to rise and cool. At the foot of the Rockies, rainfall is typically 30cm, rising to about 75cm at the tree line. Comparable figures for the Alps are 86cm for Geneva, rising to over 250cm in parts of the Swiss Alps. In Arizona, Sonia told us, where she gardens in the White Mountains, they have a very marked summer monsoon in July and August. Moisture is carried from the gulf of Mexico on the prevailing SE wind. Her local alpiners are by no means 'dryland'

plants and should prove even more adaptable to cultivation in maritime climates. The dwarf form of *Commelina dianthifolia* she gave us is proving a beautiful hardy, late-flowering plant. Frost hardiness cannot be in doubt since in its 2,800m habitat temperatures can fall to around -35°C . Growing alongside this commelina, Sonia found an equally attractive member of the Polemoniaceae (Phlox family), *Linanthastrum nuttallii*. She sent us seed around Christmas time 1985 and it was sown in January this year. All our seed pots are in a cold frame, with no artificial heat, so germination occurred in May with the onset of warmer weather. Growth was quite rapid, and they had to be pricked out in late July, after our return from France, to avoid overcrowding. There was no obvious check, and they commenced flowering at the end of August.

Linanthastrum nuttallii is a herbaceous perennial, having the stout rootstock characteristic of many Rocky Mountain plants. In this it differs from *Linanthus* ssp., which are slender annuals. Both genera were included in *Gilia* at one time; our present plant is briefly mentioned by Farrer as *G. nuttallii*. The slender stems are fairly lax, forming a rounded, rather than tufted plant, up to 20cm with us, but the plant can apparently be up to 30cm high when mature. The opposite, bright green leaves, palmately divided into linear segments about 2cm long, give the impression of a whorl around the stem. The flowers, carried in terminal cymes, are typically phlox-like, white with a yellow eye, and a somewhat aromatic scent. Our plants varied considerably in the width of petal, as do for example many of the alpine androsaces. Selection could pay dividends.

Flowering rather late this year, no seed was set, but Margaret and Henry Taylor report that cuttings root easily. Summer flowering additions to the alpine garden are always especially welcome, and this one is really quite pretty. It is not confined to Arizona in the wild, but extends north to Idaho and western parts of Wyoming and Montana. However, plants from the southern end of the range should be quite used to some summer rainfall; even so, humidity there is still quite low. Therefore we feel it is perhaps better grown in a position of full exposure to air movement, for drying the foliage after rain; and not overfed or it may grow lush and out of character.

A new introduction of Gentiana veitchiorum

Having described red and white additions to our garden, it would perhaps be patriotic to complete the trio by including a blue-flowered plant. These are exciting times for plant introductions, now that China is becoming more accessible. And what riches await cultivation; a Chinese botanist has recently described over 40 new species of gentian!

We included brief notes on two Chinese gentian introductions in our Column for January 1983 (Journal No. 71 page 185-6). We are happy to report that

both continue to flourish. *G. ternifolia* has proved as easy to propagate here as *G. sino-ornata*, but it is not quite so easy farther south. One grower has reported a reluctance to open its flowers, but we have not had this problem. Mats outside flower well, mid to late in the autumn gentian season.

A plant of *G. melandrifolia* was killed outside in a trough last winter, almost certainly from root death in the prolonged freeze, but others survived in a cold frame. The flowers, carried well into November, have withstood overnight temperatures down to -8°C without damage, and viable seed has been set. The Himalayan *G. depressa* shows a similar pattern of hardiness, being even more susceptible to prolonged root freezing. The AGS Bulletin (No. 222, page 322) carried over-simplified comments on the latter species; overnight frost during the flowering period does not have the same dehydrating effect as many continuous weeks below zero.

Some Chinese seed, collected wild in the Segunian Alps by Reuben Hatch, was included in the SRGC Seed Exchange for 1983/84. We received two gentians under the numbers H18 and 27. Sown in February, both germinated in May. With such rare seed, only a pinch goes to each recipient, so there was no need to thin or prick out. We fed gently for the first season, planting out a year later in May 1985. We chose to put them into a lean-to frame in part sun against our front boundary wall, containing a leafy-peaty soil. While receiving the advantages of an extensive root run, they could be watched carefully here, and at the same time covered in autumn to encourage seed-set. Strong rosettes formed that year, increasing still further in size during 1986, and throwing out flowering shoots. From the large size of the rosettes, and the fact that each shoot carried several flower-heads, doubts about *Aptera* (*recumbens-tibetica* type) gentians crossed our minds, but once the first flower opened we knew we had a real winner. They were carefully hand-pollinated and, as we write in October 1986, some pods are swelling nicely.

The two numbers differed markedly in the size of the basal rosettes, but their flowering shoots were very similar. H18 was the smaller, with basal leaves close to David Wilkie's description of *G. veitchiorum*, being narrowly elliptic (widest at the centre) and up to 50mm long by 6mm wide. Those of H27 were of similar outline, but 60mm by 15mm, larger than any other ornata gentian we have seen. Both had solid-looking stem leaves about half the size of those in the latter rosette, and similarly elliptic. By contrast, *G. sino-ornata* has lanceolate stem leaves, broadest at the base and tapering continuously to sharper points.

The stems were quite rigid, and branched to carry three to six terminal flowers. The calyx lobes were shorter than the tubes, being about 10mm long by 2-4mm broad and noticeably elliptic. The corollas were narrowly funnel-shaped, i.e. tapering evenly, unlike most autumn gentians, and up

to 50mm long. Their lobes were a rich royal blue overlaid with purple, with tubes having the usual external stripes of greenish white, alternating with blackish purple. The plicae were very broad and prominent, giving the open flowers something of the 10-segmented feel of *G. pyrenaica* (Fig. 48 p.212), reinforced by the purplish colour.

The floral description above is very similar to that of *G. veitchiorum* in Wilkie's book; so, notwithstanding the larger rosettes of H27, we feel fairly sure of our naming. The latter came from a rather lower altitude, 3,200m, as opposed to 3,900m for H18, which could account for the difference.

The form of *G. veitchiorum* grown under L & S 13321 is apparently becoming rather weak in cultivation, so a reintroduction is most welcome. Alf Evans tells us that he remembers *G. veitchiorum* being easy to grow, in lime-free soil, and simple to divide. Let us hope the new ones are as accommodating.

French Alps, July 1986

At last, we made it: we finally took the plunge and journeyed out to the Alps. It had taken much persuasion by friends to overcome my personal antipathy to travelling any distance. Fear not, we have no intention of writing what someone once called a 'First sight of *Gentiana acaulis* travelogue'. In any case we prefer the verna gentians, their colours are so much brighter and cleaner. However, we did give a great deal of thought to the question of 'how' and 'where'; 'when' was settled for us by the school holiday; it had to be mid-July. We feel that our conclusions may be of interest to others similarly restricted. When we asked experienced travellers for advice, their replies varied from 'It's really far too late', to a rather more helpful 'You'll have to go high to see anything worthwhile'.

The first and most important decision we made was to be independent, not tied to any one centre, but free to move on should the weather be bad. This really means having one's own vehicle. Two alternatives now presented themselves; drive out, or fly out and hire. The latter, initially attractive because of the great reduction in 'sitting time', was precluded because we wished to camp for part of the time, making use of our considerable Scottish hill-walking experience. Our next step was to visit the local garage and ask Johnny whether he thought our 15-year-old Land-Rover, Grendel, would make it to the Alps and back. Replying in the affirmative, he eventually had her in for a thorough overhaul a week or so before we set off. He even gave us a box of spare parts on a use-or-return basis – one of the advantages of living in a village.

Having settled the question of 'how', there remained 'where'. Taking

the 'late means high' message to heart, the French Alps rapidly came to the fore. Therein are many road passes reaching altitudes of 2,000m and over, within easy reach of each other, so giving the flexibility we desired, without too much hot lowland driving. As for the flowers, what Dr Bacon calls the 'basic flora of the Alps' is very well represented, together with enough endemics to add a little spice to the menu.

So the French Alps it was. Two days after the end of term, having broken our journey with kind friends in the NE of England, we found ourselves on the Hull-Zeebrugge overnight ferry. The latter port has simple and quick access to the Belgian motorway network (free, by the way), and, even at Grendel's low cruising speed, we were well into the Ardennes by lunchtime. From here we spent a couple of days trundling down through eastern France, avoiding large towns and autoroutes, and seeing more of the countryside than the boot of the car in front. The roads were quieter than the Highlands in summer, and as usual almost everything overtook us. La cuisine française had almost as great an impact on our senses as the flora. Once in the Alps, life settled into a fairly regular pattern; two or three days camping, high if possible, then down to a village for fresh food, and the welcome facilities of a small hotel. Grendel's 'off the road' capability gave us a measure of privacy on several occasions, and her back provided cow-proof, if cramped, sleeping accommodation. However, her heavy steering and large turning circle were not ideally suited to the hairpin bends. It's a good job gardening develops the arm and shoulder muscles!

Our judgment on the scenery may well be coloured by our home environment. Perhaps we are spoiled by living among mountains. The Alps are on a far grander scale, of course, but, during our visit, lacked the quality of light, the rain-washed clarity one sees in the Scottish Highlands. Driving back from a recent visit to Jack Drake, late one afternoon, the clouds parted, and the low-angle sun threw the hillside ahead into sharp relief, emphasising every scattered tree and fold in the ground, its redness brightening the purple heather. One evening in France, a viciously cold north wind forced a retreat southwards from the Col d'Izoard, to spend the night in the shelter of the pinewoods below. The setting sun illuminated the screes and pillars of the Casse Deserte, creating a similar magical moment. We had, of course, been well briefed on the conditions to be expected when camping above 2,000m and actually found the marked drop in temperature during the quieter evenings another welcome reminder of home. We have felt for some time that the relatively cool nights at Askival, even in the height of summer, ease the problems in cultivating many high alpinists.

It is sometimes said that it is necessary to know how plants grow in the wild in order to cultivate them successfully. Frankly, we doubt this, and

certainly won't be altering any of our practices as a result of one visit to the Alps. Knowledge of a given plant's natural habitat can, at best, be only a rough guide to its successful cultivation. In the garden, soil conditions, temperature, light levels, and pathogen populations may be quite different. To see *Ranunculus glacialis* growing in everything from dry, slaty scree to the thickest, gluey, sodden clay at the margins of a lake, tells one very little of its preferences. Plants are often confined to certain habitats, not because they prefer them, but by competition, grazing pressure, or some other factor. *Ranunculus glacialis* is extremely well adapted for rapid growth in a short cold season. It is the warmth of our lowland gardens which can upset its metabolism. In addition, raising a soil's temperature reduces its available oxygen, so our garden composts must be more open than the heavy clay soils many alpinists inhabit in the wild. In Thurso, where conditions are pretty alpine, we have recently seen *Primula minima* thriving unprotected in heavy garden soil.

Generally speaking, the high places policy paid off; we found nearly all the flowers we had expected to see. Spring flowers, such as *Soldanella alpina*, were still to be found around the edges of snow banks, particularly on cooler north-facing slopes. Many alpine meadows were probably past their best, in some cases due to grazing; but for us seeing much later flowering specials as *Campanula cenisia* more than compensated. Natural hybrids have long had a certain cachet for us. On one high ridge we found *Ranunculus glacialis* and *R. parnassifolius*, intermingled for several hundred metres. Both were just going over, but had obviously synchronised their flowering. We searched carefully, but could find no apparent hybrids. We had rather more success with the hybrid *Primula x bowlesii*, the cross between *P. latifolia* and *P. pedemontana*. It was one of our prime objectives to select and, if possible, introduce horticulturally desirable forms of this cross. From nature's point of view, such hybrids, which are often of lowered fertility, are really a waste of space, better occupied by one of the parent species.

Years ago, such comments would have raised few eyebrows, but times have changed with the rise of the Green movement. As recently as September 1964 the SRGC Journal could include an article entitled 'Random Notes on Plant Collecting'; now there seems to be a conspiracy of silence on the matter. Cant rules, OK! Fritillaries and cyclamen are still collected wild, and sometimes even exhibited, as if they were seed-raised. In the good old days before the war such subterfuge was not necessary. The AGS could freely publish a photograph, in their Bulletin for June 1936, bearing the caption, 'A holiday with an object'. A member is shown, in flagrante delicto, uprooting a large turf of daphne in the Caucasus. Now it is their official policy that plant collecting should be seed only.

In our very first Stone Column, we stated that opinions expressed therein were ours alone; and that, in any case, we did not think that the SRGC should have official viewpoints. Were we, as a body, to adopt a similar anti-collecting stance, we should lay ourselves wide open to charges of hypocrisy. It is no use pretending; collecting has always been an integral part of alpine gardening and, despite pressure from environmentalists, probably always will be. All our garden plants, not just alpines, are descended from wild ancestors. There is no moral difference between growing a dahlia derived from a plant taken from Mexico many generations ago, a crocus or iris multiplied vegetatively from a wild gathering, or a primula grown from an offset detached from a plant in the Alps this very summer. Unless you grow only those plants which may arrive in your garden naturally, i.e. your local weeds, you cannot really adopt a position of moral superiority.

We feel very strongly that the only tenable position we can adopt is to encourage prospective collectors to act responsibly, reserving our condemnation for those whose greed despoils the wild. I am reminded of the time, a dozen or so years ago, when I was actively involved in leading parties of schoolboys on hill-walking and camping expeditions. After a series of accidents involving irresponsibly led parties, there was great pressure from outside the world of mountaineering to curtail such activities altogether. One highly-experienced mountaineer was heard to remark, 'We soon won't be able to put a foot on the hill without someone in the media criticising us from the depths of a textbook'. This problem was solved, not by unworkable restrictions, but by improved training for leaders and the development of a code of conduct. It is to take a leaf out of this book that we put forward, for consideration, our suggestions for responsible collecting. It should:

A be legal in the particular area.

B not endanger the continuance of the wild population.

C be discreet to, as far as possible, not offend other people.

Apart from these general principles, there are a number of more particular considerations to be borne in mind.

D Is this plant likely to succeed in my garden?

E Am I prepared to devote sufficient time to the collection and aftercare of the plant?

F Is it distinctly different from plants already in cultivation and/or available commercially?

G Could I raise it from seed instead, perhaps from the Seed Exchange?

To illustrate how these various points can apply in practice we should like to take *Pyrola chlorantha* as an example.

A We were not in a National Park or Nature reserve.

B There are literally hundreds of patches, under virtually every pine tree,

the population limited only by the availability of suitable habitat.

C We moved deep into the wood, well away from the track and out of sight, not simply to be furtive, but to avoid the possibility of upsetting passing walkers. This also leaves the specimens within sight of the path for other people to enjoy.

D We already have established *Pp minor*, *media*, *rotundifolia*, and *asarifolia* in our garden, from various sources, so there is every chance *P. chlorantha* will succeed.

E It is possible to yank up a piece of the 'spaghetti'-like pyrola root in a few seconds, but very little likelihood it will grow. I probed carefully around the edge of an extensive patch, to locate a small piece with its own fibrous root system. All the soil was replaced, even to the extent of rescattering pine needles on the surface. The area was treated as if I were taking a piece from one of our garden stands to give to a visitor. As in the garden, the pyrola should soon regrow to make good the tiny loss. It was potted immediately with as little disturbance as possible. We had provided a safe haven for our plants by equipping a plastic tray with wire hoops to support a covering of garden netting. Since it is important to keep the plants as cool as possible, the tray spent much time under Grendel, the netting providing protection against marmots and other vegetarian visitors.

The most trying time for our plants was undoubtedly the journey back north through lowland France. They hated the heat. We parked in the shade whenever possible and misted the plants regularly with a small hand-sprayer. Unless you are willing to treat them as patients in intensive care, much better not to dig in the first place. On our arrival at Askival, they were repotted the very next day. All the heavy native soil was removed for reasons explained above and a very sandy, gritty compost used. One is really treating them as Irishman's cuttings, which many of them actually were. If the imported plants are from outside Europe, all the soil must be removed before entry into the UK. The plants were placed in a shady frame, on their own, well away from all other frames, as required by the terms of the import licence. Although they had been checked over carefully in France for insect pests, they were given a spray as a precaution. And last, but not least, we kept careful records, at the time.

F As far as we know, *P. chlorantha* is not offered commercially, nor have we ever seen it when visiting gardens; but you may know differently . . .

G Pyrolas are notoriously difficult to raise from seed, a point we have covered before in our Column. We should like to repeat our request here, as we obtain lots of seed from our plants. If anyone knows how we could raise it, these lovely species would become more generally available.

While on the subject of propagating and distributing good plants, it is perhaps worth noting that, while living plants can be multiplied, her-

barium specimens cannot. The June 1985 Journal contained a Conservation reminder prepared by the Botanical Society of the British Isles. We can only welcome the conversion of the BSBI to the cause of conservation, and hope this means that they have put their own house in order. In the 19th century, personal herbaria were very popular, and the BSBI served as a clearing house for many thousands of dried specimens each year. This damaging practice only ceased in 1955. If 100 specimens are taken of any one species, this represents a dead loss of 100 members of the wild population. One hundred living garden plants could well have been propagated from a single wild collection. There is no doubt the decline of *Cypripedium calceolus* as a British plant was largely due to over-collection, and not just by growers. For garden use, a plant of Continental origin would be just as acceptable, but to a collector of rare herbarium specimens a British plant would be far more valuable. Alpine gardeners, particularly those who show regularly, have also tended to equate rare with desirable. However, it is worth pointing out in this context that rare in cultivation does not necessarily mean rare in the wild. *Eritrichium nanum* is definitely uncommon in gardens, but much of its extensive habitat is so utterly inaccessible that it could never be endangered by collection. On the other hand, *Androsace cylindrica* has been severely restricted by over-collection, although quite widely grown and generally available in the seed exchange.

While the status of *A. cylindrica* in the wild does give genuine cause for concern, this is not always so. Environmentalists have on more than one occasion tended to overstate their case, perhaps for greater emotional impact. One of many examples concerns the Brazilian Rain Forest, frequently said to be in imminent danger. The facts are that satellite photographs show only 1.6% of the Forest has been lost at present, and that the rate of clearance is between 0.0025 to 0.004% per year. Even at the most pessimistic rate it will take a hundred years for the loss to reach 2%. To cry wolf only weakens those cases when there is a genuinely urgent problem such as the deforestation and subsequent erosion of many parts of the Himalaya.

In attacking small-scale plant collecting by discriminating enthusiasts, the Green lobby are like the owners of a cliff-top house worrying about their woodworm, while ignoring the sea steadily eroding the foundations beneath. On the global scale, air pollution poses one of the greatest threats to the Earth's vegetation cover. There is not only the acid rain problem, which is confined to certain areas such as parts of Europe, but also the increasing carbon dioxide content of the atmosphere. This has risen from 300 parts per million in 1900 to 345ppm now, causing the Earth's temperature to increase because of the 'Greenhouse Effect'. Sea levels will rise, glaciers retreat, and wind and rainfall patterns will change. Whole ecosystems could be wiped out. It rather puts the plant collector's trowel into perspective.



Fig 21 *Corydalis cashmeriana* (see p.214)

A. Stevens

Fig 22 *Corydalis transylvanica* (see p.225)

H. Esslemont





Fig 23 *Iris winogradowii* (see p.221)

Fig 24 *Primula sonchifolia* (see p.207)

D. Wilkie





Fig 25 *Meconopsis horridula*
(see p.159)

Fig 26 *Lewisia tweedyi* (see p.234)

H. Esslemont





Fig 27 *Fritillaria aurea* (see p.221)
J. Cobb



Fig 28 *Fritillaria roylei* (see p.214)
A. Stevens

Returning to the Alps, from our own brief experience, and by talking to many other members, it appears that collecting is a relatively minor factor. Grazing, particularly by sheep and goats, is probably doing the most damage. Friends report seeing a whole hillside almost reduced to dust in the Mt. Viso area. One Nature Reserve we visited, where even picking the flowers is prohibited, was completely eaten down because of shepherds' traditional rights. Next in importance comes development, chiefly for ski-ing. It is not just the buildings, roads and lifts, the plants on runs themselves are damaged by the skiers, particularly if snow cover is shallow. Thirdly, the gathering of bunches of flowers by many of the ordinary tourists, and the cutting of meadows for hay, must reduce the seed crop. Yet these areas are so floriferous it can be doing little actual harm.

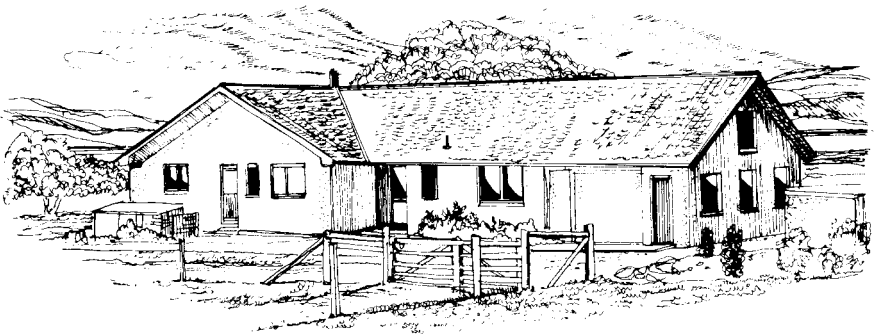
Higher up, the vast majority of visitors are walkers and climbers, who show scant interest in the flowers. We met only one other couple of alpine gardeners while in the Alps, an AGS member from the North of England and his wife, who were not collecting. One argument regularly trotted out by the conservation brigade is that the collection of one plant each by 1,000 individuals is the same as 1,000 plants collected by one person for, say, commercial purposes. This is a spurious argument because, in our experience it would take very very many years before the number of interested parties reached 1,000 in any one area. In the meantime the plants reproduce themselves to fill in any spaces created in the habitat.

Any wild population, plant or animal, can withstand regular moderate culling, providing its reproductive potential is not impaired by some other factor. The constant taking of trout from a hill loch by fishermen does not eliminate the population; acidification can easily do so by killing the fry.

Unless alpine gardeners stand together, act, and are seen to act, responsibly, then the chances are that we shall lose the right to collect when the inevitable action is taken against the large-scale exploitation of wild plants for financial gain. When we visited the Alps, we felt as though we were visiting old friends at home, after knowing them for years. One does not wish to harm old friends! We did invite a few, very few, like *Primula x bowlesii* to join us here at Askival, in the hope that they will be happy and multiply. In doing so we felt we were acting, not only for our own selfish pleasure, but also to add one more stitch into the rich tapestry of alpine gardening. The enjoyment of the world's most beautiful and refined flowers should not be confined to those who can follow Lou Reed's advice to 'Take a walk on the wild side'. But we're certainly glad we did!

What a mouthful!

STAN FORRESTER



‘DON’T put so much in your mouth’, I can still hear my mother telling me, and that was 50 years ago. Perhaps I learned that lesson in the literal sense, but all my life I have metaphorically been biting off more than I intend to chew. It has never been a case of more than I *could* chew, but so many projects of all sorts were just a bit much of a mouthful.

I have done it again, in a big way. We had a house built for our retirement on a 1½ acre site in Wester Ross with the idea of making a garden. We have done something of the sort before – one completely new garden and five reconstructions among the dozen or so properties we have occupied since we got married – but this was going to be something special. The site was part of a gently sloping field. There would be no great difficulty, we thought, as we pencilled our ideas on a plan. We would have, largely, grass and bushes for easy maintenance, but a rockery would be nice, let’s have a pond, and we had better have a vegetable plot with some fruit bushes and fruit trees. At this point the warning bells should have started, tinkling at least, if not clanging.

Everything went like clockwork. Planning permission was no bother. The builder started off and was getting on fine. We sold our house in South Wales. I wound up my job and we had a great send-off party. The furniture removers arrived and we took occupation of the new house on the day set for completion over nine months before. This was terrific. It was the first of December 1983; we could get the house to rights in a month or so, and then get on with the garden ready for the spring.

The New Year brought the worst gales in living memory. Our new conservatory started taking off in the middle of the night. The autumn had been wet; the storms brought inundation; floods from the public road streamed on to the site. Areas chewed up in the builder's excavations were quagmires, not negotiable even in gumboots.

'If winter comes, can spring be far behind?' It came, slowly. Slowly, too, grew the realisation of what we had let ourselves in for.

We had asked the builder to leave the top-soil skimmed from the site in heaps so that we could use it in creating levels in the garden. It was much later that I reckoned there was about 150 tons of the stuff. Meantime, with shovel, barrow and planks, the heaps were gradually eroded.

There was a lot of stone in the soil; the site is on the raised beach, and the excavation had reached a layer of gravel. Well, we do want a terrace outside the conservatory for sitting out. When completed some weeks later, I worked out there was 20 tons of stone under the concrete.

All the jobs seemed to be top priority. We needed a firm path down the back of the house, more or less on the line of the main sewer, one of the quagmires. All right, there is still plenty stone coming from the heaps of 'top' soil, and a broken-down wall needed tidying up.

Thinking back, I find it hard just to remember how much we did that spring, but it must have been a lot. There was one deadline we had to meet. We had ordered the first batch of trees and fruit bushes for collection at the end of March. The areas would have to be ready, and we would need a fence round the whole site, the hill sheep were all around us. We made it, only just. It was fortunate that the ground had dried enough to get a JCB on site. Tons of spoil were moved in hours, not weeks. The holes for the straining posts took minutes, not hours. Drains were excavated in an hour; hand digging would have taken two weeks, at least.

All at once we were getting there. Even while the JCB was digging drains, the tractor was delivered – a Ferrari 90 two-wheeled machine with plough, cultivator and rotary mower. The raspberry patch was 'dug' in a couple of hours. Two areas, the 'east lawn' and the 'south lawn', could be worked up into a fine tilth. Both needed levelling, and both needed de-stoning. The paths were extended – a home-made trailer behind the tractor carting in one load, soil or stones enough for four or five wheel-

barrows. We did not realise it at the time, but later I reckoned that 140 yards of 2'6" path had involved carting over 50 tons of soil and 50 tons of stone.

It was a great summer, the summer of 1984 – we could not have asked for better conditions for what we were about. By August it was all taking shape. We could do with some rain to get the grass sown. I sowed it, reckoning on using the sprinkler to get it germinated. Two days later we got the rain, and the grass was a green carpet in ten days. Meanwhile, the rough grass we had been mowing every fortnight or so was looking like a decent park, not a rushy moorland.

It took another winter before we finished carting spoil and stone about. The rockery bank was completed in the autumn, the pond rockery in the spring. The main circulation paths joined up in early March, and the vegetable plot was levelled off and the seed sown by the end of the same month.

Finished? Of course, we never will be. Each winter we browse through the catalogues. Each summer we see something else we can do. We had better build up the side of that ditch with stone from the old wall. We could do with a separate garden shed to relieve that clutter in the garage. (We had already built a tractor shed which was not in the original plan.) We could do with a path round here. It will give us turf for this, some soil to level up that, and we *are* still raking up stones.

We have been breaking new ground for ourselves in our planting. For previous gardens we have visited the local seed stockist, often Woolworths, and picked from the 'common or garden varieties'. With a retirement lump sum giving a reserve to use, and working on a much larger scale, we have explored nurseries and seed suppliers throughout the country. Trees – birch, hawthorn, rowan, elderberry, spruce and cypress – came from one of the forest tree nurseries, Christie's of Fochabers. With 200 trees of forest planting stock, the cost was a fraction of garden centre prices. Flowering bushes generally have come from another Christie's, of Forres, who have a fair range, while they are within reach, and where I know the boss. Roses came from Cockers of Aberdeen, rhododendrons from Glendoick Gardens of Perth, paeonies and irises from Kelways, way down south in Somerset, bulbs from Spalding (where else?).

Money was not unlimited, we must grow some stuff from seed. Jim Sutherland put us on to the Rock Garden Club; a friend gave us the address of Thompson and Morgan.

Looking back, although it has been a hard slog, it does not seem as much as the figures suggest. Although there was much more involved than we had envisaged, the capabilities have been better than could have been expected. I was shifting spoil at times at the rate of a ton an hour – ten or twelve barrowloads or three tractor trailer loads. That puts the top-soil

spreading at four weeks' work. Spread over two periods of about two months each, it was not too back-breaking.

Some of the slogging, too, was no chore at all, but something of pure delight. The last of the major constructions was the pond rockery. After the hole had been dug and shaped, contouring the resulting mound into a hill, terracing the slope with rocks, finding just the right one for each position, and shaping a valley for the cascade, was a task lasting several days, and giving delight almost all the time. Sometimes the work was no chore because it was social, such as the morning spent with sister-in-law, who arrived with a car load of bits from her garden, both of us with spades in hand and gumboots on feet. At other times the delight was an accumulation of fortuitous detail. The roses arrived within days of our finishing preparations for the bed. They were beautiful bushes, strong and well rooted. The weather was typically brisk late autumn, cold but with a warming sun. The job took just the available daylight hours. We straightened our backs and looked to the west; I think that only the West Highlands can produce such sunsets.

I could go on, but that memory is a fitting one with which to end, the sun dipping behind the Coolins of Skye in a gradually changing pattern of pinks and golds, soft greys and luminous blues.

Pleione hookeri

The colour photograph of *Pleione hookeri* (Fig. 9, p. 49) in the June 1986 issue was inadvertently published upside-down. The Editor apologises for this error to Barry Starling who took the photograph and to Jack Crosland who wrote the accompanying Plant Portrait.

Romulea

Some of the information on page 86 of the June 1986 issue concerning *Romulea* was incorrect or missing. For *R. columnae* the leaf width should have been 1.5mm and the leaf length 12-18cm, while for *R. armoricana* the corresponding values should have been 0.5-0.7mm and 10cm.

Cultivation of the genus *Meconopsis*

Part II

JAMES COBB

THE first part of this article, which appeared in the January 1986 Journal¹, looked at general aspects of the cultivation of this genus of plants. This second part aims to provide an account of the accumulated wisdom of myself and other growers on a species-by-species basis and to encourage more growers to try the easier species. Hopefully, too, writing in detail will stimulate successful cultivators to contribute further information on their acquired skills, and this will lead to the updating of knowledge of growing conditions required by new or more difficult species. The aim has thus been to produce a reference work rather than a general article.

Propagation – seed

The seed sowing procedure used for all species is critical and is re-summarised. Ideally, seed should be sown in early to mid-February in warmth and reasonable light. Day temperature should not exceed 13-15°C or drop below 7°C at night. High humidity should be maintained, preferably with mist, before and after germination. Compost should be a soilless peat-based one with added grit and Perlite, but in many cases a large proportion of dried sieved sphagnum moss is a tremendous improvement.

M. aculeata

This is the most western of the Himalayan meconopsis and has rather specialised requirements. Surprisingly it requires a damp growing environment, and this is the essential factor in its successful cultivation. It does not, however, require an undue humidity as so many of the difficult species do, nor is it difficult from seed. It needs a good rich soil and enjoys full sun. It is growing very successfully in a raised bed with a large fibreglass tub 30cm deep sunk into it. This tub has an overflow hole 6cm from the top and another in the bottom, both guarded by generous amounts of crocking, and the tub has a 5cm layer of coarse stones in the bottom. The lower hole is kept plugged in summer, and the soil remains saturated at depth. They will grow equally well in the mist bed described under *M. bella*, but this habitat is too precious. This bed is full of self-sown seedlings that have had to be weeded out, from a previous planting. It will normally flower in its second year when well grown, and seedlings should have a

leaf length of about 8cm by mid-August when they will tend to go dormant. Seedling leaves may show signs of a purple fungal infection in late summer, but this does not seem to have any permanent effect and they will not show signs of it on re-emergence in spring. I have no evidence to suggest that it is particularly vulnerable during winter dormancy and would not expect more than average losses. The biggest problem with all the small winter-dormant taprooted species is soil erosion or disturbance by birds leaving them to dry out in spring or simply forgetting where they are. They emerge quite late in spring but appear frost hardy. It is surprising how quite small emerging rosettes in spring grow on to form really large flowering plants that summer. Some specimens in a planting will not flower until the third year, which helps provide an annual seed production. Most of the *M. aculeata* in cultivation would appear to be hybrids with *M. latifolia*, with the characteristics of the former predominating. These plants show the coarse *M. horridula*-like leaves with a variable amount of lobing, coarse spines and some blotched purple pigment. The give-away appears to be a purple stigma which is characteristic of *M. latifolia*. I say, appears to be, because, without access to herbarium specimens, I cannot be certain that it is not also a character of *M. aculeata*; the original description in Taylor² does not mention stigma colour, and by implication it is thus green, and the illustration in Polunin³ looks as though it is green. I should be interested for comment from people who have seen it in the wild. The colour of the hybrids is a shot silk mauve and is very beautiful. Seed is not always abundant, and some plants in large groups are totally sterile which again hints at their hybrid nature. A cross this year with *M. horridula* (a chance seedling so the pollen parent is subject to doubt) produced an *aculeata*-like plant with the most perfect turquoise flowers I have ever seen. Sadly it was sterile, but deliberate crosses may repeat it. I do not know if hybrids occur with *M. horridula* normally. I have not yet flowered the true species from wild collected seed (but should do so next year), but I would expect the colour to be mauve. The colour, size and texture of the flowers is more than compensation for them not being a true blue. This species should be quite possible in dry southern localities as long as it is by a stream or pond or an artificial damp system is created. It is relatively easy in a specialised habitat.

M. bella

This species is difficult and, although mentioned as desirable in many standard works on alpinism, there is very little published information on the cultivation. Cecily Crewdson mentions having plants from seed but not flowering them at the time she wrote⁴, but stated that R. B. Cooke had done so. Cooke, writing elsewhere⁵, mentions plants of five years old

from seed, but implied that they flowered at three. He did not, however, go into any great detail although this article should be read. This at least shows that it is possible given the right conditions. One was recently exhibited in flower at Edinburgh show, and this was a plant brought back by R. McBeath from Sikkim. Seed has been available annually from Chiltern seeds and most years this is viable and some years germinates well. It is a very distinctive seed and would not easily be confused with species in cultivation. The seed clearly is derived from one of the Indian wholesale collectors, but the area of origin is not stated. Seed requires treatment according to the standard procedure detailed at the beginning of this article. High atmospheric humidity is absolutely essential from the moment of sowing. If the humidity drops temporarily, even before germination is a visible event, then seed caps will not be released. Although it is possible to release the cotyledons from the seed coat with a binocular dissecting microscope and two pairs of No. 5 watchmaker's forceps, the success rate is low and induced fungal infection if any damage occurs is inevitable. Joan Stead, this spring, recommended to me sowing in a sphagnum compost (dried and sieved) and this is a major advance in the cultivation of this species. I initiated trials with 8 various composts including two largely based on sphagnum, and all kept at maximum humidity. Initially it made little difference and germination was good in all, but subsequent growth was much more successful in the sphagnum. The reason for this is fairly certainly related to the ability of the sphagnum to retain high humidity over long periods of time in the microclimate immediately above the compost. However great the care with other composts, the humidity will drop and this appears to send the seedlings into a state perhaps equivalent to dormancy which is hard to reverse, and such seedlings slowly fade away or are impossible to nurse through the first winter. This species seems very resistant, at least at the seedling stage, to fungus infection. The rate of growth of seedlings is immensely slow whatever the feeding regime used, but the stem gradually thickens. Their growth strategy seems reminiscent of ramonda and even more so of jankaea. I have a seedling of the latter that is now approaching two years old, is 5mm across (and very healthy) and it is in a small clay pot permanently covered with a tight-fitting transparent plastic top the same size as the pot. One needs to keep the moss off, but it shows no sign of damping off which most seedlings would do in the first week of such claustrophobic surroundings. I am guessing that the strategy of these crevice-dwelling plants is to make the minimum top growth compatible with staying alive while gradually food reserves are accumulated in storage roots and a huge network of fine fibrous roots burrows even deeper and wider into the rock substrate. The plant only expands to flowering out of the humid crevice microclimate when it is

ready, perhaps after many years. This is guesswork, but it does suggest a growing strategy. A group of plastic pots of this year's plants are enclosed by a large glass bowl inverted over them. (A pneumatic trough for those of you who did chemistry at school in the good old days when that subject was 'stinks' and not electron shells.) They are growing well, and this relieves me of the worry that as little as a half-hour drying out will send them into a decline. I have to admit that the latter part of the summer here was so wet and cold that plants in well shaded and wind-free condition did as well. The dry and windy July caused mortality of 80% (40 out of 50) before this protection system was devised, and the protection is being carefully maintained in the dry autumn. I would aim to maintain it with minimum ventilation throughout the winter.

Losses from previous years have been very high, and I only have three two-year-old plants, and the three-year-old plant was destroyed by a blackbird. These plants were all planted in tufa blocks, both inside clay pots and in the misted scree bed referred to in the previous article. Three grew well outside in north-facing holes, rarely seeing any sun, providing liverworts were carefully dissected off (don't use the algicide Algofen). Two were dug out by blackbirds – plants outside require total protection at all seasons from this menace – only one still survives. Those in tufa situations not maximally damp at all times were lost. Those in pots all survived the first winter and came into growth in spring (a microscope was required to see them since the dormant rosettes at this stage are smaller than a pinhead), but three of the five succumbed to the long cold spring when growth could not be maintained. In retrospect they should have gone into the warmed seed frame once it became clear that spring was once again going to be a non-event. The dry warmth of the alpine house is not what they would want at all. Tufa, however, does not keep the humidity levels required in dry spells unless constantly misted, and I do not think it the answer to the culture of this species. I believe crevices filled with sphagnum compost and fed with dilute liquid feed and protected from severe winter desiccation to be the growing strategy for taking plants to flowering.

Summarising, sow in early spring in a heated frame used for other meconopsis with a compost largely based on sphagnum with just enough peat compost to give it body and grit to keep it open. Humidity is maintained by constant watering, preferably mist. Germination should be rapid – days rather than weeks – and growth must be maintained keeping the plants warm and humid until such times as ambient temperatures are high enough. It will be necessary to maintain humidity, except in the wettest climates, with some degree of light transparent cover. Direct sunlight

should be avoided for long periods but not total dark shade. Plants should be 1.5cm by late August with perhaps a dozen leaves. They will transplant fairly easily at the early seedling stage, but it is best to aim at a seed sowing thin enough to leave them, perhaps for more than a year. Ten seedlings in a 7cm pot would be ideal. In winter allow some air to circulate, but not harsh arid winds, and, as the plants become fully dormant back to a tiny bud, I cover the pots at times of hard frost with a handful of white polystyrene packing chips. I think the dormant plants are frost hardy, but the risk with such minute seedlings is total dehydration. Growing on to flowering will be a question of maintaining the humid growing conditions probably with a rich scree mix with plenty of sphagnum in a crevice. There is little doubt that the sphagnum bed system developed and advocated by Alex Duguid is likely to be the basis of culture, and he writes of considerable success with a number of difficult Himalayan plants, and using his advice I have far and away the best growth of *nomocharis* seedlings I have ever achieved. This is clearly a technique to experiment with.

The real problem is probably not that this is inherently a very difficult plant given an understanding of what it wants, but simply keeping slugs, chewing beasts of the arthropod kind and the worm-seeking thrush family from wiping them out in the two to three years they take to pass the vulnerable stage. This plant is thus for those who want a challenge but not an impossible one.

M. betonicifolia

This will probably survive anywhere, though perhaps not really arid conditions, given a rich soil with masses of well-rotted organic matter dug in. The key to this species and others that are not too specialised in their requirements is the rich feeding. To enable a seedling plant or a small division to prosper, a whole barrowload of well-rotted farmyard dung, or better, well-made garden compost, would be necessary to achieve a really large, well-flowered clump two years later. Leaf mould alone is probably not sufficient. In a heavy clay soil as well as the compost, a good measure of coarse gravel would be necessary to ensure drainage of excess moisture when dormant in winter. This material should be incorporated to a depth of 45cm. In a dry summer the foliage by the end of June will be starting to show white mildew and, as with all fungus infections, no chemical on earth can do much about it. Experience says that all garden crops that are liable to infection, from botrytis on greenhouse crops to mildew on roses must be sprayed well in advance with a fungicide. It is therefore wise to spray with Benlate twice and a non-systemic fungicide once over a period of six weeks from early June. This may be the counsel of perfection in normally humid areas, but the loss of species in cultivation will be caused by

extreme climatic conditions in areas where cultivation is easy and the growing taken for granted. Spraying as such requires 15 minutes a year of your time. In dry areas a mist unit and half an hour a day of high humidity will work miracles. Watering at ground level really does not help since the fungal infections are caused by dry atmospheric conditions, and really well composted soil will hold a lot of moisture for a long time. After four years it is necessary to lift and divide plants and replant with a massive reinjection of new compost. There is no doubt that far and away the best time to do this is when the new leaves are about 16cm high in spring. Dividing a big clump into two or three, making sure the division follows a natural plane of separation in the plant will not compromise flowering that same year. The essential thing about this species is only to grow seedlings from the very finest strains. Plants produce masses of seed, and really good plants for colour and flower size do breed true. This requires donors to the seed exchanges only to harvest from the best plants and the seed managers to distribute only from the most reliable sources and not to mix in inferior seed. Seed needs the standard treatment, and seedlings should be 15cm by early autumn and have been sprayed with Benlate in late June. If they are planted out into a rich soil by September they will flower the following spring and establish into multi-crowned plants. In a less rich soil some will flower and die after flowering, and you will have to hope others will not flower and provide multi-crowned plants at two years. Taking out the flower buds will help if it can be done early enough, but does not guarantee a perennial plant. Needless to say, the best plants will be those you flower in the first year and lose, so keep them fed! Perhaps a proportion of this species is inherently monocarpic, so expect to lose a few. Alex Duguid developed a technique to produce plants reliably perennial while running Edrom nurseries. After experimenting with planting in late winter he found that seed sowed very thinly (even each seed singly) in late June or early July, as seed ripened could be over-wintered safely in a frame in a dormant state and grown on to multi-crowned plants by the following autumn. Really well fed, this species is easy in most situations.

M. cambrica

This is an easy and attractive species which can be very invasive and does spread, by a method which is obscure, well away from the site of seeding. The simple answer is to keep it regularly deadheaded or plant it in an area where it can be allowed to naturalise. The evils of this plant are over-emphasised, however. There is a double orange form which is about as vulgar as they come, but this is, of course, sheer prejudice.

M. chelidoniifolia

This is another rather gentle wildling but certainly not invasive. It would

not appear particularly demanding and seems long-lived in a fairly dry spot with a minimum of attention. My plant never sets seed; perhaps two clones are needed for seed, or perhaps years of asexual propagation have weakened its viability. It is probably a plantsman's plant, but worthy of a place in a semi-woodland setting. Closely related to *M. villosa* and placed by some 'authorities' in a separate genus *Cathcartia*, which does not seem unreasonable, but then thank heavens I'm not a taxonomist.

M. delavayi

This is a highly desirable species, once quite common in cultivation but now very rare, if existing at all. It is polycarpic and was propagated from seed, cuttings, division and root cuttings. It grew in limestone and clearly at least one grower had solved its cultivation problems and shown that it was not only possible but relatively easy. This grower was Trotter and he wrote comprehensively in the RHS Journal⁶, and this will not be repeated here at length. He used a rich limestone rubble in both full sun and semi-shade. He showed that broken-off roots would regrow to new plants and even had self-sown seedlings. The demise of this plant in cultivation is really due to the failure to pass the plant on with the knowledge of how to grow it. Perhaps the garden societies should introduce an award which acknowledges the contribution of individual growers to maintaining rare plants and describing their cultivation so that they can achieve status in this way, rather than simply holding on to the rare plant. If this plant comes back into cultivation then growers should read Trotter's account.

M. dhwojii

This is one of the monocarpic evergreen species with distinctive lobate foliage and much purple pigment to the leaves. It is not at all a difficult plant with one proviso. All the monocarpic evergreen meconopsis are especially greedy feeders, and most of them in cultivation are more than half-starved. A large planting of one of these species will deplete the soil of most of its goodness and very substantial amounts of organic manure, leafmould or garden compost are essential. Large amounts of peat are a waste of money unless much organic fertiliser is provided annually as well. These monocarpic evergreen species are much less susceptible to the effects of mildew in dry weather, though they will often show the symptoms, and they would probably survive really dry summers if the soil beneath them was in really good heart. They do not appear to need acid soil, and on fertile soil added inorganic fertiliser in a balanced form will double the size of the plants during their lifetime and produce flowering stems not just better in quality but quantitatively carrying more flowers. *M. dhwojii* normally flowers at three years, but some will flower one

year on either side of this. They will tend to flower at two years in poor ground and set little seed. The problem with this species is that it hybridises with other species such as *M. napaulensis* and *M. paniculata* and the progeny are normally sterile. This is increasingly happening with batches of seed, and if the separate species are to be kept in cultivation then individual gardeners are going to have to agree to grow solely these, the opposite in fact of current strategy for conservation of some garden genera. The hybrid is called *M. x 'Ramsdeniorum'* and is nothing in particular.

M. discigera

This is a difficult species which has been in cultivation a number of times and, thanks to the AGS expedition, has been reintroduced. Seed from this expedition germinated very well and the plants initially grew rapidly on without difficulty in humid conditions. The dry summer of that year then began to take its toll at a time when the critical humidity conditions had not been brought home to me. Five seedling were eventually saved and placed in the misted Himalayan bed. Two were lost the first autumn from a fungal rot perhaps already present from earlier in the summer. Another very good specimen was lost at the same time a year later, finally succumbing to an infection kept in check over the summer with Benlate. These failures indicate that at the end of the 'monsoon' the plant should be kept surface dry and allowed to ripen; the surviving two plants had simple glass tent cloches applied at the end of August, and this is two months before the whole bed is covered with a raised transparent roof. The two surviving plants have been fed by applying a slow-release fertiliser in spring and will now obviously not flower until at least their fourth year. As two is the minimum necessary to have any real hope of collecting viable seed when they do flower (the species is monocarpic), I live in fear, particularly of a pair of mentally unbalanced blackbirds that I was foolish enough to allow to be reared in the garage. The bed is now fully netted against them since they have just done unmentionable things to a large plant of *Primula reptans* and spread *Primula pusilla* all over the place, and their idea of vegetative propagation is rather cruder than mine. The two plants still do not look large enough to flower, but the mental effort of worrying about them will be too much if they postpone flowering for yet another year! A previous plant of this species obtained via the Kew seed bank at least taught me that it requires really quite rich feeding, and its loss from rot in damp autumn weather proved this is a species for the specialist bed. To summarise, this species is difficult but will respond to the winter dry/summer wet regime described here with fairly constant care and attention. Its existence in the short term depends on how many people manage to bring the AGS seed to flowering. Given this chance and specialist treat-

ment, it should be possible to maintain it in cultivation unless the plants do not produce viable seed in captivity. Previous losses seem to have been due to drought summers.

M. gracilipes

This species is closely related to *M. dhuojii* and only distinguished by the lack of purple pigment. This minor characteristic does at least seem to be fixed and the species have a different distribution. Cultivation would appear to be identical to *M. dhuojii*, but I have real fears that *M. gracilipes* is no longer in cultivation. It has shown substantial chromosomal abnormalities in cultivation and, although the reason for this is not clear, the progeny is sterile. Recent batches of seedlings grown on have all looked hybrid with *M. napaulensis*/*M. paniculata* and have been almost sterile and the next generation totally so. If this species does not turn up soon in seed exchanges from an isolated source we shall have to assume it will have to await recollection. It is, to my mind, one of the most delicately beautiful of the monocarpic forms and I regret its loss. It will be necessary to try to understand the reasons for the susceptibility to chromosome damage in any reintroduction, though I guess this is easier said than done.

M. grandis

This is, I suppose, the classic meconopsis and at its best will stop even the most committed garden philistine in his tracks; even my father has briefly glanced at it, which is sensational. It needs exactly the same treatment as *M. betonicifolia* and is neither easier nor more difficult, just more expensive. The reason for this is that many *M. grandis* are sterile and propagation of the best forms requires a lot of time and effort and very good growing conditions. I suspect more and more (but will not dwell on it) that many *M. grandis* forms are hybrids. Some more recently collected forms are highly fertile even unto the third generation, and these plants are now offered quite cheaply by the trade. Occasional oddities do turn up, and last year undoubted plants of the hybrid *M. x 'Sheldonii'* (Fig. 47, p.211) produced viable seed, and I have forty good plants whose future health and happiness is dear to my heart. Seedlings require good growing conditions to ensure that the maximum possible number become multi-crowned either before (preferably) or after flowering. This problem is discussed at length earlier and is probably the biggest pitfall. These plants are particularly vulnerable to mildew infection and, if severe, will lead to the loss of the plant as soon as autumnal damp arrives. Over the years really dry summers have caused havoc to the population of this species in cultivation with recovery in the good years, but first-class cultivation will reduce the risk in such years. Spray routinely with a systemic fungicide from spring, which will help,

but maintain a humid atmosphere in really dry spells with mist nozzles. In a rich humus-filled soil they will grow whether the soil is acid or alkali, but I suspect that the really good blue colours of selected clones and hybrids will be compromised in some alkali soils, but they are not lime haters *per se*. Winter protection is not necessary, but an open topsoil with plenty of partly decomposed organic matter and enough incorporated drainage material to ensure water does not lie after heavy winter rainfall is essential. To summarise, really rich feeding producing immensely robust plants will overcome temporary drought conditions, but in areas of consistent dry spells, surface watering will not compensate for low atmospheric humidity, so mist is essential. Plants should be divided in spring into pieces with one main crown and 2 to 3 subsidiary crowns and planted into well composted ground every three to four years; even in very good conditions, plants will deteriorate after this time.

M. horridula

A number of different plants were lumped together by Taylor under this species (Fig. 25, p.143), and this indicates that plants of different horticultural quality and cultural requirements are involved in this species. There are some truly excellent plants which will breed true if planted in similar groups, and some very coarse plants. It is necessary to weed out plants of poor growth form and poor colour and not submit such seed to the seed exchanges; amateur collectors of wild seed should endeavour to be discriminating in introducing new seed. This plant is really quite a major weed in my garden, and it is just as ruthlessly deadheaded as *M. canbrica*. Well-grown plants will flower at two years old. The one difficulty to avoid is not checking them at either pricking on or potting on, which may initiate at least partial dormancy. The best way to avoid this is to sow seed very thinly and produce a few plants of high quality for further processing.

Seed of the really superb high alpine form, featured on the cover of Alpines 81, has come my way twice. The first time large numbers of seedlings were produced and grown happily, but not a single one emerged after winter. The AGS expedition seed was treated with more respect and in the dry 1984 summer was unhappy at the seedling stage; the few seedlings that survived were given great love and attention in the covered Himalayan bed used for the culture of difficult genera but appeared to take no comfort from this either, and none survived the first winter. Local acquaintances were also unsuccessful with this seed. I would still imagine summer wet/winter dry on not too rich a soil to be a starting point but can add little beyond that. The Edinburgh Botanic Garden has successfully grown this variety of *M. horridula*, so it is certainly possible. The message to take home from this is, be careful with seed of familiar species from strange

places, particularly with seed from Tibet, China and Bhutan which is now occasionally being distributed.

M. impedita

Harley briefly describes the cultivation of this species⁷ and comments that, as in the wild, it does not set much seed. He made no specific recommendations for its culture, which implies either it was easy or it was not up to much. I suspect the latter.

M. integrifolia

Another classic meconopsis and again with more than one original species lumped together. This is almost invariably monocarpic, but only partially evergreen, dying back to a resting bud, the size of which depends on the severity of the early winter. It is easy from seed if sown thinly, but prone to damp off if crowded. It is the fastest growing of all seedlings, and plants can already be 3cm or more by late April. By the end of August they should be 15cm, and at this point must be planted out into good rich soil so that they have established good widespread roots by the onset of winter and semi-dormancy. All meconopsis rapidly go back when pot-bound and must be planted out and not, if humanly possible, be overwintered in pots. This applies more to *M. integrifolia* than any other. Some plants will flower the following spring and others the year after. The one pitfall with this plant is a mild winter leading to premature development of flower buds which are then frosted since this species is very early flowering. As these conditions are generally outwith the control of the grower, temporary protection with dry herbage (bracken or green conifer branches) will help, or possibly artificial protection with cloches. Smaller non-flowering plants are not really vulnerable, and so regrettably the better the autumn cultivation the worse the risk in spring. However, really well-grown plants, which are rarely seen, are so infinitely better than poorly grown plants in flower that one should try to achieve the latter, but perhaps make several plantings in different locations and soil conditions. To summarise, this is a slightly fussy plant, not too easy out of rich, humid growing conditions, but not particularly susceptible to fungus infection. It is prone to late frost damage which either sets up a fatal rot or produces flower spikes that look virus infected. Recent Chinese seed (brought back by a friend from a botanic garden so the actual source is unknown) produced very different looking plants that may well need different growing conditions, and care will be needed with seed from new sources.



Fig 29 *Ranunculus ficaria* 'Albus' (see p.180)

R. Nutt

Fig 30 *Ranunculus ficaria* 'Cuprea' (see p.181)

R. Nutt





Fig 31 *Scabiosa crenata* subsp. *dallaportae* (see p.232)

S. L. Jury

Fig 32 *Lupinus lepidus* var *lobbii* (see p.239)

R. Sullivan





Fig 33 *Primula calderiana* (see p.222)

H. Salzen

Fig 34 *Campanula fragilis* (see p.229)

S. L. Jury





Fig 35 *Ranunculus gramineus* (see p.177)

M. latifolia

This is the easiest species of all that I grow. This is surprising in that all my plants are descended from a single polycarpic plant (sadly now removed from the local botanic garden). This scarcity when I started on meconopsis is not easy to explain since I can find no reason to consider it any more difficult than *M. horridula*. The plants seem not to hybridise with either *M. horridula* or *M. aculeata* as pollen parents, although the cross with *M. aculeata* the other way seems all too common. The plants are a superb pale turquoise with no trace of red, although there is some variation in the size of flowers and the compactness of the flowering stem. A few seedlings will flower two or three years in a row, but none is as fully polycarpic as the original plant. No other seed source produced true plants. Masses of seed have been put into various seed exchanges, so it should be widely spread by now. It seeds freely all over my garden and I only raise seeds each year from the best forms to maintain a positive selection of quality. It is necessary to sow seed thinly as overcrowded seed pans produce poor material and can cause damping off. This species was sown in autumn last year as well as spring and kept in the dark at -6°C , $+4^{\circ}\text{C}$ and ambient, in terms of temperature and light. This taught me nothing since germination was excellent in all cases when placed in warmth in February. Seedlings pricked off will grow to about 12cm by August and, although they may show signs of fungal infection if kept too dry, it rarely has much effect. They should at this stage be planted out since they can rot in pots over winter if allowed to become soggy. They grow in the western Himalayas and, although they need a well-fed soil, they will tolerate quite dry growing conditions and, as they usually flower in their first year after sowing, a hot midsummer is of little consequence. To summarise, seed sown thin early in warmth and grown on in a rich compost in 7cm pots kept watered and with reasonably sunny aspect will provide plants for planting out in autumn that will flower well the following summer, however dry. Less well-grown plants may not flower as biennials and would be a risk in a dry summer, although simple watering would keep them growing.

M. longipetiolata

A monocarpic species that has been in cultivation and is probably a woodland species. There is little information about its cultivation. Recent seed from botanic garden seed lists has not been true.

M. lyrata. This species has been in cultivation briefly, but there are no clues to its cultivation. Recently collected seed did not germinate for me, admittedly before I knew what I was doing.

M. napaulensis

This species is much hybridised with *M. paniculata* and *M. regia* (as well as other monocarpic species closely related such as *M. dhowjii*). These hybrids are not difficult to grow in a rich soil and will tolerate a great deal of drought with only minimal fungal infection, and this is rarely more than temporarily disfiguring. It certainly does not require an acid soil and responds well to inorganic feeding. Early sown seed pricked on and then potted on to a 7cm pot will have 20cm leaves by mid-August. After this they will rapidly become pot-bound and should be planted out at this point. The smaller the amount of soil offered this species as a growing plant, the smaller the plant produced. They should be planted out with plenty of space, and, if you can spare it, they will occupy happily a square metre before they flower. The size of the flower spike will depend to a certain extent on the strain of seed grown, because it is possible to fix a whole range of qualities associated with flowering, from colour to number of flowers per scape by careful selection. Some plants will flower at two years old, most at three and some at four. After flowering, substantial organic compost of some sort should be dug in before replanting new plants as they are immensely greedy.

Wallich's form, once a separate species (and, based on characteristics as a garden plant, it still should be), is a very different plant in that the leaves are characteristically much more dissected, the flowers are blue or white and it flowers up to one month after the other plants have finished. Good forms are a really good blue, but recently introduced strains are markedly inferior. It does, however, hybridise with the other type of *M. napaulensis*, and the cross with the yellow form is the usual pale cream obtained from blue/yellow meconopsis crosses (i.e. *M.* x 'Sarsoni', between *M. betonicifolia* and *M. integrifolia*). It requires the same cultural conditions.

In a really wet, cold winter climate such as the west coast of Scotland it might be necessary to cover in winter, but no losses of significance have been recorded here on the east coast, and plants die of desiccation in winter if cover excludes too much moisture since transpirational losses from the substantial foliage are considerable even in winter. It is an easy plant if kept growing strongly from an early sowing and planted out into an organically rich soil in late summer. A small handful of inorganic general fertiliser is the counsel of perfection in the second year.

M. paniculata

This is a slightly smaller species than the one above, with consistent yellow flowers but hybridising. It is difficult to tell apart from *napaulensis* except for a pale mauve stigma. Two forms are present in cultivation and are distinct. One from Sikkim is a lime green and one from Bhutan (a Sinclair and Long no. from the RBG Edinburgh) a grey-green. Even with the richest

feeding these plants are smaller than *M. napaulensis*. The same growing conditions are required with no special problems.

M. punicea

This is by all accounts a gem. The first difficulty (apart from obtaining seed) is to stop a planting flowering itself to death in the second year since by reputation it can be polycarpic. It used to be sufficiently widespread in cultivation to be considered perfectly possible, and the loss to cultivation was almost certainly due in the main to the dry summer of 1959 weakening plants. My six seeds from China did not germinate, but I fear in retrospect this may possibly have been incompetent seed management subsequent to sowing. If I ever get another chance, they will be carefully sown according to the schedule detailed at the beginning of this article and then grown on reasonably well fed in a misted and winter-covered bed. It will probably always need care and attention if and when we can bring it back to cultivation, but it is by no means impossible.

M. quintuplinervia

This is an easy polycarpic species with moderate care. Various forms are in cultivation, but far and away the best is one obtained as Kaye's compact form. This sets viable seed and responds to division and good feeding by growing indefinitely into an enlarging but neat and tidy plant that will always produce a second good flowering in the autumn. The more straggly forms are particularly susceptible to the rootlings of blackbirds in dry autumns and possibly more prone to fungal infections. In general they are tolerant of fungal infections and pretty content with drought summer conditions in a well-fed soil. Reported losses of the compact form on the west coast of the UK in a cold wet winter cautions that a small tent cloche over the fully dormant plant in winter in this type of climate is probably a sensible precaution. Seed of this species was sown last winter using the same regime as that described above with *M. latifolia*, but in this case no seed germinated so I learnt nothing here either. I have grown this species from an autumn sowing of seed with germination in spring, and there are the odd self-sown seedlings in the garden. It does not seem to breed true from the compact form. In summer it is an absolute gem of a plant with the nicest possible manners in a good form. Divide a saucer-sized plant in spring into four and plant into good new ground, which need not be acid, and you will have four plants the size of the original by autumn with no loss of flowering potential. The compact plant will occasionally be available from the trade, and I'm giving it away as fast as I can!

M. robusta

Seed of this species has been available collected wild and appears to be true

compared to the description of Taylor. It bloomed rather like a small-flowered and more dissected leaf *M. paniculata*. It was not particularly happy in a dryish situation and flowered as a biennial. It set relatively little seed, probably on account of poor cultivation, and was not regrown. It is a plant for the collector, and probably not unduly difficult in good *M. napaulensis*-type habitat.

M. regia

This is not in cultivation unless it has been re-collected in the last two years. All known plants are hybrids with *M. napaulensis*. It is clearly a magnificent plant, and when it is returned it will need careful pollinating to avoid rehybridisation or preferably a good grower volunteering to cultivate it alone of the monocarpic meconopsis. There is no reason to suppose that cultivation of great richness as suggested for *M. napaulensis* is not what is required. A plant quite identical to this appeared spontaneously recently at the late Col. and Mrs Anderson's garden at Balruddery. It did not set any seed and was almost certainly thus a hybrid between *M. superba* and probably a yellow *M. napaulensis* or *M. paniculata*. This gives pause for thought about speciation in this genus. The true *M. regia* has a dark purple stigma (like *M. superba*). There are more thoughts on hybrids in this group in a previous article⁸. To summarise, let's hope someone can re-collect this and we can keep it true.

M. sinuata

Gen Murray-Lyon was awarded a Certificate of Merit for this plant at a Dunfermline show at 27 months from seed, pot grown. He suggested a scree for its cultivation outside⁹.

M. sherriffi

This is clearly another difficult species (Fig 46, p.211). Some growers have obviously been successful on a continuing basis or the plant would have long been lost to cultivation, but it has taken me some time to begin to come to terms with it, and I have to be grateful for repeated donations of seed to achieve it. This plant is, in theory, polycarpic and there are clearly plants in Scotland that are long lived, but it is difficult to obtain a multi-crowned plant before it flowers, and failure to achieve this is likely to lead to the plant's loss. This species needs moderately rich feeding, since it is capable of producing rapidly a huge ball of fibrous roots, total humidity throughout the growing season from May to mid-August and a dry ripening period with the foliage protected and the roots kept moist. Cover in winter, but just damp since the plants do not become fully dormant, and then frost protection in spring after growth has restarted. Seed germinates readily in spring under the defined conditions and growth like that of *M. integrifolia* is rapid and pricking off not difficult. Keep humid and rapidly pot into 7cm pots

in a rich free-draining compost and rigorously maintain the humidity. Plants should be 15cm by mid-August and mine are planted into the north-facing scree bed. Seedlings at this stage are fairly robust and the whole bed is covered in late October. It is not allowed to dry out totally and root moisture should be maintained. Mist and snow blow in on the plants during the winter as well. Some of these plants may flower the first spring and these will probably be the biggest plants. When there are flower buds developing they will only tolerate 3 or 4 degrees of frost, and damage will lead to that rosette rotting later in the spring, and on a single crown plant it's total loss. A handful of dry bracken or something similar will give adequate protection at this time, though it should be removed during breaks in a protracted cold spell. In general, plants need cross-pollinating to set seed, and efforts should be made to borrow pollen if necessary. A single plant of mine did set good seed, but as the progeny grow I'm becoming suspicious (nay as I edit in late autumn, certain) of hybridisation with *M. integrifolia*, which is presumably the most likely cross. Really good feeding and attention to humidity may well bring these early flowering plants to a multi-crowned state, and there is evidence that this is so. Ideally perhaps one should slightly check plants in their first autumn and then they will grow on without flowering in the second year; seedlings from 1985 have all behaved in this way and several are now really substantial plants. Once they have reached this size it is when the real difficulties begin, because these species seem to me the most sensitive to fungus infection during drought and immediately rot as soon as the weather turns wet. The relationship this year between the distance from a mist nozzle and the growth of the plant was so perfect as to be almost unbelievable. Of nine plants, one in a dry situation with occasional ground watering died in July, one subject to mist in the vicinity died late July, and a third misted only with the wind in the east (which as a bird-watcher waiting for such winds to blow rare birds from the Continent into my garden is all too unusual) died mid-August. All the others in regular mist thrived, and two very substantial plants are within six inches of nozzles. All the fatalities died slowly since Benlate checked the fungal infection. I doubt, however, that continual treatment with a systemic fungicide even before infection is a substitute for humidity. By mid-August plants need a simple glass tent cloche to keep the foliage dryish but continued moisture at the roots. The whole bed is covered for the winter but still subject to attention. These mist conditions and the soil structure both lead to depletion of nutrients, and new plants need fresh soil enriched with organic matter and either a continuous inorganic feed programme or the application every six months of a resin-coated slow-release fertiliser. (These are difficult to obtain, being manufactured abroad in some cases, and even good garden centres often do not have them unless pestered.) I know some people grow this species without

any difficulty in Scotland, but I think they are in the minority even among good growers, and I feel that some sort of attention to the above regime is necessary at least until plenty of material is available. Large polycarpic plants would presumably divide and this would be best done in spring, but the plant is unlikely to have the robustness of, say, *M. grandis*, and this could not be relied on in the long term to keep the plant in cultivation, and regular seed from a group of plants and growing a few new ones on each year is probably essential. To summarise, it is difficult but possible, given rich, well-drained soil with quite good exposure to sun, constant summer humidity and winter protection. Care over severe late spring frosts is necessary.

M. simplicifolia

This is moderately difficult and available in two very different forms. There is a truly polycarpic form with flowers that are often of a poor purple blue and a monocarpic form with exquisite turquoise flowers. Seed of these is usually not true, and I recently obtained a very strange form of *M. grandis* under this name, but it will normally be *M. betonicifolia*. The diagnostic feature is that the stamens must be mauve or purple and this distinguishes it from some of the small single-flowered forms of *M. grandis*. The polycarpic form I have was derived from two AGSES seed numbers; all plants are small purple-flowered, but I gather some other much better colours were grown on. The plants are admittedly in my mist bed and I believe would be vulnerable away from humid conditions. They are robust and give generous amounts of viable seed. If really good plants are about from this seed collection, it would be a great pity not to select from these rather than spread about the less good ones such as I have. I am sure, in an open peat bed environment, these plants are not robust enough to survive a summer of adverse conditions and are badly subject to fungal infection. The monocarpic form is fairly rare in cultivation and becoming more so. It is definitely difficult and, as losses take place in winter, often none of a large planting survive. I can only assume that it is associated with winter wetness since I have no evidence that they are not frost-hardy. A good planting of seedlings in a marginal area of the misted scree flowered well and set seed mostly as biennials. The nearer the plants were to the good conditions the better they did. They are beautiful enough and small enough to deserve a place in such conditions. In short, they are not easy plants, especially the monocarpic variety, needing humidity in growth and protection from winter wet.

M. superba

Aptly named as a great and gracious plant. Probably the most difficult of

the monocarpic plants of the *M. napaulensis* type, or perhaps more fairly the least easy. It must have rich feeding, and large plants (20cm) must be achieved by mid-August from seed; they should be 45cm or more by the end of 18 months' growth and can be a metre across prior to flowering. They are the most susceptible to winter wet, and I would advocate a tent cloche in winter that keeps the roots moist and the crown dry. If dead leaves become trapped around the crown of the plant under the cloche, so much the better since the flower spike is not hardy. Frost damage late in the spring with plants that are going to flower leads to distorted stems and failure to set seed and often aborted flowers. It is an early-flowering species and the risk is high most years. Again a handful or two of dry leaf litter during cold spells is usually enough. If you cover the monocarpic evergreen species with large panes of glass covering several plants, this is hopeless since the plants in the middle become desiccated and die, and even those deprived near the edges are badly set back and never achieve their superbness. These are big plants and grow two metres or more and half that wide. This species seems the least prone to hybridisation (but see *M. regia* above). There was a polycarpic evergreen hybrid of this species called *M. x 'Musgravei'* which was, and would be, a highly desirable plant, but I doubt if it still exists. I still have my own hybrid between *M. regia* type and *M. grandis* which is robustly polycarpic and evergreen, and hybrids of this type of breeding would be immensely valuable general garden plants (I have discussed this previously elsewhere). To summarise, this is a great garden plant needing masses of organic feed, not necessarily acid conditions, and some winter protection; like the other related species, really rich feeding down to at least two feet in the soil will probably allow these species to survive a summer drought with regular watering to the roots.

M. torquata

Gen Murray-Lyon¹⁰ described the cultivation of this outside and described in detail experiments carried out on its cultivation. It probably has similar requirements to *M. discigera*, should seed be recollected from Tibet, and is difficult.

M. villosa

This is another wildling species related to *M. chelidonifolia*, and doing well in a damp, slightly shaded spot with occasional top dressings of organic material. It is suitable for the wild garden, but is delicate enough to require protection from more rumbustious neighbours. It is soundly polycarpic and deciduous but sets good seed, and the occasional renewal from seed is advised as a safety precaution. It can be divided, and there are some special forms about although not strikingly different.

M. violacea

This is a monocarpic evergreen species not now in cultivation. It is probably not particularly special and, appearing from the rather sparse accounts of it, is the one species of this type that has been cultivated that might need the 'monsoon' treatment. This should certainly be tried if this is ever to be reintroduced.

There are probably other species that have been in cultivation, but there is little written about them. The Chinese have described a number of new species and perhaps one day these will become available. If new species are introduced, attention should obviously be directed towards a habitat description and particular attention paid to the local climatic effects of the monsoon.

Given attention to humidity and feeding, there are polycarpic and monocarpic species that will grow almost anywhere on any soil. Growers should not be put off by being told 'they won't grow here'. If you are determined enough and make the effort, some species certainly will.

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The Genus *Ranunculus* Part III— European species D-M

ALASTAIR McKELVIE

***Ranunculus Demissus* DC**

This species is synonymous with *R. sartorianus* Boiss and Heldr q.v.

***Ranunculus* x 'Essex'**

This is a hybrid between *R. amplexicaulis* and *R. parnassifolius* which was awarded a Provisional Commendation (PC) in 1957 when shown by Mr P. C. Hammer. It subsequently received an AM in 1978 when shown by the Royal Botanic Garden, Kew. On this occasion it was suggested that the plant was a cross between *R. parnassifolius* and *R. pyrenaicus*, but it was clearly demonstrated that it was Hammer's spontaneous hybrid as given a PC in 1957.



The plant was fully described in the AGS Bulletin (1957), 25,334. It is 25cm tall with the branching habit of *R. amplexicaulis*. The basal leaves resemble *R. parnassifolius* being dark green and glossy above and red below. There are 3-5 cup-shaped flowers per stem. The flowers are 4cm across with white-pink overlapping petals. The stigma is prominent and green.

It was described as an easy plant to grow, but it is rarely seen nowadays and fails to be mentioned in the literature and is seldom seen on the show-bench. It seems to be a worthwhile plant, and it is hoped that it can be brought back into general circulation. It was mentioned as being rare in 1978 when it received its AM.

***Ranunculus* 'Evening Star'**

A plant under this name was given an AM in June 1910 when exhibited by Messrs G. & A. Clarke, Dover. It sounded magnificent with large (5cm diam.) double deep-sulphur-yellow flowers. Unfortunately it seems to have disappeared from cultivation.

Ranunculus flabellatus

This is synonymous with *R. paludosus* q.v.

Ranunculus x flahaultii

This is a naturally occurring hybrid between *R. parnassifolius* and *R. pyrenaeus* found in the Pyrenees.

It was described in the SRGC Journal (1982), 17,347, by Margaret and Henry Taylor who found it growing in short turf on acid rocks at 2,400m in the eastern Pyrenees. The leaves were intermediate in shape between the two parents, lanceolate with a dark blue-green upper surface covered in short white hairs. Plants were 5cm tall with three flowers per stem, white and 2.5cm across. The petals were frilled and overlapping.

It has proved fully hardy in cultivation. When pot-grown it needs to be repotted annually as do several species of ranunculus. This attractive hybrid was awarded a PC in 1985 when shown as the cultivar 'Nouffonts' by Fred Hunt.



Ranunculus flammula L.

This species of Section Flammula is a glabrous perennial, erect or creeping and rooting at the nodes. The flowers are yellow and between 7-20mm in diameter. It is a widespread species occurring over the whole of Europe except the Mediterranean.

It is not often grown in gardens but is an attractive plant for the edge of a pond or in wet, boggy places. Anyone who has seen the vast areas of its neat golden flowers in Shetland on low-lying peaty soils knows how attractive it can be.

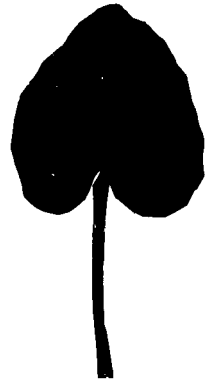


Ranunculus ficaria L.

This species of Section Pallasiantha is widespread over Europe and western Asia and has been introduced into North America. Its common name is the celandine from the Greek chelidonium – a

swallow. The plant is sometimes called swallowwort because it was supposed to flower when the swallows came: It usually flowers in March and April in the UK.

It is a glabrous perennial with a profusion of fusiform or clavate root tubers. It is usually low-growing to 5cm, but



forms occur which reach 25cm. The basal leaves are in a rosette and are cordate or heart-shaped. The flowers are 15-20mm in diameter with three sepals and 7-12 bright, golden-yellow petals.

In its commonest wild forms it is a pest of gardens where soils are wet or sticky because the tiny tubers are easily spread as ground is disturbed. Regular hand-weeding as the plants are growing in the spring soon reduces it to manageable proportions.

In its cultivated forms, many of which have been found growing in the wild, it is a most attractive species. These forms range from singles to doubles, in colours from white to yellow and coppery-orange. The pages of the *Gardener's Chronicle* used to be full of descriptions of the many variants, all of them given fancy names. These names still stand, but many of the plants seem to have disappeared without trace. It is, however, still possible to find some of them in specialist nurseries or in private gardens.

Richard Nutt is responsible for the National Collection of cultivars of *R. ficaria* on behalf of the National Council for the Preservation of Plants and Gardens and he has contributed a preliminary account of the cultivars on p.180 of this issue.

Three of these cultivars have been given awards by the RHS:

'Cuprea' – a form with single coppery orange flowers (Fig. 30, p.161), was awarded an AM in 1964 when exhibited by Mr W. E. Th. Ingwersen. He described it as one of the best and advocated growing it along with *Anemone nemorosa*. This cultivar should not be confused with *R. cupreus* which was described in Part II of this series and which is quite a different plant.

'Brazen Hussy' – a wild variety found in woodland in Sussex by Mr C. Lloyd was awarded an AM in 1981. He regarded it as the queen among celandines, beautiful in leaf and flower with its bronze leaves and glistening gold, star-like flowers.

'Major' – this giant cultivar with enormous golden flowers received an Award of Garden Merit in 1946. It is probably synonymous with 'Grandiflora' (Fig. 38, p190).

R. ficaria ficariiformis is a naturally occurring subspecies which grows in Greece. It is a robust plant with white-yellow sepals and flowers 3-5cm in diameter.



Ranunculus garganicus Tcn.

This species of Section *Ranunculastrum* (Fig. 42, p. 192) grows in the south of Europe from France to Yugoslavia. It grows to a height of 30cm and has

golden yellow flowers 3cm in diameter.

There is almost no mention in the literature of its being cultivated, but, since it closely resembles *R. millefoliatus* which is a desirable species, it would seem worthwhile trying to grow it.



Ranunculus glacialis L.

This species (Fig. 40, p.191) of Section *Acetosel-lifolii* is 4-25cm tall with dark-green glabrous basal leaves which have elliptical or oblong lobes. The sepals have abundant red-brown hairs on the underside. The flowers are 2-3cm in diameter, white or pale pink, turning reddish supposedly after pollination. It grows in debris and streamsides on acid soils in the Alps reaching the record height for a European flowering plant of 4,275m on top of the Finsteraarhorn.

This plant has long been the dream and the despair of every alpine gardener as its ethereal beauty beckons us to try to grow it, but the conditions required make it an almost impossible task. It has been kept alive by a number of dedicated growers, all of whom are agreed that it hates lime and a rich diet, but thereafter opinions differ.

W. Ingwersen found that it could be kept alive in a mixture of wet granite and wet peat while General Murray-Lyon claimed success in scree with good heavy soil 12cm down and 5cm of pure gravel on top. He gave it a bucket of water, when in growth, as often as possible.

Henry and Margaret Taylor managed to get it to grow sparingly in a pot which is given water copiously during the growing season. They found that it responded quite well to capillary watering. Although it could be induced to grow it was very slow to increase.

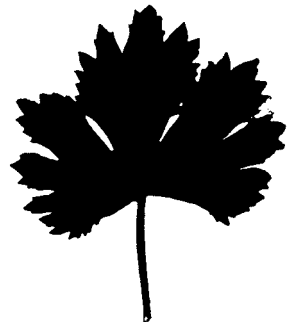
In 'Alpines '81', Jim Archibald claimed that we are too negative towards the growing of difficult plants and that we must try the unconventional. He advocated taking *Jankaea heldreichii* as a test case, but I am sure that it would be equally rewarding to try this recalcitrant ranunculus simply because of its supreme beauty.

It can be confused with *R. seguieri* which, however, has rounded leaf lobes and saucer-shaped flowers compared with the pointed lobes and cup-shaped flowers of *R. glacialis*.

Whether or not it is a reflection of its difficulty in cultivation, but *R. glacialis* has never been awarded an AM, nor even a PC!

Ranunculus gouanii Willd

This species of Section *Ranunculus* (Fig.41,p.191).



is a native of the Pyrenees. It is a hairy perennial which grows up to 30cm tall and forms a solid mound of deep green foliage. It has deeply divided leaves and rich yellow flowers up to 4cm in diameter. It is closely related to *R. montanus* but is always much larger and has densely pubescent sepals.

Although Farrer said it was dull and uninteresting, it is in fact a most useful plant for the front of a herbaceous border or shrub garden, flowering as it does in April-May. It is not fussy about soil but does not like too dry a situation. It sets copious seed and produces self-sown seedlings. There is also a double form which, to my mind, is not nearly as attractive.

This is a plant which should be in all gardens as it is easy and floriferous.

Ranunculus gracilis E. D. Clarke

The correct name of this species is *R. carianthiacus* which has already been described in Part II. A plant called *R. gracilis* was shown by RBG Kew in 1980, but no award was given.

Ranunculus gramineus L.

This species of Section Ranuncella is a glaucous perennial wide-spread in southern Europe. It has blue-green grass-like linear leaves. The flowering stems are up to 50cm and each carries 1-3 golden-yellow flowers 2cm in diameter.

With its glistening, deep citron-yellow flowers in May-June (Fig. 35, p.164), it is a most desirable plant which is easy to grow in any reasonable sunny spot. There is a double form which is not an improvement. It can be propagated from seed sown in spring or divided in early autumn.

It is a fairly variable plant, so that when raising from seed care should be taken to select short stocky plants with large flowers as opposed to the many spindly forms with small blooms which abound.

Ranunculus graminifolius

This species is synonymous with *R. gramineus* which is its correct name. Presumably the plant which was given an AM as *R. graminifolius* in 1938 was in fact *R. gramineus*.

Ranunculus gregarius Brot.

This species of Section Ranunculastrum is a small pubescent perennial from Spain and Portugal. It produces masses of tiny cylindrical tubers. It grows to 30cm tall, with reniform or pentagonal leaves. There are 3-5 flowers per stem, yellow and 25cm in

diameter. It is of little garden merit but is included to draw gardeners' attention to its habit of spreading everywhere at great speed, necessitating constant removal.

Ranunculus geraniifolius

This species is synonymous with *R. montanus* q.v.

Ranunculus hornschurchii

This species is synonymous with *R. oreophilus* q.v.

Ranunculus hybridus Birta

This species is synonymous with *R. phthora* q.v.

Ranunculus hyperboreus Rottb

This species of Section Auricomus from arctic and sub-arctic Europe is a small creeping or floating buttercup with no garden merit, but is given a mention because the Eskimos tip their arrows in its poisonous juice before they go hunting.

Ranunculus illyricus L.

This species of Section Ranunculastrum is an erect perennial from central and southern Europe growing in damp meadows. It is about 45cm tall covered with silky wool. The lower leaves are linear-lanceolate while the upper leaves are linear and three-lobed. The flowers are pale yellow and 3cm in diameter.

It flowers in early summer and is quite an attractive plant for the front of a border but is much too large for the rock garden.



Ranunculus lanuginosus L.

This species of Section Ranunculus is a pubescent perennial from central and southern Europe.

It is an erect plant up to 50cm with long reflexed hairs with three-lobed broad incised leaves. The stems each carry many orange-yellow flowers up to 4cm in diameter. It likes moist woodland conditions, and while it is not

of great beauty its long hairs and orange flowers are quite attractive.

Ranunculus lingua L.

This species of Section Flammula is a glabrous perennial up to one metre



tall, found in marshy places throughout Europe including the UK. The leaves are long and lanceolate clasping the stems. The large yellow flowers are 5cm in diameter.

It is only a plant for wet marshy places in gardens but is quite attractive, particularly in its cultivated form 'Grandiflorus'.

Ranunculus millefoliatus Vahl.

This species of Section *Ranunculastrum* is a shortish perennial of hot, dry, sub-alpine areas of southern and east-central Europe, reaching 1,800m on Parnassos and the Katara Pass in Greece.

It rarely exceeds 20cm tall in the wild but can reach 30cm in gardens. The basal leaves are much divided and feathery, but the short stems are more or less leafless. The golden-yellow flowers are 2-3cm in diameter and almost flat.

Flowering from May to July it is an agreeable buttercup which is hardy in sunny sites with perfect drainage. It perhaps benefits from some protection in the winter. It is best grown in a frame where, like many Mediterranean plants, it benefits from only receiving water during growth. As long ago as 1933 Ingwersen claimed that it offered no great problems to growers if grown in a limestone scree. Propagation is easy from division or seed, keeping the growing medium barely moist until plants are well established as the rootstock can rot very quickly.

R. millefoliatus was given an AM in 1978 when exhibited by the Royal Botanic Garden, Kew.

Ranunculus montanus Willd

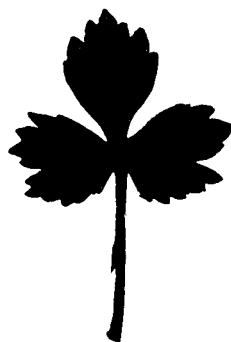
This species of Section *Ranunculus* is the type species of a number of closely related species. It is a variable species, 16-30cm tall, found in the Pyrenees, Alps and Appenines up to 3,000m.

The basal leaves are 3-5 lobed with blunt tips while the stem leaves are linear clasping the stem. The golden-yellow flowers are 2-3cm in diameter.

Adrian Bloom claimed that 'for sheer brilliance it is outstanding. Its 1/2-inch flowers of varnished gold hide its leaves entirely. It is easy in sun but soon becomes exhausted, has a long dormant period and needs regular replanting'. It flowers from May to July.

Its cultivated variety, 'Molten Gold', is larger than the species, with showy, bright golden-yellow flowers, 3cm across on 15cm stems. It was introduced into cultivation by Harby & Co. from Dundee.

'Molten Gold' was awarded an AM when shown by Ingwersen in 1960.



Ranunculus ficaria cultivars

RICHARD NUTT

THIS is a very tentative list of forms which I either grow or have reference on. Clapham, Tutin and Warburg in *Flora of the British Isles* Second Edition (1962) describe *Ranunculus* as having sepals 3-5 (with a definition of a sepal as a member of the outer series or perianth segments, especially when green), and petals 5 or more. In the key *R. ficaria* has sepals 3; petals 7-12; leaves simple and cordate. Add 'the root-stock emitting tubers' from Miles Hadfield's *Every Man's Wild Flowers and Trees* (1938) and there we are – I hope.

Colours have been checked with the RHS Colour Chart, but while this is an invaluable reference, the use of colour names as in the earlier Horticultural Colour Chart is also used to describe the colour. These have been taken from the table of Cross-References with the RHS Colour Chart.

"Alba", "Albus" (Fig. 29, p.161) and "White", "Randall's White" and "Salmon's White" are names of forms which exist. Before trying to describe what is meant by "White", I should explain that there are forms which are "Primrose", and it is not easy to describe the differences. The white forms would appear to have no yellow while the primrose forms do. Those which have been recorded look white but match a pale yellow; they can fade to white. The purest white comes from Mrs K. Pickard-Smith and is RHS White 155 to which I would add pale cream; the others turn out to have rather a lot of yellow. One lot of plants has a blue reverse. The size of the flowers which come under the above vary.

"Brazen Hussy", found by Christopher Lloyd, has flowers which are between Sulphur and Mimosa Yellow (RHS Yellow 7.A). The leaves look chocolate but are a dark grey-green (RHS Yellow-Green 147.A), and this is what makes it distinctive. Similar forms have recently been reported in Guernsey and elsewhere.

"Bronze Back" was found on a compost heap by Christopher Brickell. The flower is the same colour as the wild form, but the back is bronze. With me it is not invasive. The "Backs" are full of interest and I find them very difficult to describe. They are usually feathered like some crocuses, but I find it difficult to describe what is the colour of the base and what is the colour of the feathering. The descriptions of the "Backs" are simplified.

"Cream" and "Primrose" would appear to come next. Here "Cream" is Primrose Yellow (RHS Yellow 4.C) and "Primrose" is Sulphur Yellow

(RHS Yellow 6.A), a rather deeper colour but is very pale. At least a further season is needed to try to decide if I have two or three different forms.

Then there are "Lemon" and "Lemon Queen" which have yet to flower; they could be a deeper yellow than "Primrose". There is a big colour jump to copper-coloured flowers, or are they orange? The one I have grown for countless years I would describe as a good deep orange and the leaves have blotches of a deeper colour, which adds to the attraction. The wild form certainly has blotches, and a special study of the colour of the blotches, from the time they appear to when the flower appears and passes, is needed.

"Cuprea", (Fig. 30, p.161) "Orange next door neighbour", "Auriantiacus" are some of the names which have been used for these orange forms. My records need a further year or so, but I suspect they will all have flowers which are Maize Yellow (RHS Yellow-Orange 21.B)

I have always thought that double flowers are rather like double chrysanthemums, a vast array of outer segments all to the same lengths and same colour forming the same form of mop head. But look at all the different sections of chrysanthemums and there are lots of different ones. So what of *Ranunculus ficaria*?

From such plants as have flowered here, there would appear to be three different sorts of double flowers. Probably the best known is a totally double flower with only outer segments, which are fully open and flat on the outside and gradually curl up to a tight centre. Then there are the "Anemone centred" which have an outer row of segments fully expanded, i.e. flat in the centre, a closed-up mass of segments. How can one describe the forms, of which the flowers are firm, erect, twisted things and curl upwards and look monstrous?

Of the double flowers there is "Double Yellow", "fl. pl.", "Flore Pleno". But what of "E A Bowles"? It has yet to flower and I have yet to find a detailed description.

"Greencourt Gold", which has yet to flower, comes from Michael Wickenden of Well Meadow, Crowley Down, Sussex; it is described as a shade deeper yellow than "Flore Pleno" and with a few more petals. "Picton's Double" has yet to flower; presumably this is a selection by Percy Picton of Old Court Nurseries, Colwall, Malvern.

So what is there of the fully double forms? There are probably two forms of which the inner surface of the segments are:

(1) Yellow-Green (RHS 2.A and 3.A) which come between Chartreuse Green and Primrose Yellow, but I would describe as pale yellow or a pastel yellow or a paler form of my recently bought lemons.

(2) Sulphur Yellow (RHS 6.A), probably more like my lemons but they seem to be different.

I have long since thought that “Anemone centred” is the same as “Collarette”. The flat rosette of outer segments are Sulphur Yellow (RHS Yellow 6.A). While the centre segments seem to have at least 50 segments, it is a deeper yellow than my lemons and HCC uses Straw Yellow, Chrome Yellow and Buttercup Yellow as being close and is Yellow-Orange (RHS 4.A). The inner segments look green, i.e. the outer face of the tight inner segments are green.

I have “Green Petal” from W. E. Th. Ingwersen Ltd., Birch Farm Nursery, Gravetye, East Grinstead, Sussex RH19 4LE, who has a very useful collection. It is made up of 30 or so thin segments (RHS Green Group 137.B) with a yellow centre (RHS Yellow 9.B).

Any offers of plants, names, and history will be very welcome to Richard Nutt, Great Barfield, Bradenham, High Wycombe, Bucks, who is holder of the National Council for the Preservation of Plants and Gardens National Collection of forms of *Ranunculus ficaria*.

Some hardy hebes

DERRICK ROONEY

THE genus *Hebe* contains about 100 named species, all but two confined to New Zealand. Probably at least 30 more species in New Zealand are as yet unnamed. There are hundreds of natural hybrids as well as countless garden hybrids.

Many of these are from warm or subtropical areas and are too tender for gardens in the South Island of New Zealand; even so, at least half of the known species are hardy in all parts of New Zealand and ought to be hardy in most of the British Isles as well. It is clearly impossible to describe all of these in one article, so I shall restrict myself to some of the more important species from the high country of my own province, Canterbury.

Most of the important species are in cultivation in Britain, but I suspect that many British hebes are diluted by hybridism and a number are wrongly named. For example, an English nurseryman who visited my garden expressed surprise when I showed him *Hebe* 'Anomala'. He was used to growing a shrub with yellowish stems under this name, whereas the main feature of 'Anomala' is that it is unique among the hardy sub-alpine hebes in having red young leaves and shoots. Though more than a century has elapsed since Joseph Armstrong, first Director of the Christchurch Botanic Gardens, found this hebe in the upper Rakaia River catchment and introduced it to cultivation, its taxonomic status remains unresolved. Current botanical thinking is that it belongs in the unnamed Canterbury species closely affiliated to *H. odora* and which, interestingly enough, usually has yellowish young stems and twigs. Armstrong sent a great deal of seed from the Christchurch gardens to gardens and institutions in Britain, and it may well be that the yellow *Hebe* 'Anomala' is a seedling of the original, which is still propagated in New Zealand from cuttings.

Hebes hybridise very freely in cultivation and in the wild, too (a sign of a vigorous and actively evolving flora), and to be sure of getting correctly named species it is essential to look for plants or seed of known wild origin in an area where populations are relatively stable.

One group which is thoroughly muddled in cultivation and taxonomically ill defined in the wild is the vast *Hebe odora* complex. Since the "Flora of New Zealand" was published in 1961 it has been recognised that *H. odora* in the strict sense is probably confined to the wetter ranges in and near the Main Divide of the South Island, and that the group contains at

least two, and possibly more, unnamed species. The '*Hebe odora*' mentioned above, from the Canterbury front ranges, is one of these. Another is the small, prostrate, glossy-leaved form from Mt Anglem on Stewart Island – a popular plant in cultivation in New Zealand and one well worth growing in Britain. Other potentially useful micro-forms, which belong in the "true" *H. odora*, come from the west coast. A particularly good one, which has been named 'Greenstone', was found by Mr Ross Wilson, formerly of Christchurch and now of Southbridge (a long-time SRGC member). A tiny, bun-shaped bush which scarcely reaches 15cm high in as many years, 'Greenstone' strikes obligingly easily from cuttings.

This tiny shrub grew among rock debris about 1300m on the western slopes of Mt Watson, in the rain-washed Paparoa Range which separates the near-subtropical Punaikaiki Coast, with its native palms and rata trees, from the cool-temperate inland valleys and ranges backing up to the Main Divide.

The west coast of the South Island of New Zealand is exposed to moisture-laden westerly winds which deposit metres of rain annually on the western slopes of the Main Divide (a forestry research station at Camp Creek has an annual precipitation of more than 6000mm and rain almost every day). But the rainfall gradient declines steeply east of the Divide, from about 2200mm at the Arthur's Pass National Park headquarters to 1000mm or less on the outlying eastern foothills and down as low as 500mm in some eastern coastal areas. As the westerlies deposit their moisture on the mountains they dry out and warm up, creating classic foehn winds which batter lowland Canterbury at regular intervals and occasionally reach hurricane force. A gale on August 1, 1975, for example, caused extensive damage to buildings, one death, and flattened about 90 per cent of the province's exotic production forests, causing a local timber shortage that will persist until the mid-1990s. Away from the coastal area these winds, diverted by the alpine passes so that they howl across the plains from the north or north-west, can be bitterly cold in winter and desiccating in summer.

Temperatures in these inland regions fluctuate widely with, and within, the seasons. At higher altitudes the climate is severe, with up to 200 screen frosts a year. Frost and snow may occur in any month in the mountains. At my garden at Hororota on the high plains, 250m above sea level, temperatures recorded in the last eight years have varied from a maximum of 44°C in summer to minus 12°C in winter. So anything that grows at montane or alpine altitudes in Canterbury (about 1000m and higher) ought to be hardy in most of the United Kingdom.

Shrubs from these dryish, windy ranges include a number of excellent garden plants. The hebes include a variety of plant forms from the conifer-

like whipcords to bold, large-leaved, free-flowering shrubs. Typical of the driest sites is *H. raoulii*, a rock-loving, twiggy bush with pink flowers and tiny, red-margined leaves always found on sunny outcrops.

All the whipcords in Canterbury are alpine or subalpine plants and should be hardy in the United Kingdom. They range from the rare *H. cupressoides* (now confined to a few sites in Canterbury and Otago), which can grow 3m high, to the tiny *H. tetrasticha*, which grows on exposed outcrops about 1300m altitude, just above the limit for *H. raoulii*, and scarcely reaches 20cm high. Similarly small, and also a plant of exposed outcrops in full sun, is *H. cheesemani*, which is pale rather than deep green and has rounded stems rather than sharply angled ones. Both these whipcords make superb alpine-house plants.

H. lycopodioides, more familiar in cultivation, grows in tussock lands, poking up among short grasses and clumps of the "false spaniard" (*Celmisia lyallii*). It favours damp places and seepage areas in the wild, but adapts to garden conditions quite well. On the Main Divide in the vicinity of Arthur's Pass the typical form of this whipcord is replaced by the shaggy-stemmed var. *patula*, which is a first-rate rock-garden shrub growing less than 30cm high.

Hebe propinqua, from South Canterbury, favours wet places and old wild plants look like tangles of verdigrised wire. An interesting shrub, it is hardy but less easy to grow than the others. *H. salicornioides* also grows in wet places but adapts to garden conditions provided it is not allowed to get too dry. A mature bush almost a metre high in my garden simply collapsed in the summer drought of 1982 when we had only about one-third of our normal rainfall during the three hottest months.

Hebe hectori, especially in its variety *demissa*, is well known in British rock gardens. Less well known, but I believe better plants, are *H. annulata* from the Takatimu Mountains in Southland and *H. ochracea* from north-west Nelson, a key biological region at the top of the South Island and home of many fine plants, including the extraordinary *Clematis marmoraria*, a tiny, creeping plant confined to two marble peaks in the Arthur Range.

Hebe annulata has fine green shoots arranged in comb-like fashion and is usually prostrate. *H. ochracea* is a low, vase-shaped shrub, depressed in the middle. The colour is a strange, ochreous, bronze-yellow. This sounds unappealing, but the species is a garden plant of singular beauty and elegance. A good clone has been propagated under the name 'James Stirling', commemorating the former superintendent of the grounds of Parliament.

Hebe armstrongii, a Canterbury endemic, at one time had the distinction of being perhaps New Zealand's most rare mainland plant.

For more than 40 years it was thought to be extinct, but in the early

1970s a field worker from the Botany Division of the Department of Scientific and Industrial Research found a specimen growing with bog pine (*Halocarpus bidwillii*) in the Castle Hill Basin in the Waimakariri catchment. This plant was propagated by the DSIR, and seedlings were transplanted back to the area, which was fenced off from livestock. After protracted negotiations extending over 15 years, the Lands and Survey Department gazetted the site as a scientific reserve. Last summer, a Botany Division field party surveying land about to be added to Arthur's Pass National Park found a new population near the Main Divide; this included natural hybrids of *H. armstrongii* and *H. odora*! Unfortunately none of this hybrid material has been brought into cultivation.

One reason why *H. armstrongii* remained undiscovered for so long is that it is indistinguishable from the bog pine except when flowering. 'Winter Gold', a cultivated hebe labelled as *H. armstrongii*, is not typical of the wild form and may be a hybrid; it has white flowers, whereas the wild plant has lavender-lilac flowers. 'Winter Gold' was raised in Christchurch about 45 years ago by the late Ken Wilson, a well-known nurseryman in his day and the father of Ross Wilson.

Two high alpiners much sought after by enthusiasts are *H. haastii* and *H. epacridea*. These are not quite whipcords, but have small, stiff leaves tightly arranged up the stems like roof tiles. Both grow on the huge screes which are a feature of Canterbury mountains and which have a small but extraordinary flora all their own.

Hebe haastii commemorates a great pioneering New Zealand scientist, Julius von Haast, who was principal geologist in the founding days of Canterbury and was the first director of the Canterbury Museum. His hebe is seldom, if ever, found below 1700m and extends above that altitude to a higher elevation than any other vascular plant in the New Zealand flora. Though much appreciated as an alpine-house plant, *H. haastii* is fiendishly difficult to grow in lowland Canterbury and, although I have kept a specimen in a pot in a cool plunge bed for a couple of years, I cannot say that it thrives. Maybe it would be easier in the sort of cool, misty Scottish climate we saw in the Commonwealth Games telecasts! *Hebe epacridea*, with narrower stems and smaller leaves, is more adaptable in cultivation and the larger forms from the Lake Lyndon area make excellent garden plants, while the small forms from the northern and southern end of its range are first-rate alpine-house shrubs. This hebe covers a remarkably wide altitudinal range, from below 1000m to almost 2300m on Mt Hutt.

Three hardy conventional species are *Hh. pinguiifolia*, *buchananii*, and *pimelioides*. All are in cultivation in the U.K. and are parents of numerous garden forms.

H. pinguifolia is a widespread species in the eastern ranges and foothills, occurring in most areas of the South Island except north-west Nelson, where it is replaced by the closely related *H. carnosula*, which is of similar appearance but has a yellowish cast to its glaucous leaves. *H. pinguifolia* has glaucous, rounded or spoon-shaped leaves, often with red margins, and is very free with its roundish clusters of white flowers. Most of the cultivated forms are from mid-altitudes, about 1000m, where it grows up to 30cm high and 60cm across. An alpine form climbs almost to the nival zone, where it exists as gnarled, huddled shrubs clinging tightly to cracks and crevices on the shady sides of outcrops. On the summit ridge of Mt Hutt, above one of the Southern Hemisphere's major ski-fields, plants of this high flier cling to shattered rocks at 2300m altitude. These forms have bold foliage, strikingly red-edged, with three prominent veins on the upper surface. They are first-class rock-garden shrublets but are seldom seen in cultivation, perhaps because they do not strike from cuttings as readily as do the subalpine forms. Immediately south of Mt Hutt, on the Mid-Canterbury ranges, is a closely-related high-flying hebe which is similar in all respects except that it has a different chromosome number and is thus probably what the botanists call a "cryptic species". A collected plant which grew alongside "true" *H. pinguifolia* in my garden resembled it so closely that no one could tell the difference. This species may well be in cultivation in Britain as *H. pinguifolia* "prostrate form", but you would have to count its chromosomes to be sure.

Equally good, in its compact form, is *H. amplexicaulis* from South Canterbury. This has stemless, fleshy leaves which may be glaucous and smooth, or edged with fine hairs in the variety *allenii*, which is confined to Mt Peel. A larger form, with bold, spoon-shaped leaves, has been segregated as *H. pareora*, and named after the Pareora River, in the gorge of which it grows on limestone bluffs. In the garden *H. pareora* is hardy but must be pruned regularly to maintain a compact shape – its natural habit is to dangle untidily down rock faces. Lime is not necessary; it grows well in neutral or even acid soil.

H. pimelioides has been cultivated for a long time in its "large form" (actually a shrublet seldom exceeding 30cm) and is a popular garden plant. This very distinctive shrub has black stems, a bluish cast to its tiny leaves, and deep lavender flowers. As a wild plant it occurs in many places on the dry eastern side of the Divide but is not abundant anywhere. The main populations occur in the area between Lake Tekapo, in the Mackenzie Country, and Central Otago. Recent botanical research suggests that this shrub may not be a "true" species but a fixed natural hybrid between the "true" *H. pimelioides* (listed in the "Flora of New Zealand" as *H. pimelioides* var *minor*), which is a tiny, creeping plant, and the larger Central Otago

variety, *rupestris*. The minor form is a wonderful alpine-house or rock-garden plant which should be perfectly hardy in the U.K. *H. rupestris* has flowers of an extraordinarily intense lavender-violet, but is not so good as a garden plant because of its straggly habit.

Also occurring in this region is *H. buchananii*, a prostrate, dense-growing hebe which is well established and popular in cultivation. Rock gardeners prefer the mini-version, 'Sir George Fenwick', which came from the renowned garden of the late knight in Dunedin. It is not known whether this plant arose in the Fenwick garden or was collected from the wild by Sir George.

In South Canterbury *H. buchananii* grades into *H. pinguifolia*, and in the Rangitata River catchment last summer we collected specimens which could be placed in either species. Also in this area are occasional plants of *H. glauco-coerulea*, which has the deepest lavender-blue flowers of them all, plus distinctive blue-tinged foliage. All the plants of this in cultivation appear to belong to a single clone. It is known to occur naturally only in the Two Thumb Range, separating South Canterbury from the Mackenzie Country, and may be a natural hybrid between *H. pimelioides* "large form" and *H. buchananii*. This was one of the plants for which we searched during a four-day visit to this range in March 1985. We failed to find it, but a team from the Lands and Survey Department which was in the area at the same time, completing a protected natural areas survey, collected specimens.



Fig 36 *Lewisia cotyledon* (see p.233)

H. Esslemont

Fig 37 *Lewisia cotyledon alba* (see p.233)

H. Esslemont





Fig 38 *Ranunculus ficaria* 'Grandiflora' (see p.175)

Fig 39 *Petrophytum hendersonii* (see p.235)

H. Esslemont





Fig 40 *Ranunculus glacialis* (see p.176)

H. Taylor

Fig 41 *Ranunculus gouanii* (see p.176)





Fig 42 *Ranunculus garganicus* (see p.175)

President's Review

IT was decided at the Council Meeting in April that this and future Reviews should be published in The Rock Garden so that items of interest and significant change would be made available to a greater number of members. Previously, only those attending the Annual General Meeting were aware of the content of the Review.

Our membership this year has increased to an all-time record of 4,380. This is made up of 1,897 living in Scotland, the rest of the UK 1,361, and 1,122 overseas.

There has been a number of Executive Office changes and these are shown in the year book.

It is sad to have to report a number of deaths during the year (see page 240).

Our deepest sympathy is extended to the bereaved families.

On a happier note it is pleasing to report the award of the Victoria Medal of Honour to Professor Douglas Henderson, Regius Keeper of the Royal Botanic Garden, Edinburgh, and the Scottish Horticultural Medal to Jim Sutherland of Inverness.

Over a period of eight months our Treasurer, Mr Lewis Bilton, has had protracted and difficult negotiations with the Customs and Excise on the subject of VAT. The outcome has resulted in only a small increase in the amount of VAT which we shall have to pay in the future. Due to the prudent management of our affairs by Lewis, the overall position is generally satisfactory and you will be pleased that the subscription remains unchanged.

There has been a number of gifts and donations to be used in various ways such as General Fund, Colour Page Appeal, Library, Exploration Fund, etc. These are gratefully received.

A full Statement of Accounts is published in the Year Book.

From the number of compliments received and heard, our Editor, Mr Alastair McKelvie, must derive a great deal of satisfaction from knowing that The Rock Garden is well received. Our Club journal was first enhanced with colour plates in 1954 (Vol. 4) and of late the number of colour plates per volume has increased. This is a welcome and attractive addition to our already well produced journal and has been made possible by the support given to the Colour Page Appeal. Like all Editors, Alastair McKelvie would like to have a backlog of material awaiting publication, and therefore he will always be pleased to hear from old and new contributors. Our thanks are extended to those authors who have contributed

to the journal; your efforts are greatly appreciated.

Our shows, the Club's shop window, continue to be well supported by exhibitors and the public. This year the Stirling Group held their show at a new venue where there is more space and the move proved very successful. All Club shows are dependent on exhibitors travelling from other groups, and in some cases the distances can be considerable. Show Secretaries are becoming more aware of the trouble and inconvenience exhibitors go to in supporting the shows, and there is now a move towards arranging staging times and finish of shows so as to take these factors into consideration.

The trophy awarded annually to the exhibitor gaining most first prizes in the Open Section has been won jointly by Mr Fred Hunt and Mr Sandy Leven, both having an equal number of firsts.

The Seed Exchange Scheme continues to be very popular with members, and this year was exceptionally busy so much so that requests for seed lists exceeded the stock held, even though there had been an increase in the number printed. The success of the scheme is, however, dependent on the contribution of seed from donors and the assistance provided by the Angus group in packeting seeds and making up members' requests. Our grateful thanks are extended to Miss Joyce Halley, the manager, and her team of helpers.

You will have seen in the June issue of our journal that Joyce is to retire after having held this office for fifteen years. This will be effective as from the completion of the 1986/87 distribution.

We are very fortunate in that Mrs Jean Wyllie has kindly agreed to take over as Seed Exchange Manager.

Two of our members were awarded grants from the Exploration Fund to help finance their visits abroad. Regrettably, Dr Cynthia Williamson, who had intended visiting Labrador, could not take advantage of the grant due to a family bereavement and had to cancel her trip. Mr Roderick Milne, the other recipient, visited the Garhwal Himalayas in North India with a colleague from Kew Gardens.

Mr Glassford Sprunt, our Publications Manager, has had a very successful year, and his appearances at our various functions with a wide selection of books have provided an attractive and worthwhile service to members. In addition, sales by post continue to increase, with one particularly good order from New Zealand.

The surplus earned this year will be used for the replenishment of stocks and the purchase of new titles, except for a sum of £1,250 which has been transferred to the Club's General Fund.

The highlight of our calendar is, of course, the Discussion Weekend when so many of our members get together to listen to and enjoy lectures,

renew friendships, make new friends, talk, swop plants, cuttings, seed and even pollen.

This year's conference, held at St Andrew's College of Education, Bearsden, Glasgow, and organised by Lyn and Ron Bezzant, lived up to our expectations and was most enjoyable. As usual the conference was fully booked.

It is perhaps not generally known, but whilst organising the weekend Lyn and Ron had a new house built to their requirements on a virgin seven-acre site, and, apart from moving house, they also moved 'garden' – a mammoth task. I am sure they could have well done without the involvement of a Weekend at this time. Their efforts on behalf of the Club are greatly appreciated. Sincere thanks are also extended to the lecturers and all other helpers.

The Discussion Weekend will be held at the same venue in Bearsden in 1987 and the dates will be 18, 19 and 20 September.

Arrangements are in hand to hold the Discussion Weekends for 1988 and 1989 at Stirling University.

The Golden Jubilee Salver, which is awarded to a member who has rendered outstanding services to the Club, has this year been awarded to Mr Harold Esslemont of Aberdeen.

Throughout his long membership, Harold has rendered great service in many ways. His interest in growing and showing new and rare plants has contributed to a general improvement in the level of cultivation, and his particular skill as a cultivator has enhanced the reputation of the Club both at home and overseas. He has made contributions to the Club's journal by writing short articles and more particularly by assisting in the financing of colour plates at a time when our finances could least afford such embellishments.

The many members who attend our Discussion Weekends derive a great deal of pleasure from the Esslemont lectures which Harold endowed. He is a Vice-President of the Club and was a member of the Joint Rock Garden Committee for many years.

The Club has been invited to take part in the 1988 Garden Festival at Glasgow. A preliminary meeting was held on 30 May between the Scottish Development Agency, the Scottish Rhododendron Society and ourselves. The Agency is doing its utmost to encourage amateur and professional groups to participate in the venture and, at this stage, it aims to hold three major shows in the Scottish Exhibition Centre. The first of these is to be in May, then midway through the festival and perhaps an autumn show towards the end. The Agency is willing to provide us with all the necessary facilities, free of charge, and from our discussions so far it seems likely that we could stage either a one or perhaps two-day show at the

Exhibition Centre instead of our normal show at Milngavie Town Hall, together with perhaps a display exhibit. This exhibit could stay in situ for a number of days depending on members' willingness to loan plants and spend time in attendance. The probable date for a one-day show will be 8 May 1988.

A Club Festival Committee has been formed, and the full implications and practicalities of such a venture will be fully explored.

A Club Committee has also been appointed to liaise with a comparable AGS Committee to look into the possibilities of holding a joint international conference in 1991.

Our Club is indeed very fortunate in having such a dedicated band of office-bearers both on Council and at local level. Their conscientious devotion to the duty of their office and the unselfish use of their free time, often many hours per week, is very much appreciated.

Finally, as you will be reading this Review in our January issue of the Rock Garden I am presented with the opportunity to extend to you all my best wishes for 1987.

E. G. W.

On making a rock garden

REGINALD KAYE

IN recent years there seems to be a falling off in interest in providing a rock garden for accommodating the alpine plants in which such an absorbing interest is taken by many of our members. The title of our Society, the Scottish Rock Garden Club, was chosen when the majority of members sported some kind of a rock garden in their domain, but nowadays examples are few and far between. Perhaps the increasing interest in growing plants in pans for exhibition has something to do with it and, of course, the cost of obtaining suitable rocks and hired help to deal with them is much greater than it was in the old days. Not as much as a new car, however, and lasting much longer.

The nearest thing we get these days is the raised bed which at least provides adequate drainage and brings the plants a bit nearer the eyes for those of us who stoop with some difficulty.

Yet the creation of a real rock garden can be an absorbing hobby, an interpretation on a small scale of the majestic surroundings in which so many of our favourite plants are seen in nature and at the same time providing an environment in which our treasures look their best. Miniature cliffs with north-facing fissures provide ideal homes for ramondas, habermas and the like, out in the open with no overhead shade, scree shoots provide the drainage needed by so many high alpiners, saxifrages and so on, with the lower 'alpine' meadows for less demanding plants.

I am not suggesting that you emulate the late Sir Frank Crisp who created a truly enormous rock garden on his estate near Henley-on-Thames, with a reproduction of the Matterhorn several feet high on the upper reaches, actually very convincing when viewed through glasses provided in a small 'alpine hut' built some two hundred yards away. However, the illusion is shattered if a chance sparrow should perch on the summit. The point is that some attention to scale is vital when building your own rock garden.

As a matter of interest, I used a photograph I took of this Matterhorn on a calendar I had made to send out to prospective clients when I started growing alpiners and building rock gardens when I could not find a job as an analytical chemist for which I was trained. I do not recall that it did me much good.

Incidentally, I wrote in the SRGC Journal of April 1968 an article in defence of rocks in reply to one by 'Vide' denegrating rock gardens as

expensive and unnecessary luxuries. I remember Christina Boyd-Harvey, our secretary at that time, subsequently addressing me as 'Rocky Kaye'. Back to square one.

The first advice I would offer to anyone considering making a rock garden would be to take a few trips to places where rocks outcrop naturally and study the way they appear in nature and build up a picture of how they could be used in designing a garden, bearing in mind the need to allow for planting spaces to be worked into the resulting plans.

The rocks which are nearest at hand will probably be more likely to fit in with your garden than rock imported from other formations. In general, sedimentary rocks are the most useful and easy to deal with. Limestones, sandstones, some slates and mudstones normally are stratified with definite bedding planes, their upper surfaces more or less weathered, and usually showing lines of stratification. In the case of limestones, the rock owes its attractive ragged surfaces to selective weathering and is, probably, the most extensively sculptured of available rocks. Nowadays the limestone pavements, rightly, are sacrosanct – unless they get in the way of motorway or other developments – and the opportunity to acquire good rock is limited. Igneous rocks such as the granites and allied rocks, usually have no definite bedding planes; tufa also seldom shows such planes. Such rocks may be laid whichever side up shows to advantage, whereas the sedimentary rocks should be laid according to their bedding planes.

Sedimentary rocks usually show a definite angle of dip which is constant for a considerable distance unless close to areas which have been disturbed by faulting or pressures from other formations. Actually in Silverdale the rocks vary from zero dip to over 90 degrees within a mile or two. One quarry face has gone about 10 degrees beyond the vertical, an enormous flat face with fossil corals and shells which in life were growing on a horizontal sea bottom.

When building a rock garden the results usually are more pleasing if the stones are set to dip from face to back at an angle of around 30 degrees. This enables the rearmost stones apparently to disappear underground, suggesting that the visible outcrop is part of a greater formation below ground. This angle of dip should be constant through the whole rock garden.

When choosing a site, keep it well away from trees; the drip from branches is extremely damaging to rock plants. Roots may well extend beyond the spread of the branches and invade the prepared ground drawing away moisture much needed in a dry spell. A sloping site is often the most effective, and more economic in stone; the outcrops run to ground more quickly, but a well constructed arrangement of outcrops rising from

a level area can be very effective, enabling the upper layers to terminate in miniature cliffs instead of going to ground.

Rock plants in general require very good drainage, but if your soil is naturally well drained there is no problem. On heavy clay soils, provision should be made to drain the site. The toil involved is well worth it. On a level site about a foot depth should be removed and left, near at hand, to weather during the winter. Hard frosts will make the soil more easily worked in spring.

The hole should be filled with stone or brick rubble, possibly from some demolition site, and covered with reversed turf from the site or, if there is none, the rough drainage should be topped up with a smaller grade of broken stone and/or gravel to prevent the drainage getting clogged up from soil. A trench with drain tiles bedded in gravel must be dug leading to a soakaway or main drain at a lower level. If this detail is overlooked the drained area may hold water and become a lake in wet weather.

After the winter the excavated soil should be workable and should be mixed with a generous amount of humus in some form such as spent hops from the local brewery, very coarse peat, roughage from the compost heap and leafmould, plus a third of the bulk with stone chippings or coarse gravel. Well mixed, the mixture can now be disposed in mounds over the site and allowed to settle for a month or so when the rock building can commence.

I remember I used to visit Capt. Mooney, one-time president of the AGS, in his garden near Sevenoaks, on such a heavy clay soil. On a rainy day the rainwater was standing level with the lawn in his rose beds. His rock garden took the form of a winding valley with the central path made of gravel directly on the drainage material and rock outcrops on either side. The rock garden was a revelation; covered with about two inches of clean gravel, it was full of every conceivable kind of rock plant in the rudest of health with plants usually regarded as alpine-house subjects looking in top condition.

Before the sedimentary rocks in nature became weathered and eroded the individual blocks were more or less rectangular in outline, separated by primary and secondary joints, according to some books, but this is not strictly so, for again in Silverdale there is a limestone pavement where the primary joints cut the strike – the line of face at right angles to the dip – at an angle of 60 degrees resulting in diamond-shaped blocks.

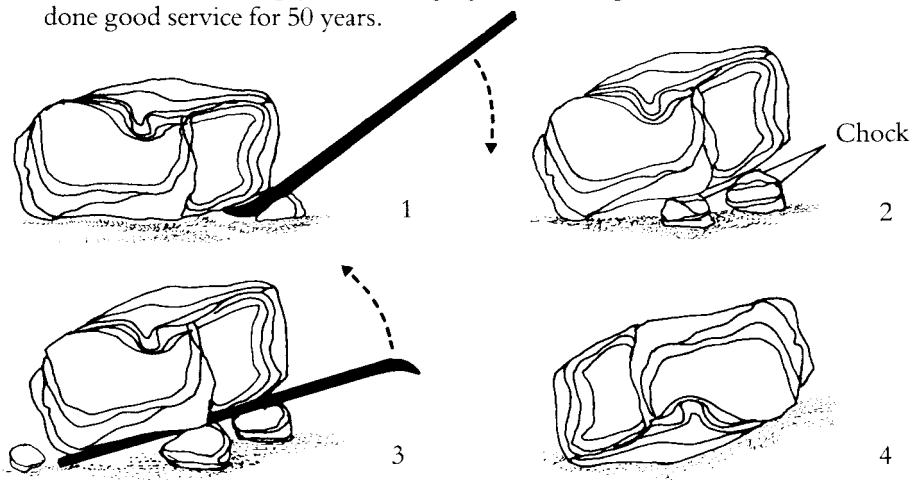
The weathered blocks are best regarded as the remains of rectangular stones eroded into various shapes or even reduced to scree. The point is that the lines of primary joints were never cut into or crossed, so if your structure is to contain imaginary primary joints, this should be borne in mind as it does affect the natural appearance of an outcrop. It follows that

the sides of various outcrops should be more or less parallel. This applies only to sedimentary rocks; the fire-born rocks weather in different ways and the jointing is irregular.

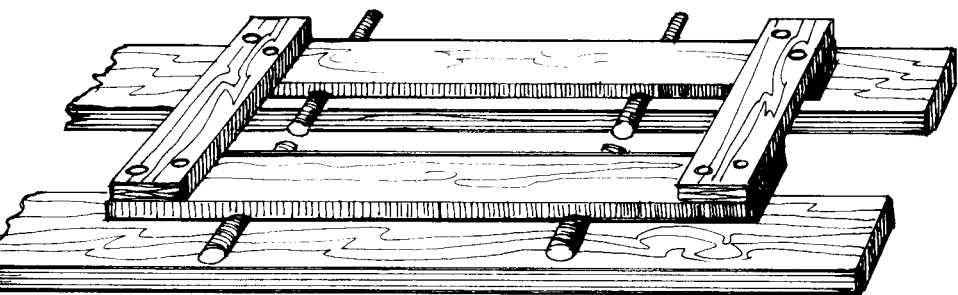
In choosing the various features, use the smaller rocks in the lower reaches, saving the larger and more rugged specimens for the mountain tops. For the most part the rocks should be built close-jointed to prevent soil washing away, but here and there, especially in the craggy tops, leave a three to four inch gap between the rocks wherein to plant crevice-loving species. On the north-facing slopes for ramondas and the like, I have such a crevice where *Ramonda myconi* has sown itself in the moss, twenty-nine at the last count. Petiolarid primulas often thrive in such sites if care is taken not to allow them to dry out. Gaps in the sunnier facing crevices are ideal for forms of *Saxifraga callosa*, and you will need one crevice at least 1m high or more for a display of 'Tumbling Waters', hopefully spraying out in magnificent array. The plants should be wedged between well-fitting small pieces of rock to retain soil until the plant roots are developed enough to hold it, trying to keep the jointing in line with the strata. Scree shoots can be introduced below the crevices to accommodate plants needing perfect drainage.

When setting the rocks at the correct dip they should be thoroughly rammed beneath until they can be stood on without rocking, otherwise the rock may settle irregularly, upsetting the stratification line, to say nothing of leaving homes for mice under the rocks. I use a walling hammer for this.

Techniques for moving rocks around have to be acquired by practice; the most important tool is a well-tempered steel bar about five feet long, pointed at one end, and thickened with an upturned chisel end, used I believe in marshalling yards for urging trucks along the rails. Mine has done good service for 50 years.



A very strong sack-truck with two pneumatic wheels is useful for moving rocks about, getting them onto the upturned end and using the axle as a fulcrum to lever them up into the carrying position. The centre of gravity must be between the wheels. I have handled rocks up to a ton with such a piece of equipment. The most useful tool I had was a sledge about 5 feet long made from two planks about 2 inches thick, with a cross-piece at either end, also out of planking, well bolted together with a gap of 2-3 inches between the planks. The sledge is run on rollers on a track made with a double line of planks. Rollers can be cut from 2-2½ inch galvanised iron pipe, about 2½ feet long. A rock can be worked on to the sledge, using the cross-pieces as a fulcrum, then the sledge lifted with a heel or a bit of plank or likely stone, and the planks pushed underneath as far as convenient. Then the sledge is lifted – another bit of plank will serve



Rock-Sledge on Rollers

as a heel for the bar – and a roller placed under it, on the planks. Then the sledge is urged forward with the bar until it is ready to see-saw and a second roller placed under the front. Another push with the bar, another roller placed, and off you go, taking the rollers as they emerge from the rear and transferring them to the front again. It gets quite easy to move quite a quantity of rock along to the site after a bit of practice. By the way, you need at least six pairs of planks. As the sledge moves beyond the back pair, these can be carried and placed at the front and so on. On the site a set of sheerlegs and chain blocks saves a lot of muscle getting the rocks into position. Two are needed to manage the sledge. Three men are needed to use the sheerlegs, one for each leg – after the blocks have been hooked on. Then the legs are moved to position, lifting the chain-blocks at the same time. You will need a short piece of plank at right angles to each leg to pre-

vent it sinking into the ground as the rock rises.

The smaller rocks can be barrowed to site, or rolled over and over. Slightly larger rocks can be rolled over with the bar, preferably two men each with a bar so that one can hold while the other gets a fresh purchase. Use the pointed end of the bar for rolling. It may be necessary to start the lift with the thick end of the bar and a hard stone to use as fulcrum, chocking the rock with smaller stones until it is possible to use the sharp end to roll the rock over. Place a stone about two inches thick near the front edge of the rock so when it rolls over it tilts over the stone; with a lift you can get the bar under without chocking. Always take care to avoid being in the way if a rock slips back.

Of course on really large sites, JCBs or other earth-moving equipment can be used, but usually the garden is not big enough for such machines. I personally have moved hundreds of tons of rock using the methods described above, usually with a helper to look after the chocking. Nowadays I often have to manage on my own, standing on the bar with one foot when it is raised, and pushing chocks under the rock with a spade or something. For heavy rocks I use an Australian monkey-jack, which consists of a toothed length of railway rail about 3 feet long and a lever which works the mechanism up the rail, with a projecting ledge to engage with the rock. The handle is about 5 feet long and the jack will lift up to 10 tons, though I have never used rocks much over 3 tons. I also have a monkey-winch which will drag up to 20 tons if there is an efficient anchorage. It was designed for pulling out trees when clearing the bush in Australia and covers a circle 150 feet radius from the anchorage – which usually is another tree.

Moving the jack around is the most laborious part of this job; incidentally, I learnt the hard way to remove the jack handle before attending to chocking. I had lifted a rock almost to the point of balance and needed to adjust the chocks, and as I moved forward the rock slipped, swinging the jack handle round across my head. I woke up about fifteen minutes later, lying on my back, and watching the white clouds lazily moving across a lovely blue sky.

The point of this is never to put yourself in a position where you are at risk when handling potentially dangerous material.

But it is very satisfying when one has created a really effective interpretation of our rocky heritage and adorned it with the appropriate mountain flora – and the exercise is very good for one.

A beginner's experience of Asiatic primulas

J. B. SMITH

Introduction

ALTHOUGH I am only fifteen years old, I have been interested in alpinists for five years now. Two years ago I became interested in Asiatic primulas. I live in the south of England, in Hampshire, and the factor of only 50cm of rain a year posed some problems to me in growing these plants, which enjoy a cool, wet climate.

Effort and Reward

My first Asiatic primula, *P. whitei* 'Arduaine', was bought at one of the trade stands at the Alpine Garden Society's main spring show at Westminster in April 1985. I planted it in a pot, using a mixture of peat and John Innes No. 2 compost. Later that year, I purchased *P. clarkei* from the R.H.S. garden at Wisley, as a picture in a book had long intrigued me. After this, I decided to build a peat bed for primulas and other lime-hating plants in my garden. The bed was constructed early in June by the house on a north-west facing site, which provided the necessary shade. The bed was raised by building three brick sides (the wall of the house being the back wall of the bed) and lined the base with strong plastic sheeting, to provide good water retention for the soil. Some holes were made in the plastic sheet, so as to give a little drainage and to prevent the compost from becoming saturated with water. An inch layer of gravel was placed on top of the sheet, then two bags of rich, brown peat were emptied into the bed. Some gravel was also mixed with the peat. A step was made in the peat, thus creating two layers to grow plants on. The top of the peat was covered in a 7cm layer of 'Forest Bark', to minimise weed germination and at the same time provide an attractive surface. *P. whitei* 'Arduaine' was planted along with *P. clarkei* and the newly bought *P. edgeworthii* 'Ghoses', *P. gracilipes* 'Minor', *P. reidii* and *P. reidii williamsii*.

With the wet summer of 1985, all the plants grew well and multiplied in size. The only casualty was *P. gracilipes* 'Minor', which rotted away because of an over-moist soil. So before a replacement was planted, more chippings were added to combat this. But this summer (1986) watering has been necessary to maintain the cool, moist cultural conditions. Also, around each plant a ring of Terra Green chippings was placed. The chip-

pings, made of a calcined mineral, gave a balance between drainage and water retention and also help keep slugs at bay.

A large glass/aluminium cold frame was placed over the peat bed, for the period from September to April, which is so worrying to the grower, because Asiatic primulas need to be protected from winter wet and hard frosts. The frame also protects the farina on the leaves and the delicate flowers. Watering was reduced especially on the two *P. reidii* plants. The only purchase made in the autumn was that of *P. rotundifolia* from Wisley.

My patience was rewarded in March by the opening of the buds of *P. whitei* 'Arduaine', which had lain in bud stage all winter. It bore many icy-blue flowers. A few weeks later the pale pink blooms of *P. edgeworthii* 'Ghoses' opened and the tiny, bright-pink blooms of *P. clarkei*. With the coming of spring, I was eager to visit a show and increase my collection. At the AGS show at Epping this year, I saw many rarities, including *P. irregularis* and many varieties of *P. bhutanica*, *P. edgeworthii* and *P. whitei*. *P. gracilipes* and *P. petiolaris* were obtained and flowered some weeks later, bearing pink flowers, followed in bloom by the pink umbels of *P. rosea* 'Grandiflora', the fragrant, white bells of *P. reidii williamsii* and the red whorls of the candelabra, *P. japonica*.

To complete the bed, *P. aureata*, *P. boothii* 'Edrom', *P. bracteosa*, *P. deuteronana* and *P. sonchifolia* were obtained from Edrom nurseries, and later *P. 'Tinney's Appleblossom'* from a nursery specialising in rarities. Primulas are not easily obtained from nurseries in the south, so I have to use mail order to nurseries in northern England and Scotland, where growing conditions are more favourable for propagation.

All species have grown, with the title of most successful going to *P. whitei* 'Arduaine', which has not only flowered well, but has increased from a single crown to five crowns in eighteen months and appears to be quite easy to grow, as Asiatic primulas go. Growth has also been good in *P. clarkei* and *P. reidii williamsii*. One casualty was *P. edgeworthii* 'Ghoses', which, despite my efforts to save it, rotted, but one crown appears to be shooting again. Both rot problems have occurred in one area, and I believe that this area does not drain away quickly.

Now I have a sufficient collection, I have turned my attention to propagation.

Propagation

First I tried a novel method using leaf cuttings, but this failed, so I tried seed. Before now, success has been limited to *P. denticulata cachemiriana* but, using a mixture of perlite, sand and seed compost I raised plants of: *P. alpicola*, *P. florindae*, *P. helodoxa*, *P. muscarioides*, *P. nivalis*, *P. polyneura* and *P. sieboldii*. All have been potted up at the three-leaf stage into poly-

- Primula denticulata cachemiriana* Section: Denticulata Origin: Himalaya
 Mauve flowers with yellow eyes, borne in tightly packed balls and long, pale green leaves. When flowering in April/May, it is 20cm tall. This plant will grow anywhere, as long as the soil is cool and moist. This variety is supposedly smaller and more compact than the type but, in a peaty soil, it has almost become rampant. It is common and can be obtained from a good garden centre.
- Primula deuteronana* Section: Petiolares Origin: Himalaya
 Large, bright pink flowers with a tinge of purple and white eyes, and light green, finely-toothed leaves, with red leaf stalks. It flowers in April and grows 7cm tall. It requires plenty of water in the summer and less in the winter, and a peaty soil with some grit. This rare species is only available from a few choice nurseries.
- Primula edgeworthii* 'Ghoses' Section: Petiolares Origin: W. Himalaya
 Pale mauve flowers with yellow eyes borne on short stems (the flowers can be a blue colour) and large, light green toothed foliage, which is covered in farina in the winter. It flowers early in February or March and grows 7cm tall. It requires little water in the winter, but plenty in the summer months and a cool, peaty soil with plenty of leaf-mould and some chippings around its crown to prevent rotting. This rare species is widely available from most specialists in Asiatic primulas.
- Primula gracilipes* Section: Petiolares Origin: Sikkim
 Rose-pink flowers with pale yellow eyes and small, narrow, crinkly leaves, which are light green. The plant is not covered in farina. It flowers in April and is 5cm tall. This easily grown species needs a fairly well-drained, peaty soil. It is quite common and is available from almost all nurseries having a wide selection in Petiolarid primulas. Large clumps may form and they should be divided.
- Primula japonica* Section: Candelabra Origin: Asia
 Deep, velvety-red flowers with a darker red eye, borne in tiers on a tall stem. The leaves are large and toothed. It flowers in June at a height of 45cm. It thrives in a moist, peaty soil and will even grow on the edge of a pond. It is easily grown and various varieties can be obtained from nurseries. Some varieties do not come true from seed and some are non-seed producing.
- Primula petiolaris* Section: Petiolares Origin: Sikkim
 Purplish-pink blooms with pale yellow eyes, on very short stems and small, dark green, crinkly leaves, which are covered in farina in the winter. It flowers in early April and grows 7cm tall.

This species enjoys plenty of water in the growing period and less in the winter and a cool, peaty soil with plenty of grit and a collar, around the crown, of chippings. It is quite a rare plant and is only obtainable from a few good specialists dealing in petiolarid primulas. This species has suffered from bird damage, for some bird chopped off a good many leaves.

Primula reidii Section: Soldanelloidae Origin: N.W. Himalaya
Pale blue, bell-shaped flowers, which are held in twos or threes at the top of a stem. The leaves are short, light green and very hairy. It blooms in June when 15cm tall. It prefers an almost dry winter and a wet summer. It requires a cool, peaty soil. It is quite an unusual plant, but can be obtained from any of the better known primula nurseries. One problem is that the plant rests as a dormant bud beneath the ground until April/May, so it easy to think it has perished or to overlook it when weeding.

Primula reidii williamsii Section: Soldanelloidae Origin: N.W. Himalaya
Similar to *P. reidii*, but superior in having larger, ivory-white bells, which are fragrant and larger leaves and the form is more vigorous. This form is the usual one offered for sale.

Primula rosea 'Grandiflora' Section: Farinosae Origin: N.W. Himalaya
Bright pink blooms with yellow eyes, borne in umbels on short stems. The leaves appear after the flowers and are long, dark green and toothed. It flowers in May at the height of 20 cm. It thrives in a cool, damp soil, where it will increase steadily. This common species is easily obtained from garden centres, but this form is superior in having larger flowers and is not so easy to find.

Primula rotundifolia Section: Rotundifolia Origin: Unknown
Small, bright pink flowers with yellow eyes, which are borne on a short stem. The leaves grow from a hard, farinose bud and are toothed and roundish. It blooms in April, when 15cm tall. The species enjoys a dry winter and plenty of water in the growing season and a well-drained, peaty soil, containing some grit. It is a rare plant and is not easy to obtain.

Primula sonchifolia Section: Petiolares Origin: China
Mauve-purple flowers with deep, yellow eyes and long, pointed, toothed leaves, which are dark green and grow from a large bud (Fig. 24, p.142). The leaves are covered in farina in the winter. It flowers in April and is 20cm tall. It requires a dry winter and plenty of water in the summer. It needs a peaty, gritty compost and a collar

of chippings around the crown. This rarity can only be procured from one of the *Primula* specialists dealing in petiolarid species.

Primula 'Tinney's Appleblossom' Section: Petiolares Origin: bred hybrid
This hybrid between *P. boothii* and *P. aureata* bears cream flowers with orange eyes and has dark green, toothed leaves, with a reddish underside. It blooms in April, when 7cm tall. It prefers an almost dry winter and a moist summer and a peaty soil with some grit. This hybrid combines the attractive foliage of *P. boothii* with the beautiful flower of *P. aureata*. It is becoming more available, especially from the specialist.

Primula whitei 'Arduaine' Section: Petiolares Origin: Himalaya
Icy-blue flowers with pale yellow eyes and long, narrow, serrated leaves, which are covered in farina in the winter. The plant overwinters as a large, egg-like bud. It flowers in March, at a height of 5cm. It likes little water in the winter and more in the summer and a peaty soil, with chippings in. It increases rapidly and new plants can be produced by division. This rare plant is the easiest to grow of its section, but can only be obtained at one Scottish nursery as far as I know.

General note

All species require general protection in the winter with a pane of glass, except *P. denticulata cachemiriana*, *P. japonica* and *P. rosea* 'Grandiflora'. All require a shady site, except *P. denticulata cachemiriana*, *P. japonica* and *P. rosea* 'Grandiflora', which will tolerate full sun as long as the soil is moist.

Conclusion

Next year, I will attempt to obtain some seed of the rarer species and I will try to raise a few plants and continue my interest. Perhaps in the future I will set up a specialist nursery.



Fig 43 *Lilium oxypetalum* (see p.214)



Fig 44 *Androsace ciliata* (see p.221)

Lynn Almond

Fig 45 *Glaucidium palmatum* (see p.227)

D. Wilkie





Fig 46 *Meconopsis sherriffii* (see p.168)

J. Cobb

Fig 47 *Meconopsis* x '*Sheldonii*' (see p.158)

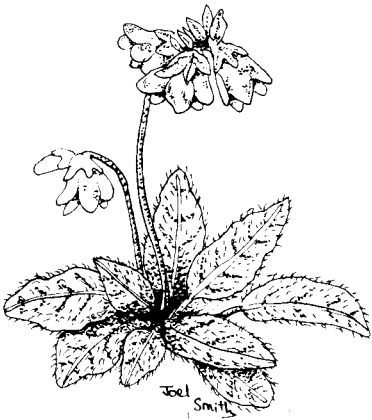
H. Esslemont



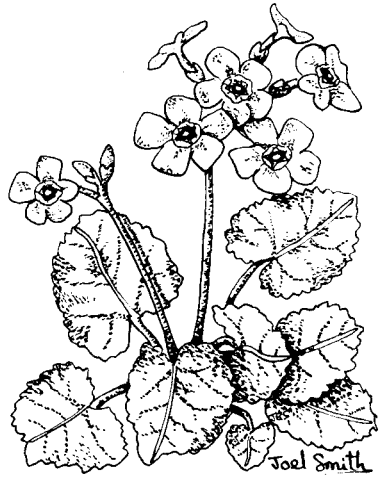


Fig 48 *Gentiana pyrenaica* ssp. *pontica* (see p.135)

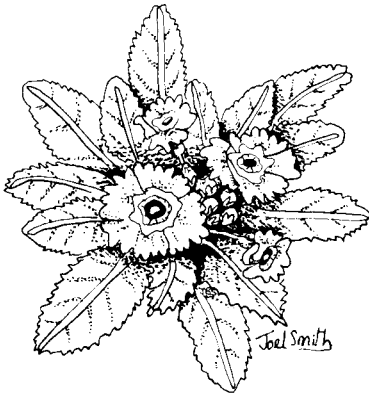
M. J. B. Almond



Primula reidii williamsii



Primula rotundifolia



Primula edgeworthii 'Ghoses'



Primula whitei 'Arduaine'

A visit to the Valley of Flowers

RODERICK MILNE

THE party of three left London by air on 14 July 1986 for Delhi where the first few days were spent making final purchases and preparations for the trip to the mountains. A long and hot train journey took us north to Dehra Dun where the Northern Section of the Botanical Survey of India is located. Here we obtained further information about the flora of the area we intended to visit. The next stage of the journey was by bus and, after a few days travelling north through rolling hills and spectacular valleys, we arrived at Govind Ghat, a village deep in the Himalaya range in the state of Uttar Pradesh. A trek from here brought us to the village of Ghangoria which was to serve as our base for exploration of the surrounding area.

Our main focus of attention for exploration and photography was the Bhyander Valley, two kilometres from Ghangaria, at an altitude of 3,352 metres. This valley was named the 'Valley of Flowers' by F. S. Smythe, a name it certainly lives up to. The valley itself is moderately flat, about five kilometres in length and one to two kilometres in width. On all sides, but for its mouth, steep mountain slopes rise to a great height and lead up to snow-covered peaks nestling in cloud. The lower part of the valley consists of wet meadows, often waist-deep, magnificent in wealth of colour and range of plants, all mixed but in a superb mosaic of harmony. In these meadows grew geraniums, potentillas, orchids, *Anemone tetrasepala* and a beautiful single-flowered yellow lily, *Lilium oxypetalum* (Fig. 43, p.209), all flowering in abundance. In a number of areas the nodding mauve and green flowers of *Fritillaria roylei* (Fig. 28, p.144) were common. In a drier location Lady's-Slipper Orchids (*Cypripedium himalaicum*) grew in large numbers. Also growing in these meadows and in the woods around the village of Ghangaria were at least three members of a weirdly primitive-looking genus, the arisaemas; *A. jacquemontii* (with a green, white-stripped spathe held above the leaves), *A. propinquum* (with dark-purple, white striped spathes) and *A. griffithii* (with its curled-back purple spathe lurking beneath the giant leaves).

Further up the valley the deep meadows give way to rocky alpine flower meadows and finally the rocky barren screes. Here dwarf rhododendrons are interwoven with *Cassiope fastigiata* and *Gaultheria trichophylla*. In this area also grew *Meconopsis aculeata* (including a white-flowered form) and *Primula macrophylla* (with narrow leaves and flowers of either pale or deep

purple. *Corydalis cashmeriana* (Fig. 21, p.141), with intense blue flowers, grew at the base of moss-covered boulders, a site shared by another rarity *Primula reidii*, a charming primula, barely 10cm tall, with a sweet scent given from its nodding white flowers. A tiny lily of a similar miniature scale, *Lilium nanum*, also grew, a solitary, mauve-purple flower being held 15cm above the ground. *Primula atrodentata* (a smaller, more delicate version of *P. denticulata*), *Iris kemaonensis* and *Androsace primuloides* were a common sight, the latter forming silvery mats with many pink flowers over rocks and on steep banks.

Another place of great interest and beauty within the vicinity of the 'Valley of Flowers' was that of a hanging, lake-filled valley known as Hem Kund. It is of greater altitude and the steep mountain slopes fall dramatically down to the lake. Among this steep, rocky terrain grew a great number of interesting alpine plants including the conspicuous, half-metre, white flowers of *Saussurea obvallata*, large patches of *Bergenia stracheyi* and *Primula reptans*, which formed a ground-hugging 1cm-thick mat over great areas.

Our time in the mountains corresponded with the starting of the monsoon. Most days started with bright, fine weather, but by early afternoon clouds had usually obscured the mountain peaks or filled the valleys, often bringing showers of light rain, occasionally heavy. This period of the year did prove, however, to be the best time to see the greatest range of plants in flower, unfortunately too late to see the tree rhododendrons in flower at lower altitudes.

I should like to thank the Club for the grant from the Exploration Fund which helped to make this very memorable and enjoyable trip possible.

Letters to the Editor

Botanic Gardens, Ness Neston, South Wirral L64 4AY
The University of Liverpool

Dear Sir,

I visited Cluny House in June 1986 a little after the deaths of the joint creators. I knew of the tremendous range of unusual plants the Mastertons encouraged to thrive there. What I did not realise was the extent of the garden or the range of views to the valley bottom with the River Tay flowing by. The wooded slopes and the mountains rising above combining to create marvellous scenery.

We then turned to the plants with populations of *nomocharis* seeding everywhere and perhaps blurring specific boundaries by hybridisation. All the usual species of primula were flowering in great mass, and we saw the tremendous luxuriance of the foliage of such plants as *Primula whitei* and *P. sonchifolia*. There were interesting meconopsis and groups of liliium species. Here and there a weed problem was obvious, with the main offender being twining shoots of *Tropaeolum speciosum*. Only where the vigorous shoots of *Cardiocrinum giganteum* dominated all surrounding vegetation could it be said the 'Flame Flower' was in check.

This garden strikes me as a National Heritage, and every person involved with NCCPG should go and see it as they work out realistic plans for saving for the nation a superb collection of plants in a setting of outstanding natural beauty.

Yours sincerely,
Ken Hume.

Toftwood, Kirkwall, Orkney

Dear Sir,

Some years ago I found a double buttercup in an old garden in Orkney, begged a piece for my own garden (where I found it exceptionally easy of cultivation) and sent a piece to Kew, who came up with *R. lanuginosus fl. pl.* If this is correct, then the illustration of *R. bulbosus fl. pl.* in the Reader's Digest Encyclopaedia of Garden Plants and Flowers must be incorrect as it exactly corresponds to my plant.

Three years ago we did find a 'real' double *R. bulbosus* in a lawn in Orkney, thoroughly infested with the single species. We asked permission to lift it and replant in my own garden. It increased slightly for two years

and died; pieces I sent to two other gardeners died after one year, so it is obviously not easy to grow.

I still find it difficult to believe that the plant now commonly known as *R. bulbosus fl. pl.* has anything to do with that species at all. Its indumentum is quite different, and the middle lobe of the basal leaf, even if sessile, is always divided from the other two lobes, right to the base of the leaf. In the other plant, the basal lobes are merely cleft, up to about three-fourths of the entire leaf, some far less than that – as can be seen quite clearly in Alf Evan's photo in *The Rock Garden* – the photo in the *Reader's Digest* book shows rather more segmentation, but still not like that of forms of *R. bulbosus* – certainly not at all like your illustration in *The Rock Garden*. The garden plant is also much more coarse and robust and tends to retain its foliage much later in the season.

One other small point which has puzzled me. You refer to the well-known garden plant as being 'semi-double'. Both illustrations mentioned and my own plant have fully double flowers. I've never troubled to count the petals, but they are most certainly not 'semi-double'. My poor little genuine *R. bulbosus fl. pl.* also had fully double flowers, like those of *R. acris fl. pl.*

You mention an *R. 'Creamcup'*. We have found wild forms of *R. acris* in Orkney with very pale flowerse (also fully double forms in an obviously wild situation).

I do wish someone would sort out the pseudo-*R. bulbosus fl. pl.* I want to be able to give it a name which isn't an obvious error.

Loudon doesn't give 'fl. pl.' for either *R. bulbosus* or *R. lanuginosus*.

Yours Sincerely,
Elaine R. Bullard.

Wild Flower Society,
Bracken Hill, Platta, Sevenoaks, Kent TN15 8JH

Dear Sir,

I see you would like some comments on your *Ranunculus* article – which contains far more than I knew!

However, pace Bowles' "Stevenii" is no clone. The epithet was published for a species by one Andrzejowski early in the last century. How to interpret it is uncertain – see Hegi 3 (3) 1974, p. 274. The name was at one time quite often used for certain British plants, but is now ignored. It is mentioned in *Flora Europaea*.

The right spelling is *Arendsii*, after the great hybridiser Georg Arends and as it was spelt when given the AM.

R. auricomus is an apomictic species, or rather group of species, hence the

minute differences that get perpetuated. Dr Leslie at Wisley was awarded his PhD on them. Hitherto no one in Britain had investigated them, but they had been gone into abroad and numerous sub-species described.

I have here a delightful pale-yellow variant of *R. bulbosus*, given me some years ago by Ken Aslet. He did tell me its source, but I have mislaid it – maybe they still know and have it at Wisley. It comes fairly true from seed, but any normal yellow progeny can produce pale flowers in the next generation.

If you can look at my Wild Flowers of Guernsey of 1975, you will find two aberrations mentioned; and also in its Supplement, which is due out this spring. I have had some of them here, but managed to lose most of them, even the double *R. repens*!

Yours sincerely,

David McClintock.

The Joint Rock Garden Plant Committee

(Recommendations made at Scottish Rock Garden Club Shows)

STIRLING – 29 MARCH 1986

Awards to Plants

Award of Merit

To *Fritillaria stenanthera* as a flowering plant for the alpine house. Exhibited by Mr H. Esslemont, 9 Forest Road, Aberdeen.

To *Callianthemum anemonoides* as a flowering plant for the alpine house or rock garden. Exhibited by Dr P. Semple, 103 Southbrae Drive, Glasgow.

Certificate of Preliminary Commendation

To *Corydalis persica* as a flowering plant for the alpine house. Exhibited by Dr J. Cobb, 3 Station Road, Kingsbarns, Fife.

EDINBURGH – 26 APRIL 1986

Award to Plant

Certificate of Preliminary Commendation

To *Fritillaria walujewii* as a flowering plant for the alpine house. Exhibited by Mr H. Esslemont.

Award to Exhibitor

Certificate of Cultural Commendation

To Mr A. Leven, 2 Leighton Court, Dunblane, for a well-grown plant of *Paraquilegia grandiflora*.

Show Reports

Stirling – 29 March

The move to the prestigious Albert Hall proved to be an excellent idea. The new hall gives us much more room to display the plants and, just as importantly, plenty space for exhibitors and public to move around and view the plants and the exhibition areas. Seating in the hall allowed friends to sit and chat in the comfort and warmth without leaving the show. We were delighted to host the photographic competition again. As usual it proved very popular with the public. Since the competition can show us plants which flower out of show season, it is to be hoped that more members support it. The Editor has said that wherever possible he will use the winning pictures in the journal so that your good photograph could bring you immortality.

Mrs A. Chambers' exhibit of paintings of alpine plants and Dr M. Almond's enlarged prints of bee orchids were breathtaking. Both had taken great care and exercised much patience and skill to achieve these perfect examples of what Section III is for. Please can we have more exhibits like this? While the judging was in progress we were delighted to welcome Mr F. Hunt who gave his entrancing lecture on 'Spring Flowers of Rhodes and Crete' to an audience of almost 100. The Stirling group would like to thank Fred for giving our first Easter Lecture and for giving it so well.

Downstairs in the main hall, the judges were choosing the Forrest Medal plant. Never has a Forrest Medal been given to a more appropriate plant. Mr D. Martin from Scotlandwell won a small plant of *Rhododendron Cilpinense* as first prize in the raffle at the first Stirling Show; cherished it, until he returned it to Stirling in quite magnificent condition, absolutely covered in wide, pinkish-white bells. The plant has grown 45cm high and 1m across. It dwarfed the other plants in the show not only in size but in quality and freshness. *Rhododendron Cilpinense* is a hybrid *R. ciliatum* x *moupinense*. As well as the Forrest Medal, Mr Martin took the Institute of Quarrying Quaich for the best non-European Plant in the show.

The Ben Ledi Plants Trophy for the best European Plant in the show went to Mrs B. Ivey's superb *Primula allionii alba*.

The Spiller Trophy for the best *Primula* in the show was won by Mr F. Hunt's terrific plant of *P. bhutanica* with its large rosettes of blue/white primroses amongst its farinose leaves. The judges took a lot of care at the show to ensure that the various plants of *Primula whitei* and *bhutanica* were correctly named.

The Carnegie Dunfermline Trust Trophy for the most points in Section I went to Mr A. Leven. Amongst his plants were *Crocus scardicus*, *Fritillaria aurea* (Fig. 27, p.144), *F. tenella* and *F. carduchorum*, *Primula boothii alba*, *P. aureata forma*, *P. bhutanica*, *Saxifraga 'Jenkinsae'* and *Veronica bombycina*.

The Fife County Trophy and the Bronze Medal for the most points in Section II were taken by Mr R. Salvin who had excellent entries in most of the classes in Section II. Among his winning plants were *Iris winogradowii* (Fig. 23, p.142), *Androsace imbricata* and the appropriately named *Tulipa 'Showwinner'*.

The Special Prize 'for the Best Plant in Section II shown by someone who had never shown before' was awarded to Mrs D. Fraser's excellent plant of *Saxifraga apiculata alba* which had been lifted from the garden from the show.

Section II proved to be very difficult to judge owing to the large number of exhibits, many from new exhibitors. It was gratifying to see the well-filled classes in this section.

First prize in the Three Pan Class went to a local member and new exhibitor Mr R. Drummond with his well-flowered *Soldanella montana*, *Primula marginata* and a nice cushion of *Draba polytricha*. Also prominent and eye-catching in this class was Mr G. Collie's nice pink *Androsace ciliata* (Fig. 44, p.210). The *Primula* classes were well contested with Dr I. Bainbridge taking the honours with an excellent plant of *P. gracilipes* – three good-sized rosettes with the slightly-toothed leaves enclosing the many magenta flowers with greenish yellow throats. An immaculate *Cyclamen persicum* with 27 pale-pink flowers held above dark-green leaves, grown perfectly in character and not stretched and drawn as is so often the case, was exhibited by Mrs M. Watson. Mrs H. Smith showed that farmers can produce more than grain mountains with her nice plant of *Hepatica x media 'Ballardii'*.

In the open section corydalis species are proving to be almost as popular as fritillarias and primulas. There seems to have been a drop in the number of saxifrages being exhibited. Dr J. Cobb would seem to be the expert in growing corydalis, having exhibited a marvellous *Corydalis solida*, *C. shan-ginii* as well as the unusual *C. persica*.

Many fine, rare, interesting and unusual plants graced those classes for plants grown from seed by the exhibitor. Dr P. Semple and Mr H. Esslemont showed their prowess in these classes. Mr Esslemont sent his magnificent form of *Pulsatilla slavica* and Dr Semple his *Ranunculus nivicolus*, with 12 luminous yellow petals surrounding a nice central dome of green carpels. It was 12cm tall but might elongate in seed. The seed came from the Canterbury Alpine Garden Society and was sown on 10.7.80 and grown on in a frame in a mixture of J1 1, peat and coarse grit.

One of the most entrancing plants in the show was Margaret and Henry Taylor's glistening white *Hepatica nobilis alba*, which grows wild among primroses in Greece. It was exhibited in character, dressed with beech leaves. *Iris winogradowii* made its appearance at Stirling in greater number than usual. Probably it had been held back by the long, severe winter.

Margaret and Henry Taylor again gave a lesson in presenting plants by dressing their *I. winogradowii* with pale-green moss, indicating that this pale-yellow treasure of the Reticulata section does not like to be dried out. A beautiful form of *Iris attica* with yellow flowers and brown tips on the falls was shown by Mrs B. Ivey.

Fritillarias were again popular. Several forms of *F. aurea* were on show. They all had the typical square yellow bell but differed in bell size, stem length and the amount of red-dotting on the backs of the bells. A really fresh frit was Mr G. Sprunt's *F. shliemaniai*. It is about 20cm tall with green/yellow bells held above the glaucous mature leaves. Young immature leaves were bright-green. Dr D. Stead's patience was rewarded on seeing his *F. delphinensis* flower 9 years after sowing. Mr Esslemont's *F. stenantha*, with its open pink bells and prominent dark nectaries on the back of the bells, grown from wild collected Soviet seed from Otto Fauser, was awarded an AM by the Joint Rock Garden Plant Committee.

Excellent petiolarid primulas were shown by Dr E. Stevens, Mr F. Hunt and Mr A. Leven. We were able to study *Pp. aureata*, *aureata forma, sonchifolia, edgworthii alba, gracilipes, boothii alba, whitei, bhutanica, calderiana* (Fig. 33, p.163) and the AM hybrid 'Tantallon' (*bhutanica* x *edgworthii*).

Dr P. Semple was awarded an AM for his wonderful plant of *Callianthemum anemonoides*.

Synthiris pinnatifida v. *lanuginosa* won for Mr W. Kirby. It was an excellent silvery-leaved plant. The mauve flower heads are held above the deeply-cut leaves and look like upside-down bottle brushes. The pollen at the end of the stamens is especially prominent.

We would like to thank our judges Mrs S. Maule, and Messrs J. Jermyn, J. Crosland, B. Russ, R. MacBeath and J. Wotherspoon. A. J. LEVEN.

Newcastle-upon-Tyne – 12 April

Once again the Ponteland Memorial Hall was illuminated with the colour of spring flowers for the Newcastle-upon-Tyne Show. Entries were at record levels, 450 entries from 62 exhibitors, a number of whom were showing for the first time. Over half the exhibitors won at least one first prize; two won five first prizes in the Open section, and one took six first prizes in B and C Sections.

The Forrest Medal was awarded for an eleven-inch pan of *Saxifraga oppositifolia* x *biflora* entered by Mr D. B. Lowe of Lancaster; this natural

hybrid has rich, deep-red flowers over a matt of tight foliage. Mr Lowe also won the E. G. Watson Trophy for a flowering plant, new or rare in cultivation, with *Pterygopappus lawrencii* from the mountains of New Zealand. A Certificate of Merit was awarded to Mr A. Spenceley of Saltburn for his entry in Section I, a reflection of the quality of entry and the level of competition.

Mr R. G. Hodgson of Stokesley had a good day winning the R. B. Cooke Plate and both AGS Medals. He took the AGS Medal for Class 1 with an entry of two forms of *Primula allionii*, *Draba longisiliqua*, *Draba rosularia*, *Androsace vandellii* and *Saxifraga* x *boydii* 'Valerie Finnis'. To win the AGS Medal for Class 25 he entered *Androsace cylindrica* x *hirtella* 'RCL form', *Primula allionii* 'Pontin's form' and 'Three Crosses', *Paraquilegia anemonoides* 'Branklyn form', *Saxifraga georgei* from Nepal and *Saxifraga* x *thorpii*. To round off his success he won first prizes in Classes 2, 16 and 30; for the latter he entered *Primula allionii* x *hirsuta* 'Roseberry'.

First prize in Class 38 (*Fritillaria*) went to Mr F. Hunt of Invergowrie, for a plant of *Fritillaria stanthera*, the dusty pink flowers on a single stem contrasted with the yellow and browns of the other entries. He also took first prize in Class 6 (3 pans of primula) with *Primula marginata* 'Clear's Variety', *Primula* x 'Beatrice Wooster' and *Primula wulfeniana*, the latter flowering well despite its reputation as a shy flowerer in cultivation.

A Certificate of Cultural Commendation was awarded to Mr and Mrs H. Taylor of Invergowrie, who also won a number of first places including Class 26 (3 pans rock plants) with *Viola crassiuscula*, *Androsace ciliata* and *Ophrys tenthredinifera*. They also took first in Class 5 (*Primulaceae*) with a good form of *Androsace carnea laggeri* named 'Andorra'; the same variety won Class 66 (*Androsace*) for D. B. Walker of Newcastle.

The largest entry in the show, a 60cm-diameter specimen of *Rhododendron leucaspis*, well covered with its large, white, flushed pink flowers was entered by Mrs R. W. Fuller of Whitby and awarded first prize for Class 15. At the other end of the size scale was an 8cm-tall dome of *Saxifraga hypostoma* entered by Mr D. B. Lowe in Class 11. The plant made up for its lack of size by bearing about a dozen flowers and was awarded first prize.

Mr R. R. Brown of Sandhoe, near Hexham, once again took the first prize with his trough; despite instructing members how to achieve the effect during his talks, he remains master of the art.

It is always encouraging to see a newcomer make his mark; Mr D. B. Walker of Newcastle certainly made his, taking six first prizes in Sections B and C, an effort for which he was awarded the Gordon Harrison Cup and the Cyril Barnes Trophy together with the SRGC Special Bronze

Medal. The standard of competition in these sections was very high, as indicated by Mr D. C. Woolveridge of Ripley being awarded a Certificate of Merit for entering a beautiful specimen of *Saxifraga* 'Jenkinsae' in Class 49. Another name to look out for in future is M. R. Allison of Cleveland, who entered some fine plants including *Dictyolimon macrorhabdos* in Class 70.

For the first time at Ponteland the trade stands and Society plant stall were in a room separated from the exhibits, the arrangement being liked by both exhibitors and visitors. Trade was brisk as a result of the enormous number of people present, which led to the Society plant stall being sold out before the show had ended.

R. FAIRBAIRN

Perth Show – 19 April

The atrocious weather and the unusually late season failed to deter enthusiastic and resourceful exhibitors. The high standard of their entries gave the judges, Mr R. McBeath, Mr J. Jermyn, Mr H. Taylor, Mr J. Duff and Mr A. Duncan, a difficult task.

The Alexander Caird Trophy awarded for the Six Pan Class went to Mr R. A. Hodgson of Stokesley, with an outstanding exhibit comprising *Draba longisiliqua*, *Primula* 'Roseberry', *Androsace cylindrica* x *hirtella*, *Saxifraga* x *boydii* 'Valerie Finnis', *Saxifraga georgei* and *Androsace vandellii*. The *Draba longisiliqua* won the George Forrest Memorial Medal and a Certificate of Merit was awarded for the *Androsace vandellii*. The perfection of these two cushion plants drew much admiration. With these and other notable exhibits, like the beautifully grown *Primula renifolia* in Class 3, Mr Hodgson won the L. C. Middleton Challenge Trophy for the most points in Section I.

The Dundas Quaich for the Three Pan Class went to Mr A. Leven for *Trillium hibbersonii*, *Paraquilegia grandiflora* and *Fritillaria hermonis* ssp. *amana*. Mr C. Jones was awarded the Murray Lyon trophy for the best plant in the show exhibited by a Tayside resident. The deep-purple flowers of his *Pulsatilla halleri* were an unforgettable sight. European primulas were well represented with Dr P. Semple gaining a Certificate of Merit for his pan of *Primula* 'Beatrice Wooster'. Mrs E. Stevens won the Asiatic primula class with a well-flowered *Primula* 'Linnet'. There were a number of well-grown saxifrages, which included *S. griesbachii* and *S. porophyllum* exhibited by Mr M. Constable. Other notable entries were Mr A. Leven's *Fritillaria lutea* and his *Tulipa pulchella albo-caerulea*, the white flowers with blue centres making an eye-catching combination. A lovely specimen of the pale-blue *Jeffersonia dubia* exhibited by Miss J. Halley won first prize in its class, and Mr R. Brown of Hexham was awarded a Certificate of Merit for his miniature rock garden containing no less than 32 plants all in the peak of condition.

The E. H. M. Cox Trophy was awarded to a particularly fine plant of *Rhododendron pemakoense* exhibited by Miss J. Halley.

There was good competition in Section II with both Mrs D. Fraser of Dundee and Mr R. Salvin of Perth gaining eight firsts. Some plants of note were *Salix myrsinites jacquini* showing an abundance of catkins, exhibited by Mr R. Maxwell of Aberdeen, a well-flowered pot of the sweetly-scented *Iris bucharica* from Mr R. Allison of Cleveland, and a superb pan of *Pleione* 'White Swan' shown by Mrs A. M. Colquhoun of Broxburn. Two easy garden plants in excellent condition were *Corydalis solida* shown by Mrs D. Fraser, and *Primula denticulata* exhibited by Mr R. Salvin, who received the Bronze Medal for Section II and the Perth Trophy, being the Perth member gaining most points in the show.

Once again there were exhibitions of beautiful flower paintings by Mr L. Greenwood, and of photographs of orchids by Dr M. Almond. Both were awarded Certificates of Merit.

A huge, well-flowered specimen of *Kelseya uniflora* formed the centre-piece of a magnificent display courtesy of the Regius Keeper of the Royal Botanic Garden, Edinburgh.

D. M. TATTERSFIELD

Edinburgh Show – 26 April

The principal awards were as follows:

Forrest Medal – Mr S. Leven, Dunblane – *Paraquilegia grandiflora*;
Bronze Medal (highest points in Section II) – (joint) Mrs D. Fraser, Dundee, Mr R. Salvin, Perth; R. E. Cooper Bhutan Drinking Cup (best Asiatic Primula) – Mrs E. Stevens, Dunblane – *Primula* x 'Linnet'; K. C. Corsar Challenge Trophy (best American or European Primula) – Mr J. Cobb, Kingsbarns – *Primula* 'Linda Pope'; Reid Rose Bowl (highest points in Section I) – Mr F. Hunt, Invergowrie; Midlothian Vase (Best Rhododendron) – Mrs E. Stevens, Dunblane – *Rhododendron pumilum*;
Midlothian Bowl (best plant in Section II) – Mr R. Maxwell, Aberdeen – *Lewisia tweedyi*; Henry Tod Carnethy Quaich (best Bulb, Corm or Tuber in Section I) – Mr F. Hunt, Invergowrie – *Fritillaria michailovskyi*;
Henry Archibald Rose Bowl (Three Pans Rock Plants) – Mr F. Hunt, Invergowrie – *Fritillaria bucharica*, *Paraquilegia grandiflora*, *Ranunculus asiaticus* (red); Elsie Harvey Memorial Trophy (Three Pans Rock Plants, New, Rare or Difficult) – Mr R. Hodgson, Stokesley – *Raoulia eximia* x *petriensis*, *Dionysia paradoxa*, *Primula renifolia*; A. O. Curle Memorial Trophy (Three Rock Plants from Seed) – Mr F. Hunt, Invergowrie – *Primula aureata* x *aureata fimbriata*, *Fritillaria michailovskyi*, *Paraquilegia grandiflora*; Certificates of Merit – Mr and Mrs H. Taylor, Invergowrie – *Corydalis transylvanica* (Fig. 22, p.141); Mr E. Watson, Newcastle-upon-

Tyne – *Draba dedeana*; Miss J. Halley, Dundee – *Jeffersonia dubia*.

The Boonslie Cup (Miniature Garden) and the Kilbryde Cup (Flower Arrangement) were not awarded for want of entries.

J. AITKEN

Glasgow – May 10

Was there ever a May when the spring flowers persisted for so long, or in such a battered condition, thanks to the incessant gales? This meant that so many of the flowers that one would normally associate with the Glasgow show were still in tight bud. However, the rhododendrons benefited from the lack of spring frosts, and made a brilliant show. Even so, the benches were filled with an array of plants which kept the judges busy. Gentian classes were well filled (showing the lateness of the season), and it was particularly encouraging to see such a well-filled Section II.

Trophy winners were:

Dr W. Buchanan Memorial Rose Bowl (Six Pans) – Mr F. Hunt; Henry Archibald Challenge Rose Bowl (Three Pans) – Mr H. Esslemont; W. C. Buchanan Challenge Cup (Three Pans, Rare, New or Difficult) – Mr F. Hunt; E. Darling Memorial Trophy (Three Pans dwarf Rhododendrons) – Mr and Mrs Chambers; Ian Donald Memorial Trophy (best plant native to Scotland) – Mr and Mrs R. J. Bezzant; Crawford Silver Challenge Cup (most first prizes in Section I) – Mr F. Hunt.

The premier award, the Forrest Medal, was awarded to Mr and Mrs Bezzant for a plant of *Gentiana brachyphylla*, so well flowered that leaves were invisible. A Certificate of Merit was awarded to *Cypripedium parviflorum*. Plants outside the trophy classes, which particularly caught the eye, included: in Class 5, *Zaluzianskya ovata*, with a white, silene-like flower with a red reverse to the petals; it is night-scented, and hails from the Drakensburg Mountains of South Africa (Mr and Mrs Taylor). Thanks to some skilful and dedicated seed-growers, *Diapensia lapponica* is becoming slightly less uncommon, but it is never an easy plant. It was shown by Mr and Mrs Bezzant. *Primula strumosa* has reappeared in our gardens thanks to some of the recent seed-collecting expeditions to Nepal. Mr Leven showed a fine example. *Androsace vandellii* may no longer be the almost certain Forrest Medal winner, but in spanking conditions, as Mrs Wyllie showed it, it is still an interesting sight, as is *Ranunculus parnassifolius*, shown in the Nuria form, by Mr and Mrs Bezzant. An unusual and attractive fritillary was Mr Hunt's *F. whitallii*. Two more beauties were *Helichrysum sessile* (Mr and Mrs Taylor) and *Lewisia brachycalyx* (Mrs Wyllie).

The judges were Mrs Taylor, Dr Graham, Mr Jermyn, Mr Leven and Dr Stead.

J. STEAD

Aberdeen Show – 24 May

No snow this year, but a cool, bright day just right for alpines, with gentians and tulips opening to perfection. The season was late so we saw both early and mid-season flowers; there were lots of entries from outwith the region, so we had an excellent display. One problem was that, with so large an entry, special exhibits and trade stands we were short of space.

For the second year in succession the Walker of Portlethen Trophy for most points in Section I went to Mr F. Hunt of Invergowrie, who emphasised the quality of his entries by going on to win the George Forrest Medal and the special prize for the best entry in this section.

Cultural commendations went to: *Shortia soldanelloides* – Mr F. Hunt; *Calceolaria darwinii* – Mr F. Hunt; *Phlox* 'Chattahoochee' – Mrs J. Wyllie.

This 'show excelled in both quality of plants and variety of species. The Forrest Medal plant, *Clematis marmoraria*, had three symmetrical sprays of flowers, a striking presentation, while the shortia and calceolaria had a mass of flowers. To enhance the impact, the shortia had long, thread-like extensions to its petals, and the 'hippo heads' of the calceolaria as always engendered lots of comment. The phlox was a tall plant with flowers of an unusual pale mauve. Among the many plants in the section, Mr J. D. Crosland's *Omphalogramma elegans* with frilled margins to its trumpet-like flowers (also seen in the Royal Botanic Gardens special exhibit), Mr and Mrs N. R. Kent's grey/blue-flowered *Calochortus caeruleus*, Mr and Mrs H. Taylor's *Lewisia* 'Pinkie' with well-separated flower and foliage, the silver foliage, white flowers and yellow stamens of the recently-arrived *Helichrysum sessile*, the contrast of the scarlet of *Rhododendron* 'Baden-Baden', with the yellow of *Rhododendron* 'Chikor', and the perfect opening of *Tulipa batalinii* entered by Mrs H. Salzen were just a few of the many eye-catching and interesting plants in Section I.

In Section II the awards were:

Bronze Medal – Mr R. Maxwell (highest number of points in section); Aberdeen Quaich – Dr C. M. Jones – a very well flowered *Primula reidii*. Special Prize – Mr F. Wilson – two plants of different genera.

In Section I, entries rose from 163 in 1985 to 204 in 1986, but in Section II entries fell from 94 to 65, which does not reflect the increase in Club membership and the excellent attendance of meetings.

The Aberdeen Department of Leisure and Recreation displayed a small rock garden built round a massive arc of mica schist (complete with minute slug) and backed by a mass of most attractive colour. Mr A. J. B. Anderson displayed a selection from his collection of rhododendrons. The Cruickshank Botanic Garden had a wide range of plants displayed as a garden, which included the spectacular electric green-blue *Ixia viridiflora* and beautiful, fresh-looking *Glaucidium palmatum* (Fig. 45, p.210) with white

and pale-mauve forms on show. The Royal Botanic Garden, Edinburgh, tabled a collection of pot plants including the scarlet-flowered *Fritillaria recurva* from California and *Sarcocapnos crassifolia* from southern Spain with a dome of foliage and yellow/white flowers.

The variety of plants and flowers available by selective breeding was well illustrated by Mr J. Aitken's selection of over 40 varieties of Alpine, Show, Border and Fancy auriculas.

W. HOLMES

Control of Pesticide Regulations, 1986

UP until now, the Regulations governing pesticides applied mainly to manufacturers, contractors and commercial users. Under the Food and Environment Protection Act, 1985 (Control of Pesticide Regulations, 1986), however, certain statutory obligations are placed on domestic users, including gardeners. Under these regulations, pesticides include fungicides, herbicides, insecticides and soil sterilants.

From October 1986, only approved pesticides may be supplied, stored or used. The list of such pesticides is available from HMSO bookshops. Users must take all reasonable precautions to protect the health of human beings, creatures and plants and to safeguard the environment, particularly avoiding water pollution.

Employers have particular responsibility to ensure that their employees have reached the required standards of competence in handling and using pesticides.

All users have to comply with conditions of approval relating to use. The sort of things they cover include use of protective clothing, use on certain crops, maximum application rates, minimum harvest intervals, protection of bees and keeping animals and humans out of treated areas.

For those of us used to sloshing insecticide around in an attempt to control vine weevils, take heed – these Regulations now apply.

A plant hunting journey through southern Italy and Sicily

STEPHEN L. JURY

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IN July 1984 I set off on a flight from Luton Airport to Brindisi with Mr Simon Brookes, a technician in our herbarium, on a tour to collect and study plants in southern Italy and Sicily. We planned to collect seed for the annual Seed List of the Plant Science Laboratories, to collect specimens for our herbarium, and to study and collect living material for various taxonomic projects being undertaken at the University of Reading. Mr Riyadh Haddad, an Iraqi post-graduate student researching the spiny astragalus species of Mediterranean Europe, joined us in Brindisi, having already spent some time in southern Greece studying his plants. Having come over on the ferry from Patras, he booked hotel accommodation for what was left of the night for us. After a late breakfast we picked up our hired Fiat and set off south for the mountains and plants.

Our first real botanical stop was a lay-by near Lauria in Potenza Province at 700m. What an excitement it was to see *Asphodeline liburnica* in full flower, *Eryngium amethystinum* and *Linum tenuifolium* subspecies *tenuifolium* growing among *Ostrya carpinifolia*. How garden-worthy were so many of the plants! *Campanula fragilis* (Fig. 34, p.163), growing out of the vertical limestone rock crevices, was spectacular, covered with numerous powder-blue flowers an inch in diameter. On looking around we found numerous beautiful *Lilium bulbiferum* plants, the southern variant without bulbils, known as variety *croceum*. The beautiful white foliage and yellow flowers of *Sideritis syriaca* made one wonder why this is not more frequently encountered in gardens. In the Mediterranean this and other *sideritis* species are often sold for making a herbal tea.

Southern Italy was very hot, but we were usually always able to get a good night's sleep by staying in hotels in the mountains. We found that the ski resorts often had good hotels that were more or less empty in their off-season. We were fortunate in the fact that one of Riyadh's *Astragalus* species, *A. parnassi* subsp. *calabrus*, grew in the Sila Mountains off the limestone. Here we were able to admire the wonderful scenery around Lago di Cecita, and see numerous *Dactylorhiza saccifera* plants in the wet flushes around the lake. Lago di Arvo, 1280m, was also visited: here more *Lilium*

bulbiferum, *Senecio cordatus*, a large and attractive ragwort to 1m, and *Achillea ligustica* were seen.

As our journey in Italy was only for two weeks we were obliged not to linger but drive on down the autostrada (no tolls on this stretch) to our third main study area of Aspromonte. We stayed at the ski resort of Gambari, and took advantage of a chair-lift to botanise above the town at 1660m, late in the afternoon of our arrival. We found that ski-lifts, chair-lifts and cable cars were often working (at least for part of the day) for tourists, there being no snow, and these enabled us to see much more during our short stay. How such touristic paraphernalia has benefited field botany! Everywhere the *Abies alba* and *Fagus sylvatica* were dripping with such fine, large lichens as *Usnea filipendula*, *Bryoria* species (several), *Lobaria amplissima* and *L. pulmonaria*. Everywhere was very dry, but in full flower were: *Digitalis lutea*, *Centaurea alba* subsp. *splendens*, with purple-pink (not white) flowers, *Hieracium pseudopilosella*, the attractive large purple-red flowered *Calamintha grandiflora* (a plant which fooled us for a name at first) and two familiar species, *Viola reichenbachiana*, the early dog-violet, and *Mycelis muralis* wall lettuce.

However, the real joys of the area were to be observed the following day on a journey up Montalto to the East. Various wet gullies were full of plants, including *Lereschia thomasi*, a rare endemic umbellifer. It was especially rewarding to see and to photograph this plant. It has not been collected in recent times and is represented at the British Museum by only four collections. This monotypic genus formed part of an earlier Ph.D. study in Reading by Hamid Khan, who unfortunately was not able to see the plant living. The area was exceptional, with many species under the beech and fir trees on a steep bank below the road and above a river. In fairly deep shade there were many old friends from home: *Blechnum spicant*, *Athyrium filix-femina*, *Polypodium vulgare* and *Lysimachia nemorum*; but also some not so frequently encountered: *Neottia nidus-avis*, *Epipactis helleborine*, *Orthilia secunda*, *Schleranthus perennis* and *Sambucus ebulus*. However, not all were well-known to us, many were new, including *Scrophularia scopolii* and the deep-pink flowered *Lathyrus venetus*. On patches of grassland amongst the trees are found the attractive pink-flowered *Anthyllis vulneraria* subsp. *maura* – one of some 40 subspecies of this plant in Europe and the Mediterranean region. Although you can drive up near to the summit, the last part to the statue of Christ has to be climbed on foot along a well-trodden path. The road goes on, but gets very much worse on the eastern side. We reached a monastery, but only motor-bikes could go further, a fact not apparent on our map.

We crossed over from Villa San Giovanni to Messina on Sicily by the efficient ferry service, and found, by chance, a pensione (which we can very

highly recommend) at San Alessio Siculo. The two following days were spent botanising on Mount Etna where *Astragalus siculus* grew in profusion above 1000m. We drove up the south side to Rifugio Sapienza, the place where the road had been cut the year before by an eruption. On a previous botanising visit I had gone up in a small bus with other tourists to the "Zona di eruzione", an expensive but worthwhile journey. It was memorable, if not pleasant, walking on the hot ground with holes down which you could see the lava rushing and splashing, just two metres below the surface. One hoped some of the ticket price was life insurance! It was amazing how interesting plants still grew normally on the small patches not engulfed by the lava: *Saponaria sicula*, *Senecio aetnensis* and *Tanacetum vulgare* to name three. The slopes below looked spectacular with *Genista aetnensis* in full flower, and we could not resist collecting some herbarium specimens, but what a filthy job. We had to shake off vast quantities of red volcanic dust before putting the specimens in our plant press. In some areas the *Genista* was heavily parasitised by *Orobanche rapum-genistae* (a genus being studied by another Reading student, Mr Fred Rumsey). Although the *Genista aetnensis* looked spectacular, I found the smell overpowering. Also present were *Centaurea parlatoris* and *Spartium junceum*.

The following day we went up the north side of Etna. Here we encountered *Berberis aetnensis*, but not yet with ripe fruit. I regretted not having brought any living material back, for the account of this genus in *Flora Europaea* is in need of revision for the second edition of volume one being carried out at Reading by Dr John Akeroyd.

Having to get back to San Alessio for dinner at 7.30 p.m. prevented taking a bus excursion up to the summit, for this was one hour up, one hour walk around the crater and one hour drive back. We spent the remaining time, therefore, botanising at the ski resort at the end of the tarmac road.

The final area botanised in detail was in the Madonie Mountains. There is a good motorway from Catania west to Enna and then north. We stayed at Rifugio Orestano of the Club Alpino d'Italia, which at this time was almost empty. It proved an excellent centre and we found our third astragalus, *A. granatensis* subsp. *granatensis*, growing just up the road. Also present were two striking, but scruffy, yellow umbellifers, *Opopanax cheirionium* and *Cachrys fernulacea*. This area was past its best, overgrazed and desiccated with a paeony in fruit to suggest the richness of its spring flora.

Abies nebrodensis is well worth a pilgrimage if one is ever in this area. This species is now reduced to just over 20 trees in the wild, all in one small protected area. They make an attractive tree, similar to *Abies alba* but differing in being smaller both in height (to about 18m) and leaf-length. It is

in cultivation, but rare, and the authenticity of material available in the trade has recently been questioned. On the way we encountered *Senecio cineraria* subsp. *nebrodensis* by the roadside, looking as if it had been cultivated; it was hard to believe it was native here. Also present was *Scabiosa crenata* subsp. *dallaportae* (Fig. 31, p.162), a most attractive plant with pink flowers forming patches over the rocks. We collected some rhizomes of an iris. This was grown back at Reading where it flowered the following year and was identified as *Iris pseudopumila*. It had fine, dark-blue flowers and is being swapped with material from Trinity College, Dublin, for another specimen of the same species, but with yellow flowers, collected by Professor D. A. Webb. These are being grown as part of the National Council for the Conservation of Plants and Gardens Iris collection at the University.

We also visited a fine acid bog complete with sphagnum moss, *Laurencia gasparinii*, *Osmunda regalis* (very rare, we took a photograph and mounted it on a herbarium sheet) surprisingly surrounded by fine specimens of holly, *Ilex aquifolium*.

However, our time had almost run out and we drove hastily back to Catania Airport to deposit our car and catch the plane back, this time to Gatwick Airport. Then in Reading we would have to start preparing labels, cleaning seed, writing up our notes, identifying and examining samples, and sadly watch our sun-tans fade. However, at the airport we did not waste our last few minutes, for a search in the car park found the alien *Chenopodium multifidum*, with fine, feathery aromatic foliage. This has been established in southern Italy since the eighteenth century. It was thought to be native in southern Europe, but probably, like so many other Mediterranean weeds, came from the Americas some time after 1492. Weeds are also one of the topics much studied in our department.

Plant Portraits

Lewisia cotyledon

Gwen Baker

Lewisias are all semi-desert plants, native to the eastern side of the Rocky Mountains, adapted to hot dry summers and sub-Arctic winters, flowering in late spring, when the snow melts. The genus, in the family Portulacaceae, was named to commemorate the Lewis and Clark Expedition which explored Oregon in 1806-7. They also found Clarkias! *Lewisia cotyledon*, from California, is one of the most spectacular in flower (Fig. 36, p. 189), and amongst the easiest to grow, providing its likes and dislikes are catered for. In the wild it grows on mossy pockets and ledges in lime-free cliffs often on its side.

A one-year-old plant consists of thick, fleshy branching roots, a short, stout neck or "caudex", and a ground-level rosette or narrow, succulent evergreen leaves, 3-12cm long, which may or may not have wavy sides, radiating from a crown. The whole plant seems adapted to storing water. New leaves are continually produced from the crown, and the lowest layer of leaves gradually dies out and becomes sere and brown. In this state they are easily removed, but a half-dried leaf has a consistency halfway between chewing-gum and rubber, stretching and snapping off halfway, leaving an unsightly juicy stump difficult to remove.

In late April and early May the flower buds arise just above the lower layer of leaves and develop into branching stalks, extremely brittle, usually about 20cm long (but can be 10-40cm). They radiate so that the leaf rosette becomes surrounded by a cartwheel of blossom. As the plant ages, new rosettes are produced at ground level, often so prolifically they benefit from thinning. As each rosette has its own halo of flowers, intersecting with those of its neighbours, and as each stalk can support up to twenty blooms, a large well-grown plant can become a magnificent dome of blossom that can last three weeks. The individual flowers are about 2-3cm across, with 8-10 petals which often bear white stripes. The colours are fantastic, no two plants being precisely similar, fire-red, orange, apricot, deep pink, wild rose pink and all shades between. Jack Drake made famous his aptly-named 'Sunset Strain', and Roy Elliott in his fine monograph on the genus reported their colours were eclipsed in the wild. A white strain has been introduced (Fig. 37, p. 189), usually with paler leaves and a whitish crown. Later a pale yellow one, 'Carol Watson', was intro-

duced from the wild, and from a yellow seedling 'Harold Judd', a race of bright yellow ones, coming true from seed, has been fixed by Phillip Baulk, of Ashwood Nurseries, Kingswinford, near Wolverhampton.

The seeds ripen rapidly, in 14-20 days, presumably to shed the shiny black granules before the heat and dryness of the Californian summer. If the plants are dead-headed and given food and drink they continue to produce lesser flushes of flower throughout the summer. In their native haunts they are dry at this time of year, and withstand drought easily, maybe shrivelling a little and plumping up again in the autumn rains. They are completely frost-hardy, though overhead protection against rain is advisable in pots. Seed germinates readily in spring, often in the gravel round the neck of the parent plant, and will grow to flowering size in about twelve months. It is the best method of reproduction, though rosettes of a particular favourite root well in peat and sand, and you can take leaf cuttings which take a bit longer to root.

At Bodnant, in North Wales, the lewisias in the stone walls are famous, great multi-crowned plants, easily emulated. They also grow in peat walls, and indeed anywhere that the water can run off their crowns. In pots they are easy, provided they are protected from summer rain. They suffer a little, like most plants, from greenfly and slug damage, but seem immune from most other ills except one, rot. At any time of year you may see an ominous stain of orange start creeping down the leaves, and two or three days later the whole plant is dead. I know of no cure since the disease is too far advanced before detecting, but swift action at first sighting may save a rosette, or even a leaf of a particularly favourite clone. Seedlings move well, and potting one can produce an enormous multi-nosed plant in an 8-10" pot, but I have never succeeded in repotting a plant, disturbing the rootball as one would for, say, a primula. Inevitably any such attempt results in the loss of the plant from the dreaded rot. Large plants may be fed gently to prevent the need of a too-heavy pot, but it is much easier to take a cutting and start again.

With the exception of *Lewisia tweedyi* (Fig. 26, p.143), which has a different chromosome count, most lewisias cross readily with other species in the genus, and some attractive results can be obtained. Crosses with *L. columbiana*, *longipetala*, *pygmaea* and *rediviva* are known, and all seem to cross back again. Well are they called the 'Cotyledon hybrids'.

Petrophytum hendersonii

Will Ingwersen

Taxonomically, the species in this genus have long hovered uneasily between the genera *Spiraea* and *Petrophytum*, but seem to be finally settled in the latter. They all belong in the Natural Order Rosaceae and the derivation of their generic name comes from the Greek *petros*, a rock, and *phyton*, a plant. This is especially applicable to the plant in question which inhabits the smallest and tightest of nooks and crannies of the Olympic Mountains in North America.

I remember vividly my first sight of this enchanting dwarf on Hurricane Ridge many years ago. I am told there is now a good road up to those heights, but in those days it was a long, long slog on foot, well repaid by the delights to be seen in the black volcanic rocks. The petrophytum grew in company with that other treasure, *Campanula piperi* and other excitements.

The short, woody branches of this enchanting plant form it into a huddle no more than 2-5cm in height (Fig. 39, p.190). Every tiny branch is densely clothed with rather thick and leathery grey-green leaves, while on stems barely surmounting the mound are carried rounded and dense racemes of fluffy, creamy-white flowers.

The plant is perfectly hardy and gives of its best when grown in a rather spartan diet which is sharply drained. If given a rich compost it may not retain its desirable dense and cushion-like habit. It loves to be wedged between rocks if grown on the open rock garden, or set in a gritty scree. It also makes an eminently desirable specimen plant to be grown in a pot or pan in the alpine house. It usually displays its flowers in June and July.

Globularia cordifolia

Margaret and Henry Taylor

"We've used your photo for the front cover, so please write an accompanying note – you know the sort of thing required: 'Certainly, delighted'." But that was a few days ago.

Today, we realise only too well what is required, an erudite note on cultivation, propagation, availability, so that all may succeed. One minor problem – we haven't really succeeded for more than a couple of years.

That flourishing plant was not photographed in our garden. Those rocks are on a corner of the French Alps, a delectable patch of hard limestone pavement packed with all sorts of goodies at an altitude of 2,200m.

Globularia cordifolia (Globulariaceae) has a wide distribution in Europe, from the eastern Pyrenees and Alps to the Apennines.

The dark evergreen leaves are 1cm long, spatulate with a notch either side of the apex. It is really a little dwarf shrub forming a low mat of red-brown woody, spreading stems which creep over the vertical and horizontal surfaces of the limestone, rooting where the stem finds a suitable crack. In early July this sun-loving plant covers itself with pale blue-mauve powderpuffs 1-2cm across. In a colour slide this particular shade tends to absorb the hue of the rock, so a pale blue filter on the camera such as Wratten 82A helps to capture the colour. It is not noticeably scented, but then no plant could compete with the acres of strongly-perfumed *Daphne cneorum* that grows intermingled with it on the photographed site.

Now to cultivation – we've mentioned the plant growing in the wild at an altitude higher than the summit of Ben Nevis, so it should be hardy here at sea level at Invergowrie. Yet on occasion we have lost it after a hard winter. Conventional wisdom might put the blame on our mild, wet autumn producing soft growth easily hit by a sudden frost. More probably a healthily growing plant would be hardy enough and death is due to a starved, badly-grown plant with little resistance being bowled over by a bit of cold. Alternatively a waterlogged plant with the roots rotting off can look green for a time but dwindles and drops off when the temperature rises in spring, and it is all a little too easy to attribute death to frost.

Another aspect of overwintering is that plants gradually build hardiness during autumn and winter, but our periodic mild spells here at Invergowrie can lose this valuable accumulation of hardiness. Then a subsequent small drop in temperature damages a plant which can stand much lower temperatures in the more uniform cold of its home ground.

This saxatile plant, when transferred to a garden situation, flourishes in a deep, well-drained compost with perhaps a pane of glass as a cover to shed excess winter rain. For the last two years we have been trying it in a well-fed raised bed, a trough and in a pot in the alpine house in a leaf mould, grit and Vitax Q4 compost. No limestone? It is difficult to explain away our omission of limestone chips in the compost. All we can say is that in pot culture our plants from limestone regions thrive without and turn a sickly yellow whenever limestone chips are added to the compost. It doesn't seem fair, but that's the way it is. Despite trying chips from two different sources, they were not appreciated by our plants.

Propagation is easy as the plant obligingly roots as it goes and bits can easily be detached.

A few nurserymen list *Globularia cordifolia*, so do the seed exchanges, but we have not tried it from seed ourselves.

If anyone has a long-established plant, perhaps they might pass on details of its culture as this globularia is highly desirable.

Book Reviews

A Synoptic Guide to the Genus *Primula*

by G. K. FENDERSON

Printed by Allen Press Inc., Lawrence, Kansas, 66044, USA.

ISBN 0-935868-24-0. 1986. \$40.00.

The title of the book adequately describes its contents. It is purely and simply a reference book and not something one would recommend for bedtime reading. The first chapter briefly presents a taxonomic history of the genus and this is followed by a short chapter on origins and distribution. The great bulk of the text is concerned with listing in detail the many supraspecific subdivisions based mainly on Wendelbo 1961, which departs somewhat from the more familiar nomenclature of Smith and Fletcher 1941-1949. Approximately 1375 species, synonyms and hybrids are to be found in an alphabetical list of taxa which includes descriptions of habitat, distribution, colour and altitude. It is noteworthy that all species introduced since 1949 are mentioned. The omission of any mention of the many garden and horticultural cultivars may be a disappointment to some, but they do not fall within the intended scope of the book.

A series of 50 black-and-white line drawings is intended to show the great diversity of form found within the genus. There is an extensive bibliography and an appendix in which the Smith and Fletcher and current sections are shown side by side.

Although the book is primarily intended for the botanist and researcher, of particular interest to the alpine gardener are the chapters on cultivation, growing primulas from seed and pests and diseases.

J. N. A.

John Hope 1725-1786, Scottish Botanist

By A. G. MORTON

Published by the Edinburgh Botanic Garden (Sibbald) Trust.

This short account of the life and work of an early and distinguished Scottish botanist will be read with great interest by anyone with a botanical training or with an interest in the history of botany.

Hope's extremely busy life left little time for publication of his own work, and this may be a reason why his place as a founder of scientific botany in Scotland is not more well known. This memoir sets the record straight. Hope not only taught, ran a botanic garden and corresponded with many of the famous botanists of the day; he also carried out experiments in plant physiology and plant breeding. His experiments on plant tropisms pre-dated by nearly a century similar observations, but were never published.

Hope set Scottish botany on a sound course by his early adoption of Linnaeus' new binomial system of nomenclature, long before its importance for botanical progress was generally recognised. He was the founder of the Edinburgh Botanic Garden (though not on its present site) when, as the first Regius Professor of Botany he set up, in 1763, a new garden where plants were arranged in accordance with scientific theory rather than medical use.

He had a deep interest in the native flora and encouraged his students to collect throughout Scotland. It was through his students that Hope's influence continued long after his death, many of them becoming well-known scientists and collectors.

Samples of Hope's correspondence with Linnaeus and others are included in the addendum, and, like the rest of this memoir, make fascinating reading.

H. A. S.

Wild Flowers of the Algarve – Books I and II

by MARY McMURTRIE

Published by Mary McMurtrie, Balbithan House, Kintore, Scotland.

AB5 0UQ (40pp in each volume).

In these two small volumes, Mary McMurtrie illustrates and describes 93 of the common spring Flowers of the Algarve. For the non-botanist wanting to find out the names of plants seen on walks, these little books, small enough to slip into a pocket, will be most useful.

The books are illustrated in Mrs McMurtrie's own inimitable water-colours and are remarkably true to life.

A. M.

English Names of Wild Flowers (Second Edition)

by J. G. DONY, S. L. JURY and F. H. PERRING

Published by the Botanical Society of the British Isles. (116pp).

This is a revision of the book first published in 1974. Although the Latin binomial system of naming plants has led to stability, albeit names of some species are changed from time to time, English names have varied widely throughout the world and have led to confusion. Some of this confusion can be important as when plants are referred to in English by non-botanical conservationists or by people applying herbicides.

To some extent the authors of this book have over-simplified things by allowing only one name for a plant where it may have many in common use. People in Scotland, for example, are unlikely to talk about bilberry, ragwort and meadow saffron when they have always known them as blaeberry, tansy and autumn crocus. However, it must always be useful to have a definitive list of English-Latin equivalents which can be referred to when in doubt, and this book certainly does that. It has Latin-English and English-Latin sections depending on which way you want to translate.

It has been particularly successful in bringing a systematic approach to the use of English names. For example, when the word 'grass' is used for a member of the Gramineae it is always hyphenated so that when you come across the name 'knot grass' (*Polygonum aviculare*), you know it is not a true grass.

In conclusion, the authors simply hope that some priority is given to the names recommended by authors (and presumably gardeners) generally. They admit that not every wild plant name in the list was acceptable to each author, but that they gave way where other opinions seemed sounder than their own. They hope the book will be used in that spirit.

This book can be recommended to people who are not botanists but who like to know the common names of plants.

A. M.

The European Garden Flora Volume I. The Ferns, Gymnosperms and Angiosperms (Monocotyledons Part I)

Cambridge University Press, 430pp, £55.00, 1986.

If this title sounds familiar, it may be because Volume II of this six-volume work was reviewed in *The Rock Garden* Vol. XIX Part 2. Now Volume I is to hand, which deals with ferns, conifers and 16 families of monocotyledons from Alismataceae to Iridaceae. There are a few genera of great interest to growers of hardy plants, but the bulk of the book is rather outside the 'rock garden' sphere.

Plants are included in this work if they are 'likely to be found in general collections in Europe whether they are grown out of doors or under glass'. There are many contributors in order to achieve adequate coverage of this very wide field. To avoid a variety of treatments, a strict discipline has been imposed. Plant descriptions are brief and standardised, enabling the reader to compare most species over the restricted range of characters used. The volume is very well supplied with aids to identification, there being dichotomous keys

throughout. Often one can only muster 'perhaps' when a dichotomous key demands a yes/no answer, so characters are used to bring together those species within a genus having a common diagnostic feature.

However, because of normal variation within species or at times just lack of knowledge, descriptions may be misleading. For example, each plant is given a hardiness rating ranging from G2 (plants which require heated glass), H5 (hardy in favourable areas down to -5°C) to H1 (hardy below -20°C). I sit looking at a *Schizostylis coccinea* in full flower (end of November). The flowers have already survived a recent -6°C and plants have survived many normal winters when days below -10°C have been common. *Schizostylis* is classed as H4, hardy in milder areas with a -10°C minimum. In a work of this size, information has to be abbreviated and some inaccuracies inevitably follow. This is particularly so when an attempt is made to codify a complex subject such as hardiness.

However, if you are interested in a wide range of plants and especially if you are keen to name them; if you want to compare closely-related species across a wide range of families and genera, then the European Garden Flora would be a most valuable aid.

W. D. H.

Lupinus lepidus var lobbii

It was not possible to include a colour plate of this plant to accompany the Plant Portrait by Richard Sullivan on page 58 of the June 1986 issue. It is, however, reproduced in this issue (Fig. 32, p.162). In addition to the excellent account of this plant, which is spoken of with reverence and awe by all who have tried to grow it, Richard Sullivan reminds the Editor that the alternative name of this plant, *L. lyallii*, commemorates David Lyall (1817-1895) who was a Scot who did a lot of botanising in North America.

Seed Exchange

Members should note that seed for the **1987-88** Exchange should be sent to Mrs J. Wyllie, 1 Wallace Road, Dunblane, Perthshire FK15 9HY, who has taken over from Miss J. Halley.

Obituary

Martin Bremner

By the sudden death of Martin Bremner the Club has suffered a sad loss, particularly the West of Scotland Groups.

A physiotherapist, he served in the Royal Navy during the 1939-45 War and later lectured on that subject at Glasgow Royal Infirmary.

He served on the Council from 1977-79 and again from 1982-84, but it was as Convener of Plant Sales in the West that he was best known. His informal cheerful appeals guaranteed the financial success of our shows and group meetings.

He was for many years Deputy Group Convener for Renfrewshire and, for a short time, Curator of the Davidson Slide Library. He was also the founder and President of Langbank Horticultural Society.

Together with his wife, Aileen, he created from scratch on a steep north-facing slope a very fine garden containing choice peat-loving plants and dwarf conifers.

He will be greatly missed.

A. C. S

Loudon Morton

The sudden death in May 1986 of Loudon Morton was a very sad loss to his many friends in the Scottish Rock Garden Club.

He had in the past been Convener of the Glasgow Group and Chairman of the West of Scotland Groups for a number of years, and he also served on Council. He was a loyal supporter of our Shows and other Club activities.

Loudon was a very successful grower of bulbs from seed, and many a time could be found in his alpine house greeting the latest blooms to appear with an endearing mixture of surprise and delight. He shared his plants with great generosity. His well-established garden, forty years in the making and still being perfected season by season, was a delight to visit. It was packed with treasures, especially a magnificent collection of dwarf rhododendrons and other ericaceous plants.

In his quiet, courteous and ever-cheerful way he was a great encouragement to beginners and younger members of the Club, and, at his suggestion, considerable sections in both the Spring and Autumn Shows of the Bearsden Horticultural Society are devoted to rock garden plants.

His other great interest was in philately. A founder member and past President of the Bearsden and District Philatelic Society, he was a worldwide authority on postal history.

The sympathy of all his friends in the Club is extended to his wife, Edna, and to his family.

L. B.

Charles Simpson

Charles M. Simpson of Bearsden died on 9 July 1986. He joined the Club in the 1930s and was a long-standing member of the West of Scotland Group Committee. He served on the Council and was Glasgow Show Secretary from 1978 to 1984.

Although his primary interest was in the family Ericaceae, he was a well-known grower of a very wide range of plants. He was able to propagate these with apparent ease, thus generously supporting the local group's sales table throughout the years. The Seed Exchange also benefited from his expertise. Another group of plants on which he was an undisputed expert was the family Orchidaceae. He grew many kinds of orchid, experimenting with propagation techniques and growing mediums.

A gentle, kindly man who was always willing to pass on his knowledge, Charlie will be greatly missed by all his many friends. Our sincere sympathy goes to his widow and family.

J. T.

Peter Kilpatrick

Although I first met Peter some 60 years ago, because our mothers were great friends, it was not until I joined the SRGC that I got to know him. He was an easy man to get on with, or so I found. Peter, whose family business was Constable the publishers, accepted its editorship from John Mowat and, with his experience, threw himself with enthusiasm into the job.

There was a happy working relationship in the Club between Chris Boyd-Harvey, the Secretary, while she was still alive, John Hall as Treasurer and Peter as Editor, with myself playing a smaller role in the Club as Subscription Secretary.

Peter had naturally an accurate mind and also a great sense of humour and imagination. He proved to be one of the best editors the Club has had. Everything went like clockwork, the journals came out on time, which was a great help. In spite of the low financial resources of the Club, he insisted that there should be colour reproductions in the journals, but not white flowers!

Peter had a great knowledge of plants, trees and, of course, rock gardens, and he was a good lecturer on these subjects.

Mrs Kilpatrick was also an active member of the Club, but unfortunately she died prematurely and was sadly missed. However, in due course of time he married again a charming lady and went to live in Wiltshire. I

visited them there and found that they were both very happy.

The club owes a lot to Peter for carrying out the onerous job of editor so well, and he will be missed by all those who knew him.

R. H. D. O.

Mamie Holgate

It was with sadness that friends in the Glasgow area of the Club heard of the death of Mrs Mamie Holgate of Bearsden after a long illness.

For many years Mrs Holgate played an active part in the affairs of the Club in the Glasgow area, representing them on Council, and she was for a time Joint Show Secretary of the Glasgow Show when it was held in the McLellan Galleries.

Their shared geological interest took Mamie and her husband all over Scotland and the Lake District and resulted in her extensive knowledge and fondness for our native plants.

Mrs Holgate played a very active part in her local Church and was a leading figure in the Woman's Guild of the Church of Scotland, serving as President of the Guild Presbyterial Council for Dumbarton Presbytery.

Our sincere sympathy goes out to her husband at this time.

M. T.



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Twice-yearly competition 1986 - Drawings, paintings & photographs

Prize-winners at Stirling 29 March (subject: Ranunculaceae) were:

Black-and-white photographs

1st Prize – Miss Muriel Hodgson – *Pulsatilla apiifolia sulphurea*.

Colour photographs

1st Prize – Mrs Lynn Almond – *Ranunculus parnassifolius*; Highly Commended – Dr M. Almond – *Ranunculus parnassifolius*.

Black-and-white drawings

1st Prize – Dr L. J. Bacon – *Ranunculus amplexicaulis*.

Colour drawings

1st Prize – Mrs Gillison Todd – *Ranunculus gouanii*; Highly Commended – Mrs Gillison Todd – *Pulsatilla halleri*.

Prize-winners at Edinburgh 18 October (subject: Campanulaceae) were:

Black-and-white photographs

1st – Dr M. J. B. Almond – *Campanula troegerae*.

Colour photographs

1st – Margaret and Henry Taylor – *Campanula alpina*; Highly Commended – Dr V. M. Davies – *Campanula cochlearifolia*; Mrs R. Fiddes – *Codonopsis vinciflora*.

Black-and-white drawings

1st – Mrs H. Salzen – *Campanula poscharskyana*.

Colour drawings

1st – Mrs H. Salzen – *Codonopsis convolvulacea*; Highly commended – Mrs H. Salzen – *Campanula cochlearifolia*.

This competition aims to encourage members to display their artistic skills and to provide material for the Editor to use in the Journal.

The competition subjects in 1987 are: The genus *Gentiana* on 28 March in Stirling; the genus *Geranium* (plants suitable for the rock garden only) at the AGM in October.

You are invited to write for more details to:

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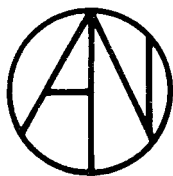
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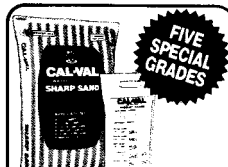
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