THE ROCK GARDEN

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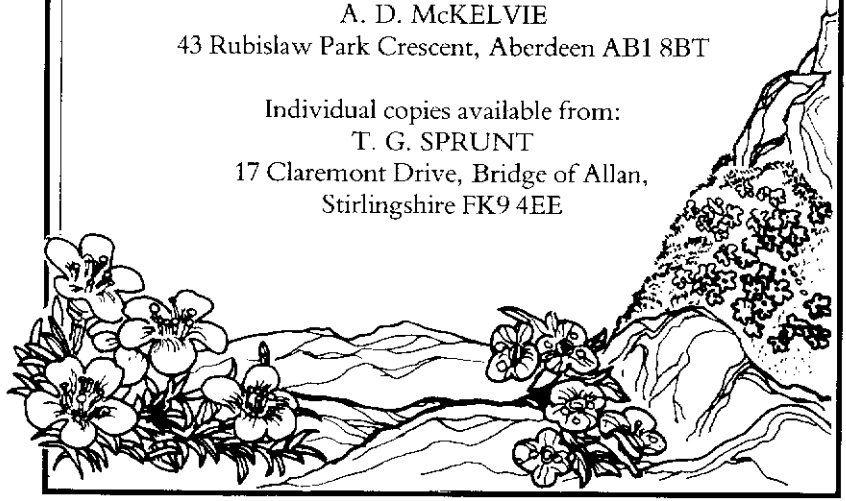

Front cover:
Clematis x cartmanii 'Joe'
Photograph by M. &. H. Taylor

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Editorial

IT'S 1986 and the year of the Interim International Conference in America, which is sufficient to start people thinking of 1991 and the next full International Conference. Already there are faint stirrings in the wind.

One of the things to decide early on is what we are going to call this conference. Alpines '81 was a stroke of genius which did much to endear the Conference to people.

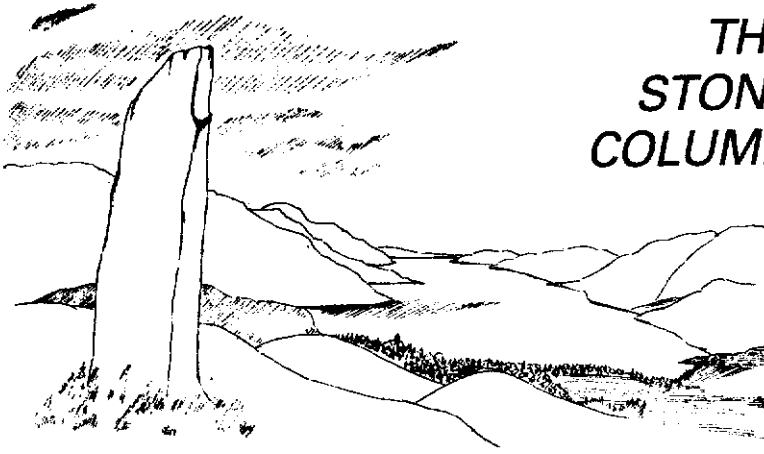
This set me thinking about names and how we tend to accept them without thinking all that much about them. Take the name of the Club – the Scottish Rock Garden Club. It is a fair bet that very few members will have a rock garden as such, built as a reconstruction of a natural outcrop. I have been looking recently at Symons-Jeune's "Natural Rock Gardening", that bible of how to build a rock garden. First published in 1932 it was more like a geological treatise than a gardening book. The aim of the book was to achieve a "natural" rock garden and such might have been possible if you had had many tons of rock which was matching and weathered.

The early volumes of our Journal still make a little reference to this type of rock gardening, but over the years the emphasis has swung away completely from rocks to plants. Perhaps we should now be called the S.R.G.P.C. – the Scottish Rock Garden Plant Club. It would actually be most interesting, and instructive for new members, if someone would write me some articles on rock garden construction in the 1980s.

However, this issue of "The Rock Garden" illustrates these points very well. The emphasis is on plants and on plant collecting or plant exploration. From foreign parts we read of Pakistan, the Peloponnese and Cape St Vincent. I suspect that most members read these articles quite quickly and put them aside to be consulted later. A second type of article is the Plant Portrait or a longer article on a series of plants, such as Ranunculus in this issue. These hopefully are read to stimulate interest and encourage people to try to grow them. The articles perhaps of most interest are those such as The Stone Column, which instruct members on how to grow plants. Articles in this issue by Hilary Hill, Jim Cobb and David Mowle, are in this vein with much useful information.

Once again we have tried for a mix of articles. If we have not succeeded to your taste, there's always a remedy – write something yourself.

ALASTAIR McKELVIE



THE STONE COLUMN

It has become our practice to start the Column with a general section on the life and progress of the garden at Askival. We hope to make this a regular practice.

Recently we drove down to Stirling Show, the only one within my holiday period. A friend remarked that, although they didn't see us very often, they felt they kept in touch through the Stone Column. However, he added that one did get the impression our life was made up entirely of triumphs and disasters. This is, of course, in the nature of all reporting; it is very difficult to make descriptions of mundane chores into interesting reading.

A hard winter and a very late spring do not a disaster make; it's just par for the course up here. We make no apology for returning to a theme covered in some detail in our last column; there are many compelling reasons standing brown and seared around the garden. Gardeners as a group do perhaps tend on occasion to emphasise their difficulties. To exaggerate the opposition renders one's own deeds the more apparently heroic. Our two real problems are a poor, shallow, stony soil, and a relatively hard climate; although the latter is not as severe as, for example, part of the Spey Valley and upper Deeside. Recently a friend, writing from England, remarked that he had heard that Scotland had had a quite reasonable winter. If one were to ask the locals in Fort Augustus, they would probably agree. By "reasonable" they would mean lack of precipitation, particularly snow. Such snow as fell, never more than a couple of inches, rapidly sublimed away in the sun and wind. On many days it was quite pleasant to be out, particularly if shelter could be found from the east wind. Our plants, especially evergreens, obviously took a different view of these dehydrating conditions. Compared with the previous winter, which we reported in our last Column, the overnight temperatures did

not plunge to the same extremes, but frost continued for far longer. The bare ground froze to a depth of over 25cm (10 inches). Even when the weather eventually relented, it took over two weeks for the ground to thaw out. We feel sure it is the temperature-time integral which does the damage. Evergreens can stand stress from water loss for just so long, then, if the limit is exceeded, damage occurs. Although it might appear crazy to one's neighbours, it would be possible to limit the damage in a small garden of evergreens by turning on a fine sprinkler. The coating of ice resulting on the plants would look horrifying, but it would protect the growths underneath. In the more northern vineyards, such as Chablis, the growers use fine sprinklers to protect their vines from late spring frost. The resulting ice forming on the sensitive flowers prevents damage much better than the older technique of smoke pots.

In our experience, protection from the wind seems to be the key. For example, a large patch of *Pernettya leucocarpa* grows on one of our terraced beds. The part on the level is completely brown; the suckers appearing through the vertical stone-retaining wall, facing west, are fine. As we suggested lack of ripening in the sunless 1985 summer could have been a contributing factor, as could the relatively mild October, giving the plants no warning of what was to follow. The reactions of plants to changing environmental factors are so complex it is really impossible to do more than guess. Possibly plants are dying now as a delayed consequence of stress and/or damage caused by the drought and heat of summer 1984.

It would be tedious indeed to enumerate the various losses. We should like, however, to mention one or two. We have grown accustomed to yearly damage on many evergreen vacciniums, pernettyas and gaultherias, but had previously thought the needle leaves of phyllodoce much more resistant. A large plant of *Phyllodoce* x *intermedia* has turned completely brown, virtually every leaf. The shoots are alive and young growth is now appearing. Not far away, a plant of *P. aleutica* is completely dead. We should be interested to hear reports on this supposedly totally hardy genus, as their inrolled ericoid leaves are said to be adapted to resist water loss in a harsh environment. We were also very surprised to see extensive damage on the similar foliage of *Empetrum nigrum*. Our plants were originally collected on a hill about 600m above the village, but on reflection one should not expect native plants to be immune to winter damage. After all, we have seen a whole hillside of dead gorse bushes after a hard winter.

Perhaps it would be of greater general interest if we recommended a few "toughies" which have passed both the last two winters unscathed. The Family Cistaceae is not normally one for cold northern gardens, even helianthemums are frequently cut to ground here. *Cistus laurifolius* is an exception; a group of three seedlings, combined to form a mound over

one metre in diameter, have resisted the full blast of the N.E. wind. They flower freely and even seed around mildly. A friend tells us that this species grows on the hills around Teruel, in one of the coldest parts of Spain. Here was fought, in most appalling weather, during the 1937–38 winter, one of the bloodiest battles of the Civil War.

Over the years, we have tried a number of olearia species and hybrids, but now only one remains: *O. frostii*. This was planted out against a low west wall in 1983, more in hope than expectation, since "Bean" states, "of untested hardiness, likely to be very tender outside the mildest parts." It lost one branch last winter, no damage this, and regularly produces its beautiful lilac-rayed flowers for a long period in summer, i.e. after the majority of small shrubs. We have also planted quite a number of the medium-sized Hebes with varying success. The well-known *H.* 'Carl Teschner' will not live here; *H. pinguifolia* 'Pagei' and the pimeloides cultivars are frequently damaged, as are, surprisingly, the high altitude *HH. epacridea* and *haastii*. When planting for evergreen foliage effect, one does not want damaged leaves; we can recommend from the experience of the last two seasons the three "whip-cord" species, *HH. propinqua, hectori* and *ochracea* in varying shades of "gold", and the larger-leaved *H. albicans* with pale grey-green foliage. We have included H. 'Broughton dome' – ours is undamaged although exposed, but recent visitors told us they had lost three out of four plants in Ayrshire.

A trough can be a very severe environment for a wintergreen plant, especially if it freezes solid as ours often do. In the open ground many plants have access to water below the freezing level. Three tiny hebes have proved themselves here: *HH. cheesemanii, ramosissima* and *tumida*, but not the better-known *H. buchananii* 'Minor'. Very few dwarf conifers are really slow-growing enough to mix with alpines in troughs; the very small forms of *Chamaecyparis obtusa* are not hardy enough here. They are not usually killed outright, but are far too the worse for wear to be at all attractive. On the credit side, we have five suitable cultivars of *Tsuga canadensis*, not one of which has so much as a damaged leaf after the last two punishing winters. For the record they are: 'Coles Prostrate', 'Curley', 'Golden Splendour', 'Hussii' and 'Jervis' (also known as 'Nearing').

Apart from a few seedlings, we grow all our bulbs in the open ground, including quite a number usually given alpine house or frame treatment. After last year's excessively wet summer we anticipated this spring with some trepidation. How many would still be with us, and would flowering be impaired by lack of ripening? We had a rather longer wait than usual, the earliest snowdrops, crocuses and reticulate iris not opening until the second half of March. Although initial flowering was delayed, the season was not really telescoped, as the abnormally cool April extended the

flowering period of many species. A patch of *Narcissus cyclamineus* under a pine tree remained in good condition for over five weeks. We were particularly concerned about our 'Frits', but flowering has been virtually normal.

FF. bithynica and *caucasica* have been better than ever. The latter was over 30cm high, its twin maroon bells overlaid with a glaucous "grapey" bloom. In the same bed, we had a corydalis in each of the primary colours fully out at the same time: *C. ambigua* (blue), *C. bracteata* (yellow), and *C. transylvanica* (red). For few genera can this be said. Linum springs to mind, hence the search for such things as "blue roses".

Tulips are not one of our real success stories; the majority do need more warmth than our shrub rose borders provide to ripen their bulbs and initiate flower bud formation. Only four of the usual "bulb-merchant" species have established regularly flowering colonies: *TT. biflora, kaufmanniana, orphanidea* and *tarda*. Recently we were given a couple of bulbs of *T. sylvestris* ssp. *australis* which had been collected very high up in the Cevennes. This mountainous part of the region is much colder and wetter than one might imagine for the S. of France; its rainfall is at least as great as that of Fort Augustus, according to my atlas. The first year we had one flower, the second five, and this year seven, out of a scattered group now comprising eight bulbs. Not bad for a "shy-flowering species"; this form obviously likes us!

Thinking about plants with a reputation for reluctance to flower well in cultivation led the train of thought on to the subject of European primulas. The auricula section has been quite magnificent this year, another compensation for the hard winter perhaps, and rather refuting the idea that they need ripening in order to flower well. We have never seen so much blossom on such as *PP. minima* and *spectabilis*. Even the tiny pure Rumanian form of *P. minima* "did its thing", and as for some of the hybrids with *P. glutinosa*, their pools of intense colour shone out across the garden against the grey of their troughs. With the compression of the season it would have been an excellent opportunity to try exotic crosses like *P. carniolica* x *glutinosa* or *integrifolia* x *kitaibeliana*, if we but had the time!

So what have we been doing this winter and spring? Much of our ground is sloping and, as we said, only covered by a thin layer of poor stony soil. A friend recently had to remove two feet of good soil from the site of a house extension, and replace it with 30 tonnes of infill. How we wish we had that problem! What we have had to do is build terraces and raised beds on top of the native soil. The necessary retaining walls are built of boulder stones mostly taken from ruined and redundant dry-stone dykes. When re-using these stones we try to keep the same faces exposed as the many beautiful lichens provide instant aging. There are usually

several collections of stones in various parts of the garden, generally related to some future project. A Californian visitor photographed one such pile, and tells us he shows a slide of the "stones of the Stones". These piles accumulate during frosty periods in winter, when frozen ground prevents most other gardening activities. This also minimises disturbance caused by driving a heavily-laden Land-Rover, containing three-quarters of a tonne of rocks, down the edge of a field. This February provided opportunities for twelve trips, the resulting nine tonnes of rocks had to be barrowed up to the "upper garden" ready to start the next set of terraces. Incidentally, it is advisable to ask permission before removing stones from any dyke, no matter how ruined; the landowner may want them for hardcore or something similar, and one is technically committing theft not to do so. The only other activity possible was rose-pruning. The "books" recommend that one should not prune during frosts, but we never have time during open weather. Our shrub roses have never shown any distress from this cause; they die back more if we do not prune them.

When the thaw eventually came, Poll started on the "autumn" clearing up of herbaceous growth and fallen leaves. She had been threatening to go out with a screwdriver and lever up the leaves one at a time! I transplanted eighteen seedling trees, mostly various sorbus species, into the upper garden, and many shrubs including a couple of dozen rhododendrons. Some had been in the nursery bed for too long, their root balls had mingled and had to be teased apart as gently as possible. Much of this moving should have been done last year but was delayed by the uncertainties of last spring. We would dearly love to "shuffle" many of our conifers rearwards towards the new territory as suggested by Margaret and Henry Taylor in the last "Rock Garden". These are only dwarf when compared with their normal forest relatives, and are happily swamping neighbours in several of our older beds. But there are only so many hours in the day. The proposed new conifer bed has not been prepared, the weeds are starting to grow, some of the older troughs badly need de-mossing, and the Editor wanted his typescript last week . . .

New to cultivation? Lloydia flavonutans

When describing the bulbous plants seen in Sikkim by the 1983 A.G.S. sponsored expedition, Brian Mathew mentions "The lovely *Lloydia flavonutans*, which has not yet *to my knowledge* been successfully cultivated". It is always wise to add some such proviso, no one can be aware of all the plants grown in all the gardens within their own small area of the country, never mind a relatively remote one, such as ours. The best way to disseminate information on the introduction and/or cultivation of any plant is to commit it to print, hence this brief note.

We obtained a number of packets of Nepalese seed in January 1982 from Ron McBeath of R.B.G., Edinburgh. Amongst these was one, McB. 1274, simply labelled "Bulb, Kongmala 13,000ft." Knowing the provenance, we treated it as a nomocharis, sowing the seed on an open leafy compost in our normal 3" square pot. When they germinated in April, the fine grassy leaves were unlike those of any Himalayan bulb we had previously seen. Nevertheless, we decided to follow standard procedure and simply give a dilute liquid feed or two for the first year. Poll pricked them out in May '83 into rows in a 7" square pot using a peat-based compost with a little extra leafmould for luck. At this stage the white bottle-shaped bulbs were tiny, only about 0.5cm long, just like fritillaria "rice-grains". The very narrow leaves were in proportion, little upright tufts to about 5cm . With such a small plant, we left them undisturbed to grow on for three seasons. We had suspected that they were a lloydia and this was confirmed in June 1985 when a few produced pendant deep-yellow bells about 1.5cm long, on 7.5cm stems. Brian likens them to *Fritillaria pudica*, but our lloydia is a rather more slender and delicate looking plant. As with many "Frits" it is worthwhile gently upending the bell to observe the markings within. In this case the segments have dark-red basal stains.

When Poll eventually emptied out the pot in early April 1986, she was surprised to discover that the bulbs had multiplied by four or five times. Some notholirions, also from the Himalayas, will show this multiplication of young, non-flowering size, seedling bulbs. In their case, the brown bulblets are difficult to spot in the compost, and as a result we have plants in odd spots where the seed-compost was used as top-dressing.

A few bulbs of the lloydii were planted out in a trough, filled with humous-rich compost, and containing mostly tiny Ericaceae. It will be interesting to see if they will establish and multiply as freely as they did in the cold frame.

"But you should see the white one" – Glaucidium palmatum album

Several years ago a tale of one-upmanship appeared in the A.R.G.S Bulletin. The writer had raised some rarity from a seed exchange and, as one does, had shown it off proudly to a garden visitor. The latter duly admired the plant, and then added casually that she preferred the white form she was growing to the "type". Amongst alpine collectors for whom the word rare automatically equals desirable, describing a plant as the "type" of a species downgrades it immediately. They would, for example, seek out one of the white forms of *Primula hirsuta*; and here we must plead guilty ourselves; the white does add a quite different tone amongst the many pinks to purples of the European primulas. If a species is normally white, like *Pieris japonica*, then they will plant one of the pink forms such as *"Daisen"*.

Glaucidium palmatum is one of a number of choice plants bearing the almost unmistakable stamp of a Japanese woodlander. In good conditions it can grow to one metre, with quite distinctive jagged foliage. The normal colour of the nodding four-petalled flower is a cool lavender. Like many other things, we first encountered a pure white form during a visit to Ascreavie in Angus, some time before Betty Sherriff's death. When seed was offered in the 1979 S.R.G.C. Exchange we decided the chance too good to miss. Sown in January, seven seeds germinated in May and were pricked out quite quickly. For a herbaceous plant of such potential size, growth was quite slow, and they were eventually planted out two years later. The next year (1982) they flowered for the first time, and no less than six were white! We kept four of these, a planting of three, and a single elsewhere as an insurance. The others were passed to friends.

Glaucidium has a hard, almost woody rhizome which does not readily lend itself to division. If our experience is typical, then there is quite a good chance of obtaining a white-flowered plant from seed. Like some ranunculus, the petals are an outstanding pure white, but really, if one is honest, no more beautiful than the type, just different.

Another kite to fly: Saxifraga x *luteo-purpurea*

Visits to the garden by growers specialising in a particular group of plants can lead to much interesting discussion, and on occasion quite a lot of label-changing. We have never been passive namers, always liking to check our nomenclature whenever possible. During such a visit from a friend interested in Kabschia saxifrages, the conversation turned to the history of *Saxifraga* x *luteo-purpurea*. This hybrid is the primary cross between the yellow *S. aretioides* and the red "Engleria", *S. media*; both native of the Pyrenees. It is an important ancestor of many of our present cultivars; for example the late R. V. Pritchard used a notomorph close to *S. media* to produce *S.* x *anglica* with *S. lilacina*. This grex includes such well-known clones as 'Cranbourne', 'Beatrix Stanley', 'Grace Farwell' and 'Winifred'.

Tradition has it that early this century Sundermann offered a number of forms purporting to have been collected in the neighbourhood of St Béat in the Central Pyrenees. It is also said to have been found once near Ariège, and in the Haute Garonne. As far as our friend knew, only one of these clones, 'Aurantiaca' remains in cultivation. Further, the hybrid has apparently not been found wild in recent years. Does it still exist? Perhaps members can shed some light. There has even been a query as to whether it ever did. Farrer hedged his bets in the "The English Rock Garden". On the one hand he implies that, as the two species "share the upper woods and lower rocks", the cross is common in the wild. On the other hand he

expresses doubts as to the origin of certain "collected" clones, because the species cross so readily in cultivation.

A wheelbarrow sieve

There is no doubt that a few sieves of various mesh size, say 0.5-2cm, can be of great help in the preparation of potting composts, top-dressings, etc. In the garden, as opposed to the potting shed, perhaps our most generally useful sieve is one we have made to fit neatly on top of our two (His and Hers) "contractor's" wheelbarrows. The rectangular wooden frame, about 10cm was originally a baker's tray which we picked up one day when beach-combing. The sea had unglued the thin plywood base which we discarded, leaving a bottomless "box" roughly the same size as the body of our barrows. Anything similar, made of say four narrow planks would, of course, serve the purpose equally well. The base we replaced by stapling on a rectangular piece of rigid expanded metal mesh with an approximately 2cm diamond pattern. This is quite cheap, being sold mainly for security grilles on windows, etc. We feel that the sort of flexible netting used for fencing would not really be suitable. A strong rigid mesh is to be preferred when rubbing materials through the sieve.

Our barrow sieve has two main uses in the garden. When emptying our "mature" leafmould pit or compost heap, we always rub the material through the sieve into the barrow. The slight extra time spent actually doing this, as opposed to simply loading the barrow, is more than recouped later. If the material is to be used as top-dressing, the sieving breaks down the lumps to an even consistency, and makes it much simpler and quicker to spread evenly. It also gives a neater finish to the bed or border. If forking the material into the soil, having it broken up already makes the job very much easier. No more battering and shaking sticky lumps of ex-lawn-mowings with a fork.

When we are moving our precious soil from one part of the garden to another, say from the site of a proposed cold frame, we make use of our barrow sieve to remove the worst of the larger stones, roots, etc. As you put it through, the soil can easily be picked over to remove weeds and other undesirables. Since the sieve actually rests on the barrow, it is rather kinder on one's back than riddling by shaking the normal round sieve over the barrow.

The Swedish Botanical Expedition to Pakistan 1983 – Part II

HENRIK ZETTERLUND Botanical Garden, Gothenburg, Sweden

FROM Gilgit we continued, via Chilas, to Babusar village at 3,000m. Between Chilas and Babusar the vegetation changed drastically. Suddenly there was green grass, native trees were growing by the roadside and, consequently, wood was an important element in the buildings. We were now in the western-most outskirts of the Himalayan ranges, and nature started to be friendlier to us. The road we travelled stretches from Chilas over the Babusar pass through the Kaghan valley down to Balakot. Formerly it was the only connection between the capital and the northern territories and, although only open a few months annually, very important. Its importance has decreased since the completion of the Karakoram highway, and it is now not maintained further than to the more important villages.

In the village we were greeted by two local forest officers who gave us shelter and nourished us for two days. They also accompanied us in the field and were very helpful.

The village was surrounded by an open forest of *Cedrus deodara*, *Corydalis vaginans* (SEP 185) was growing on the stone walls, and in a dry ravine west of the village a neat arenaria (SEP 183), (*A. griffithii*?) was clinging to the rocks together with the very dwarf edition of *Androsace rotundiflora*, the variety *glandulosa* (SEP 182). This variety bears little resemblance to the ordinary species; it also inhabits higher altitudes and ought to be a much hardier plant. Flowers have not yet been seen, so we do not know if it will be of any horticultural value.

The road to the pass was rough but still Jeep-able. The cedars were replaced by *Picea smithiana* and *Pinus wallichiana* as our Jeep climbed higher. In turn the open forest was replaced by colourful *Bergenia stracheyi* and *Polygonum affine* meadows, and at 3,500m on dry hillocks we saw the huge silvery cushions of *Androsace muscoidea* f. *muscoidea* (SEP 132). These plants still had a few large, white flowers and looked far better than the high-altitude forms that were laxer and mat-forming rather than cushion-forming. *Minuartia lineata* f. *kashmirica* (SEP 133) provided a nice contrast with its bright, green foliage.

The Babusar pass is at an altitude of 4150m, and here we parked the Jeeps on the tight buns of *Androsace mucronifolia* (SEP 134), a very common plant in these areas at altitudes around 4,000m. This plant, which is so disappointing in our gardens, is a divine glory in its native haunts. Here it

formed the densest cushions, hidden by white to dark-pink flowers. This particular form was once given the epithet var *uniflora*, and the Babusar form was much denser than any of the other collections we made at similar altitudes. I sincerely hope that this collection will behave better as a captive than the clones that I have seen so far, which to all but the most skilful growers are straggly plants with dull lilac flowers.

It grows in gritty soil by late snow-patches and is accompanied by another gem, which is just as disappointing in cultivation, namely *Saxifraga jacquemontiana* (SEP 142). I believe that the forms of this from Pakistan are better than those that have been introduced from Kashmir. The flowers are not as pale and starry, but substantial and deep yellow. A striking feature of this plant is that, once fertilised, the persistent petals reflex over the reddish-brown carpels and so expose their red-coloured extension. Other plants to be found in similar situations were *Primula macrophylla* (SEP 165), *P. elliptica* (SEP 173), *Rhodiola quadrifida* (SEP 171), *Veronica alpina* subsp. *pumila* (SEP 140), *Saxifraga sibirica*, the brilliant crucifer *Chorispora macropoda* (SEP 162) and *Trachydium roylei* (SEP 151), a curious, dwarf umbellifer with a compound umbel pressed against the ground.

On the north-facing slopes we found our old friend *Delphinium brunonianum* in company with the charming, shy *Swertia petiolata* (SEP 149).

Where the turf was shorter and the soil a little drier, we met with two European friends. The first, which was abundant, was *Eritrichium nanum*, here represented by the subspecies *villosum* (SEP 138). It is not nearly as outstanding as its European brother, nor is it any easier to cultivate. The second friend, *Saxifraga androsacea* (SEP 168), was a much rarer plant.

From the pass we went towards a ridge that rose east of the road. *Potentilla argyrophylla* (SEP 159) dominated the dry meadows; *Gentiana tianshanica* was fairly common and still in flower. This is quite a coarse gentian, but still very beautiful with large, dark-blue flowers, so the picture in "Flowers of Nepal" does not do it justice. Dwarfer and prettier was its relative *Lomatogonium spathulatum* which opened its stars for us as the sun started to shine. Other prominent plants of the meadows were *Papaver nudicaule* (SEP 135), *Silene gonosperma* ssp *himalayensis* (SEP) 139), *Saussurea schultzii* (SEP 152), *Aster flaccidus* (SEP 157), *Phlomis bracteata* (SEP 166), *Viola kunawurensis* (SEP 175) and *Aconitum rotundifolium* represented here by its white form.

The higher, rocky slopes hosted two interesting dwarf shrubs, *Potentilla phyllocalyx* (SEP 167) (syn. *P. fruticosa* var *pumila*) and *Lonicera semenowii* (SEP 174). Here we also found the first few plants of one of the most interesting plants that we were to collect, *Biebersteinia odora* (SEP 143). This

is an oddity and a great beauty with bronzy, finely-cut, fern-like foliage and yellow flowers in a dense, spike-like cluster. The leaves are glutinous and strongly aromatic. Hopefully, this may prove to be a useful plant for the rock garden.

On the grassy edge of the ridge there was an interesting little rocky outcrop. As we came close to it, we could see the bluish, finely-cut leaves of *Paraquilegia grandiflora* (SEP 144) filling every crack of the lower rocks. We had expected to find this plant and would have been utterly disappointed if we hadn't, nevertheless it was with much joy and a large portion of humbleness that we bent our knees before this divine plant.

It had finished flowering and was desperately trying to hide the ripening follicles in its glaucous foliage by bending the scapes; despite this we managed to collect a good amount of seed.

Paraquilegia grandiflora is a decided cliff-dweller which inhabits only the tightest crannies, which, judging from the exposures and the accompanying plants, must be cool and moist throughout the season.

SEP 144 had glabrous seeds and should therefore be called *P. microphylla* if we were to follow Drummond and Hutchinson who established the genus in 1920. However, in 1925, a German botanist, E. Ulbrich, pointed out that, apart from the seed characters, there is nothing else that could be said to separate *P. grandiflora* from *P. microphylla* and that they should be regarded as one species, *P. anemonoides*, which due to the rules of priority should be the valid name. However, in the "Flora of the USSR (1924)" *Paraquilegia anemonoides* was used for another plant and had therefore lost its validity. The plant should now be called *P. grandiflora*.

The collections that were made by us and the Kashmir Botanical Expedition (K.B.E.) confirm Ulbrich's thoughts as three of them, SEP 302, K.B.E. 241 and an unnumbered K.B.E. collection (that was said to have been collected from one plant) contained both papillose and glabrous seeds. SEP 144 and 401 had glabrous seeds, and SEP 237 and 485 had papillose. No obvious pattern could be traced in the geographical distribution of these different forms, so, despite what the "Enumeration of the Flowering Plants of Nepal" and "Flowers of the Himalayas" are saying, *Paraquilegia grandiflora* is probably the most accurate name for the Himalayan species.

Further up the ridge, some impressive cliff-walls, and what looked like an ungrazed meadow, caught our eyes. On our way up we found *Saxifraga hirculus* var *hirculoides* (SEP 153) growing in surprisingly dryish situations. In south-exposed dry screes, *Biebersteinia odora* was common, and beside it the curious, prostrate, white-felted *Saussurea gnaphalodes* (SEP 145) was creeping around. The meadow, though lush and rich, revealed nothing new, except for a rather attractive albino of *Delphinium*

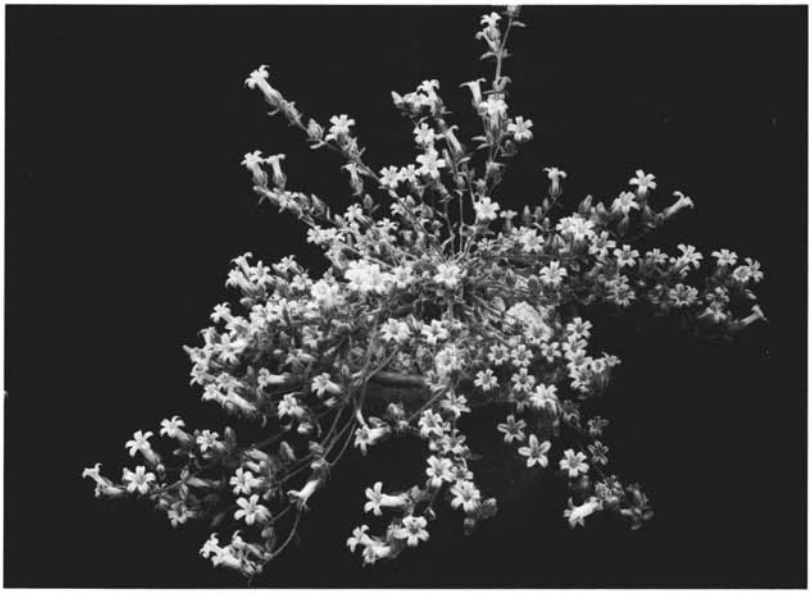


Fig 1 *Campanula rupestris* (See p.35) Photo H. Esslemont

Fig 2 *Ranunculus abnormis* (See p.64) Photo Harry Smith Photographic Collection

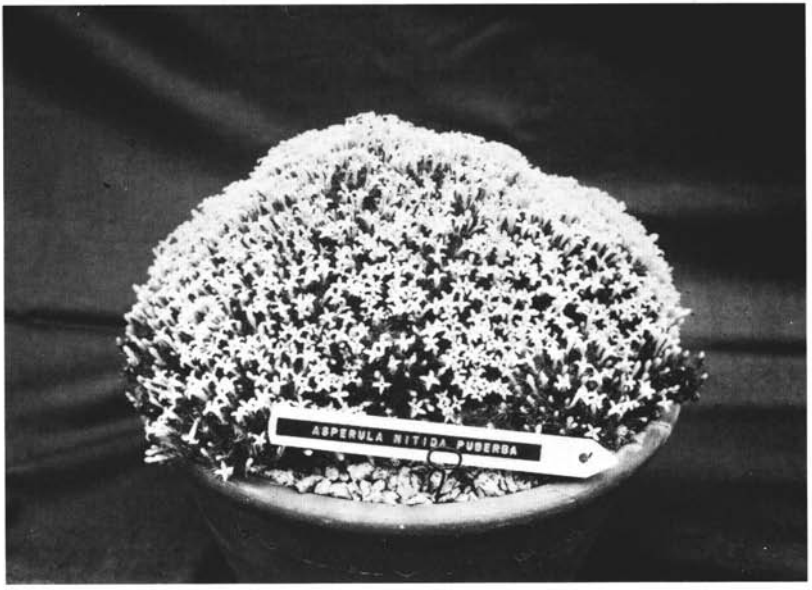


Fig 3 *Asperula sintenesii* (See p.59) Photo A. J. Leven

Fig 4 *Cypripedium reginae* (See p.48) Photo J. Cobb

Fig 5 *Cassiope fastigiata* (See p.48)

Fig 6 *Cyclamen repandum* (See p.36) Photo M. J. B. Almond

Fig 7 *Mt. Taiyetos* (See p.37) Photo M. J. B. Almond

Fig 8 *Primula rosea* (See p.17) Photo A. Stevens

brunonianum. Nevertheless, our climbing efforts were well rewarded by the cliffs. Here *Paraquilegia grandiflora* was growing in abundance, and beside it the tight, small-rosetted cushions of *Saxifraga pulvinaria* (SEP 154) was clinging to the rock walls. Where soil had accumulated, a handsome nepeta (SEP 155) was cascading, and beside it an odd umbellifer, *Pleurospermum candollei* (SEP 150), was growing. This species is most attractive though a little coarse. It has white-edged bracteoles that surround the secundary umbels, giving the plant a resemblance to astrantia. The bracteoles are persistent and provide a striking contrast to the seeds as they ripen to a dark-brown colour.

The cool, moist screes at the cliff-bases provided us with flowering specimens and fertile seeds of the golden *Corydalis thyrsiflora* (SEP 141), a very beautiful dwarf plant with glaucous, ferny foliage, a representative of a swarm of similar species with their distribution centre in the western Himalayas. These are all attractive non-tuberous perennials which should present few difficulties in cultivation.

These areas were also the residence of the famous *Mertensia tibetica*, nowadays degraded to *Pseudomertensia moltkioides* var *moltkioides* (SEP 156), a name which somewhat reduces the romantic lustre surrounding this plant. It is very close to *P. moltkioides* var *primuloides* (syn. *Mertensia primuloides*). These two varieties replaced each other on different mountains, where they form their mats in the shelter of cliffs or boulders at high altitudes. Judging from the natural habitat of *P.m. moltkioides*, a compost consisting of two parts of grit and one part of well-decayed paraquilegia petals would ensure that our plants were long lasting in cultivation.

Oleg Polunin studied the pollination of this species in the Karakoram where he could not observe any visiting insects. He also states that very little seed was set. Unfortunately this also applies to our collections, where many hours of collecting resulted in less than ten seeds.

Still unaware of this sad fact and very pleased with the results of the two days at the Babusar pass, we left late in the afternoon, heading south into the Kaghan valley, where we set up our camp above the Lolo Sar lake at an elevation of 3,400m. Here the meadows were heavily grazed, but we could see the remnants and collect a little seed of *Caltha palustris* var *himalensis* (SEP 188) and *Primula rosea* (SEP 189) (Fig 8, p16). An attractive little rush, *Juncus concinnus* (SEP 187), was growing by the streamlets, where we also found *Saxifraga moorcroftiana* (SEP 186), a stout relative of *S. hirculus*. Parts of the meadows were densely colonised by *Aconitum chasmanthum* (SEP 194), an ordinary-looking, rather tall species with attractive sky-blue flowers.

Another day's drive took us to the Lala Zar forest resthouse. After a comfortable night, we followed the Kunhar river almost to the end of the Kaghan valley where we halted at the resthouse at Shogran, a lush paradise

in the most monsoon-affected areas of the valley.

We had been driving at lower altitudes (3,000-1,600m) and consequently we had been able to collect seeds from a fair number of woody plants such as *Abies spectabilis* (SEP 201), *Acer caesium* (SEP 202), *Populus ciliata* (SEP 203), *Crataegus songorica* (SEP 204), *Aesculus indica* (SEP 205), *Sorbaria tomentosa* (SEP 206), *Cedrus deodara* (SEP 207), *Prunus cornuta* (SEP 210) and *Ulmus wallichiana* SEP 213). The only interesting herbaceous plant of the day was *Epimedium elatum* that was found on dry, shady cliffs in the village of Naran.

The Shogran resthouse is situated at 2,300m and is reached by a winding road starting from approximately 1,500m; this road takes you through a fertile forest of *Pinus roxburghii* and later *P. wallichiana*. The forest floor is rich in herbaceous plants, and the road banks are inhabited by *Bergenia ciliata* and *Wulfenia amherstiana*. Shogran is easily reached within one day from Rawalpindi and is really worth visiting. From here you can reach the grounds of *Paraquilegia grandiflora* and its companions in less than a day's walk. I doubt if there is another place where the western Himalayan flora is as accessible.

The resthouse is surrounded by dense woods, and from here you can see no trace of snow-clad mountains, but, if one follows a forest track, one will reach the Makra hill (pronounced Muckla).

We decided to split the party again. Bjorn, Kjell and Roland left for the Ushu valley in north-west Pakistan, while Gerhard and I remained in the Kaghan valley.

The mixed woods above Shogran are virtually ungrazed and must be beautiful in the spring. In retrospect, I regret that we did not spend more time botanising them. *Skimmia anquetilia* (SEP 270) was a common shrub on the forest floor, and *Hedera nepalensis* was clinging to the trunks of *Pinus wallichiana* and *Cedrus deodara*. *Lilium polyphyllum* (SEP 268) was hiding its bulbs deep in the humusy soil, and in the deepest shade *Phytolacca acinosa* was trying to ripen its fruits.

At an altitude of 2,900m we reached the first meadows. Here, on steep banks, large shrubberies of the handsome *Viburnum foetens* (SEP 214) appeared and gave shelter to two interesting plants, *Arisaema propinquum* (SEP 265) and *Trillidium govanianum* (SEP 264). The former is an aroid which, despite its tropical appearance, is perfectly hardy in Sweden. The latter is better known under its old name, *Trillium govanianum*, but since it is obviously more closely related to paris than to trillium, it may well deserve a genus of its own. It grows in the darkest shade, and it was only by accident that we spotted its bright red berries. At the edge, another arisaema was growing, *A. jacquemontii* (SEP 263), a coarser plant than the former with rather dull, green spathes compared with the striped,

brownish-purple spathes of its sister. The meadows were full of *Iris hookerana* (SEP 216), which apparently is avoided by grazing cattle.

The rocks in the high-altitude forests were full of the elegant *Adiantum venustum* and *Wulfenia amherstiana* (SEP 255). The latter has a wide altitude range, and we hope that this collection from 3,050m may prove handier than the collections that we have previously grown. It is an elegant, shy little plant which certainly is at its best when growing on a cool, shady, vertical cliff.

On mossy boulders at the edge of the wood, we found the very dwarf edition of *Parnassia nubicola*, the subspecies *occidentalis* (SEP 217), which may be confused with *P. cabulica*. A dwarfish aconite was also found here, *Aconitum heterophyllum* (SEP 218), with leaves very "un-aconitum-like", and elegant, large helmets of violet-blue and white. A few specimens of a choice rock fern, *Cryptogramma stellerii* (SEP 219), were found on similar sites.

We camped on meadows dotted with the blue or white flowers of *Anemone obtusiloba* at an altitude of 3,300m. The site was surrounded by shrubberies of the variable *Juniperus squamata* (SEP 221), sometimes intermingled with *Lonicera myrtillus* (SEP 220). At the edge of the shrubberies a few specimens of the ornamental *Morina longifolia* (SEP 229) were growing. *Geum elatum* (SEP 224) was very common on the north-facing slopes; this is a most useful plant for the peat garden with flowers and foliage equally beautiful. However, the most striking feature of these slopes were the little sky-blue eggs of *Gaultheria trichophylla* (SEP 223) nestling among the attractive dark-green mats.

At slightly higher altitudes there were a few rocky outcrops that were the residence for a number of interesting plants such as *Meconopsis aculeata* (SEP 227) and *Thalictrum elegans* (SEP 228), a small species that presents its large achenes in a most elegant manner. *Cortusa brotheri* (SEP 230) and *Primula macrophylla* sought humidity and shelter at the rock bases and, in sunny positions, we found an undeterminable *Pseudomertensia* sp. (SEP 234) that might prove to be a new species, growing together with the gorgeous *Pleurospermum brunonis* (SEP 235). A relative of this species has been discussed earlier, but this plant is the jewel of the genus. It is a dwarf plant scarcely more than 10cm high; the foliage is finely cut and dark, shiny green. The umbels are more densely packed, and the bacteoles much larger than with *P. candollei*; altogether it is a most attractive little plant and a particular favourite of mine.

From this point we could follow a ridge up to the summit which, unfortunately, was not any higher than 3,850m. Our path was edged by *Anemone rupicola* (SEP 236) and *Gypsophila cerastioides* (SEP 240) in an untypical broad-leaved form. On the rock-faces we started to find *Paraquilegia grandiflora* (SEP 237), and beside it *Potentilla curviseta* (SEP 241)

was pressing its leaves tightly against the rocks. This is now a world-famous plant since its picture is adorning the jacket of "Flowers of the Himalaya" by Polunin and Stainton.

The mat-forming *Salix flabellaris* was as common as the only other two woody plants at these altitudes, *Rhododendron anthopogon* ssp. *hypenanthum* (SEP 248) and *Cassiope fastigiata*, were rare.

In the turf of a cool depression, quite close to the perennial snow, we saw the unmistakable leaves of the very rare and local *Primula clarkei*, which has not been found outside the type-locality before, but that I did not know then, and since no seed was to be found, no Herbarium specimen was collected. From this point up to the very summit *Saussurea atkinsonii* (SEP 243), a fascinating mat-forming plant with shiny corrugated foliage and stemless flower heads, was very common. The cliffs around the summit were absolutely smothered by huge colonies of *Paraquilegia grandiflora*, and at the cliff-bases *Pseudomertensia moltkioides* var *primuloides* was covering the ground.

Thoroughly satisfied with the results of the three days at the Makra hill, but with an uncomfortable feeling that there were still many plants to be found on the steep, forested slopes at lower altitudes, we left these marvellous grounds with a hope that one day we might revisit them.

From Shogran we went northwards as we headed for the famous areas around Saiful Maluk in the vicinity of Naram. On our way we did some botanising from the Jeep.

At low altitudes around 1500m, where the road banks were moistened by a continuous supply of trickling water, we could see the strap-like leaves of what we first mistook for the subtropical polypodium. A closer look revealed that this was the queer *Primula inayatti* (SEP 554) which is more odd than beautiful. It was growing, not in soil, but in the crusty deposits from the water. I was struck by the similarity this plant showed with the Spanish *Pinguicula valisnerifolia*, considering the appearance of the plant as well as the sites in which it grew.

On drier, shadier rocks at equal altitudes *Anemone vitifolia* (SEP 272) was still in flower accompanied by the shrubby *Hypericum oblongifolium* (SEP 276), *Asplenium pseudofontanum* (SEP 275), *Liriope graminifolia* (SEP 274) and *Androsace rotundifolia* var *elegans* (SEP 273).

From Naran a small Jeep-track leads to the Saiful Maluk lake which is situated at an elevation of 3200m. In the late thirties this area was visited by R. L. Holdsworth who wrote an interesting article about it in the AGS Bull. (vol. 8, 1940). Understandably, times have changed since then and the area is now easily accessible and a popular destination for excursions. However, the area is still as beautiful with the impressive mountain Malika Parbat mirroring in the blue-green glacial lake. The valley is

flanked on both sides by ridges that proved to be very profitable collecting-grounds.

The highlight of this area is the endemic *Primula duthieana* (SEP 296) which is a member of the section Crystallophomis. This is most closely related to *Primula macrophylla* but has pale yellow flowers. Another distinguishing feature is the narrow band of white farina on the under-surface of the leaves. *P. duthieana* has probably never been in cultivation, so we are proud to have introduced it. So far it seems quite easy to cultivate and we sincerely hope that it will stay with us.

We found it on our first excursion on the steep slope of Malik Parbat, probably in the same spot where Mr Holdsworth saw it. Gerhard, who is the better climber, was fortunate to see it in flower (19 September) where it was growing in large colonies at 4400m, while I only saw the scattered fruiting specimen around 4200m. On the same slopes we once again met the two unseparable *Paraquilegia grandiflora* and *Pseudomertensia moltkioides*. An interesting plant of the lower meadows was *Tanacetum dolichophyllum* (SEP 287) which had a dense cluster of large flower-heads and might be a useful plant for the herbaceous border. Although quite content with what this ridge provided us with, it was the ridge south of the lake that rewarded our climbing efforts with the largest number of novelties.

Here, in the lower meadows, we found *Salvia hians* (SEP 303) with large blue and white flowers, certainly a worthy companion to the tanacetum. On the highest meadows at around 4000m we saw the characteristic rosettes of *Jurinea dolomiaea* but, alas, we could not find any seed. In the same dryish sites we were pleased to find, at last, the queerest plant of the western Himalayas, a plant that has fascinated me ever since I first saw a picture of it, *Macrotomia benthamii* (SEP 314) (syn *Arnebia benthamii*), a most remarkable borage with linear leaves, around 20cm long, in tight rosettes. The flowers are produced in a dense, cylindrical spike and are surrounded with long bracts, striking, not beautiful but certainly worth a place in the rock garden. [This plant was illustrated on p.373 of the January 1986 Journal – Ed.] Together with *Rheum nobile* and *Phlomis rotata* this plant will complete the top three ranking of Himalayan weirdies.

At the summit of the ridge, snow still had not disappeared and the melt water was keeping the surrounding slopes wet. Here, in the turf, the delightful little *Primula elliptica* (SEP 307) was growing. This is like a much reduced *Primula rosea* with flowers of a different colour, which may be a muddy pale-lilac or a clear dark blue-lilac colour. The latter undoubtedly sounds more attractive and I hope that at least some of our collections will be like that.

As we were on our knees collecting *P. elliptica* we suddenly realised that we were crawling on the mats of *Primula reptans* (SEP 308), a plant which

is almost impossible to spot when not in flower. This well-known species is notoriously shy-flowering in cultivation, which is simply a reflection of the fact that it is shy-flowering in nature as well, so there is not much one can do about it. We had to crawl for two hours covering an area of approximately 500 square metres to secure a sufficient amount of seed for our share-holders.

Just above the lake, three ravines cut into this ridge. These were more or less ungrazed and hosted some interesting plants that were collected during our descent. *Anemone* cf. *polyanthes* (SEP 316) and *Aquilegia nivalis* were growing on moist cliff shelves. The columbine is one of the best in its race, a dwarf plant, scarcely more than 15cm tall, with large, deep lilac flowers, the inner petals being so dark that they almost appear to be black. In cool, shady spots *Primula elliptica* reappeared together with *Cortusa brotherii*, and on the ravine floor there were large sheets of *Picrorhiza kurroa* (SEP 315), which has inconspicuous flowers gathered in cylindrical spikes and attractive, glossy foliage. *Trollius acaulis* (SEP 320) was growing in similar situations; when in seed the epithet "acaulis" may be questioned since the scapes can be 50cm tall. In the spring, however, it is said to open its "stemless" flowers close to the melting snow. In cultivation I still have to see it stemless, but it is certainly an attractive, easily cultivated plant.

The areas around Saiful Maluk are rich in species, and I have mentioned only a few here. A few days of trekking up the valley would probably have revealed a good number of new plants; for instance, *Primula hazarica* and *Saxifraga lilacina*, both being described from material originating in these areas, but we were short of time and had to return to Rawalpindi to join our friends.

The other party had found the North West Fontier Province to be just as profitable as they had hoped it to be. From a base camp near the Jaba lake they had made several excursions within the Ushu valley. This area still possesses impressive forests and many trees and shrubs were collected here. *Cedrus deodara* was recorded and collected at an altitude of 3300m which is quite remarkable. Other interesting trees were *Sorbus lanata* (SEP 342), *Sorbus* aff. *cashmeriana* (SEP 378) in a red-fruited form, *Corylus jacquemontii* (SEP 363) and *Populus ciliata* (SEP 364).

The herbaceous plants were equally well represented and a good number of species were collected. In my opinion, *Primula hazarica* (SEP 400) was the most spectacular new find. This member of the Aleuritia section dwells only in cool, moist crannies on high-altitude cliffs. Its distribution is limited to Kashmir, Hazara and Swat and it is not very common there. The membranaceous leaves are densely covered in white farina and the 5-10 cm long scapes bear large flowers of a clear deep-violet colour. Beside it a somewhat divergent form of *Paraquilegia grandiflora* (SEP 401)

was found. This was laxer in growth and had darker seeds than any of the other collections. *Gentiana cashmirica* (SEP 369) was cascading from the same rocks and had quite a different appearance to the straggly specimens which are the result of cultivation on flat ground where they cannot decide where to place their straggly stems. Another cliff-dweller from lower altitudes was *Eritrichium canum* (SEP 347), which apart from its name bears little resemblance to *E. nanum*. It is a low-growing tufted perennial with narrow silvery leaves and myosotis-like flowers on short scapes.

The most striking plant of the area was probably the soft-yellow flowered *Morina coulteriana*, a stately, most ornamental perennial growing on dry rocky slopes which it shared with *Juniperus squamata* (SEP 391), just as its white-flowered sister from the Kaghar valley. Other important herbaceous plants from the Ushu valley were the white form of *Aconitum violaceum* (SEP 345), *Lilium polyphyllum* (SEP 338), *Aquilegia fragrans* (SEP 343), *Saxifraga flagellaris* ssp. *stenophylla* (SEP 358), *Fragaria nubicola* (SEP 376), *Potentilla curviseta* (SEP 379), *Primula warschenewskiana* (SEP 414) and a few tubers of *Corydalis diphylla* (SEP 348), which were found, somewhat surprisingly, when an attempt was made to collect some lily bulbs. Fourteen years earlier the only tuber of *Corydalis griffithii* known to exist in cultivation was collected under similar circumstances in Afghanistan.

After the reunion in Rawalpindi we were going to reorganise and continue to Sikkim to accomplish the second part of the expedition, but as it turned out there were letters waiting for us at the Swedish Embassy. Our Sikkim contacts were warning us that the monsoon was unusually late and persistent that autumn. After some hesitation we decided to stay in Pakistan where we had the advantage of dry weather and an efficient organisation.

Our next destination was the eastern slopes of the famous mountain Nanga Parbat, which were reached within one day from Gilgit. From Astor a Jeep-able track leads up to the Rama forest rest-house and further to the Sango Sar lake.

We camped in a deserted summer settlement close to the lake and celebrated our first evening with a tasty trout from the clear lake. Many lakes in northern Pakistan were stocked with trout during the time of the Empire.

The lake is continuously filled with water, percolating through a moraine ridge, from the huge Sachen glacier north of the lake. South of the lake there is a mountain ridge running in an east-westerly direction.

The moraine ridge was partly covered by tall shrubs dominated by *Salix karelinii*. In the shade of these, as well as in more open situations, *Cardamine laxostemonoides* (SEP 434) was suckering among smaller rocks. A late flower revealed that this was a promising find with rather large,

bright-lilac flowers and glaucous, succulent foliage.

At higher altitude the salix shrubberies were succeeded by sparse vegetation, including some of our older acquaintances such as *Dracocephalum nutans* (SEP 425), *Delphinium brunonianum* (SEP 445), *Silene moorcroftiana* (SEP 430) and *Waldheimia glabra* (SEP 427). The last mentioned had been met with on several occasions and discussed earlier, but this area provided us with its superior sister *W. tomentosa* (SEP 431) which was scattered in the extensive screes of the mountain ridge. It is a tufted perennial with woolly, filigree foliage and has huge, chrysanthemum-like flowers of a soft pink on 10-15cm scapes. The one seed-head that we were able to locate was probably not ripe enough. But since I have seen a plant of it in Kew and seed was introduced from Himachal Pradesh in 1985 by Ron McBeath, there is hope that we may see this plant flowering in cultivation.

On the northern slopes of the mountain ridge we collected, among others, *Saxifraga flagellaris* ssp. *stenophylla* (SEP 436), *Lloydia serotina* (SEP 441), *Pseudomertensia moltkioides* var *moltkioides, Rhododendron anthopogon* ssp. *hypenanthum* SEP 446), *Lomatogonium spathulatum* (SEP 454), *Aquilegia nivalis* (SEP 476) and our European native, *Thalictrum alpinum* (SEP 478). In one of the ravines a rather floriferous colony of *Primula reptans* (SEP 479) was found. *Paraquilegia grandiflora* (SEP 485), *Saxifraga pulvinaria* (SEP 437) and the dense, grey cushions of *Draba winterbottomii* (SEP 463) were growing sparingly on vertical rocks. At the edge of the ridge, *Primula macrophylla* (SEP 450) and *P. elliptica* occupied the northernly aspects. South-facing situations favoured an entirely different flora, *Eritrichium nanum* ssp. *villosum* (SEP 472) and *Tanacetum tomentosum* (SEP 462) were common, together with *Lagotis kunawurensis* (SEP 458), the giant of the genus. Members of this genus take a lot of patience to grow from seed since they hardly increase in size from one year to another. I regret that we did not collect adult plants. Now we will probably have to wait several years to see it flower.

We descended from our cold camp and spent two comfortable nights in the rest-house from where we botanised the forested slopes at the lower altitudes.

The woods were dominated by *Abies spectabilis, Pinus wallichiana* and *Picea smithiana*. The herbaceous undergrowth did not seem very rich at that time of the year and, apart from *Pseudomertensia echioides* (SEP 498) which was growing on dry rocks, there was little else to collect. Despite this, the woods were worth a close investigation since they rewarded our efforts with a most magnificent triad of rowans.

The most striking of the three was a small specimen of *Sorbus cashmeriana* (SEP 492) that was growing in a clearing on dry, sunny rocks at an altitude of 3800m. This particular plant had fruits of a lovely pink colour and was

absolutely irresistible. At the valley floor we found a different form of the same species (SEP 516). This was a larger tree with larger, snow-white fruits. To complete the triad and add colour we were helped by an extraordinary good form of *Sorbus tianshanica* (SEP 489) with very large fruits, dark red of an exquisite enamel lustre.

From Astor we returned to Gilgit, from where we set off for our last destination, the Naltar valley. Normally this part of the Karakoram is easily accessible. The army has a winter training camp here, and it is also a popular destination for excursions. One can even stay in the Prince Hotel, but do not expect royal comfort.

In October there was not much to see or collect. Worn out from six busy weeks, we were not that keen on reaching the highest summits, but, despite being dismissed in only a few lines, this area is likely to be very profitable for an energetic collector earlier in the year.

In the shady forests, *Ligularia thomsonii* (SEP 525) and *Podophyllum hexandrum* (SEP 526) were common. On shady, mossy rocks we found the interesting *Selaginella sanguinolenta* (SEP 536) intertwined with the always present *Saxifraga sibirica*. On drier rocks *Pseudomertensia echioides* was common, and by its side the most interesting find of this valley was collected. This was *Sempervivella alba* (SEP 538). It had little similarity to the forms that I have seen in cultivation; here it was a tight cushion built up by small hairy rosettes. The flowers were borne singly on short scapes and looked like these of *S. alba* of cultivation. This form has so far kept most of its dwarfness in cultivation and seems promising.

By a waterfall at slightly higher altitudes we were able to collect two interesting rock ferns. *Cryptogramma stellerii* (SEP 543) had been met with earlier and is indeed a very elegant little plant. The second, *Pleopeltis clathrata* had a subtropical appearance, reminding one of the numerous species of entire-leaved polypodium, with the 20cm-long bright, strap-shaped foliage. Despite its appearance it should be perfectly hardy since it is a rock plant from sub-alpine and alpine altitudes, choosing vertical positions uncovered by snow. It had been found earlier in a reduced form growing beside *Paraquilegia grandiflora* above Astor at 4200m.

Higher still, familiar plants such as a good form of *Androsace mucronifolia* (SEP 546), *Lomatogonium spathulatum* (SEP 549) and the undeterminable Kabschia saxifrage (SEP 549) were seen for the last time. At 3800m there were still many metres unclimbed, but we decided to save these for the next time.

After two months of seed cleaning and portioning, 12,000 packets of seed were distributed all over the world. Bjorn had a busy time whilst trying to determine the 600 Herbarium specimens, but a year after our return the bulk of these had been named.

Crocking with Perlag: a comparison with gravel

HILARY HILL

PROVIDING exactly the right amount of moisture to plants in pots can be a nightmare, but the problem is minimised if water can drain freely from an over-watered pot or, conversely, rise into a drying one by capillary action (Hill, The Rock Garden, 1984, Vol. XIX, p.21). Following this publication I received a complimentary supply of Perlag Medium Grade (X192) and Perlag Fine Grade (X191) Capillary Aggregate from Silvaperl Products, together with a suggestion that these might offer an acceptable alternative to the fine gravel chips which I had customarily used as crocking. I decided to use these samples in a series of controlled experiments to see if the rate and quality of growth of seedlings, cuttings and plants are influenced by the choice of material used as crocking.

But, first, *what is Perlag*? Silvaperl Products Ltd. describe it as a lightweight capillary aggregate specially processed from volcanic rock and similar in characteristics and origin to Perlite. Perlag is inert, sterile, neutral in reaction (pH 6.5-7.0), incombustible, non-toxic and does not break down or decompose. It is both free-draining and able to retain water because its internal structure is composed of inter-connected capillaries and cellular cavities. I satisfied myself about its porosity by a simple experiment: a teaspoonful of water-soluble blue ink was placed in each of two white plastic egg-cups, one of which was then filled with Fine Perlag and the other with Medium Perlag. Thirty minutes later the Fine Perlag was uniformly stained blue whereas the Medium Perlag at the top of the egg-cup showed only slight staining. After standing overnight all the chunks of Medium Perlag were blue and when cut in half were uniformly stained throughout their substance. The staining of the surface could only have occurred by capillary attraction, and the uniform internal staining shows that this capillary action goes on through the substance of Perlag as well as between adjacent lumps. When crocking with gravel, capillary attraction can only occur along narrow planes separating adjacent pieces and therefore it seemed reasonable to compare gravel with Perlag as crocking material.

Method

The experiment started in September 1984 and was completed by August

1985. During this time whenever I had rooted cuttings or seedlings ready for potting or pricking out and sufficiently numerous and uniform, these were pricked out or potted up in Arthur Bower's compost, half being crocked with Perlag and half with gravel of similar dimensions. Fine Perlag was used for Alpines, Medium Perlag for larger plants.

The plant material used was:

(1) **Cuttings:** two groups were used. The first were well-rooted plants, raised in 50% sphagnum peat and 50% gritty sand in a bench with bottom heat, of streptocarpus, miniature geranium, fuchsia and *Phygelius capensis*. The second were well-rooted cuttings of eight "easy" garden alpines rooted in the same compost in a cold frame.
(2) **Seedlings:** easy alpines raised from SRGC seed exchange and annuals, tomatoes and herbs raised from commercial seed.
(3) **Seed:** sweet peas chitted and sown singly into pots crocked with either gravel or Perlag.

The precise method was as follows:

(1) The number of plants/seedlings was counted.
(2) The same number of identical containers was assembled.
(3) Two cm of Perlag was put into approximately half the pots and two cm of gravel into the remainder.
(4) All pots were filled with compost and placed at random on the potting bench so that I would not know what crocking material each pot contained.
(5) Each plant or seedling was potted.
(6) Pots were watered and topped with fine gravel to limit loss of water by evaporation.
(7) Plants were grown on as a group in greenhouse, frame or plunge bed.
(8) All plants of any one variety were assessed at the same time when some new action such as repotting, planting out or transfer to a new owner was called for.
(9) Assessments were made on overall appearance, growth and quality of leaves and occasionally flowers and graded from best to worst. Then each pot was up-ended and the plant knocked out so that the quality of the roots could be noted together with the nature of the crocking material. The results were recorded. The assessments were initially made by a fellow member of SRGC (until prevented by family illness) and latterly by a number of good gardening friends.

Results

Although there was considerable variation between individual plants, in

no case did the rate or quality of growth consistently favour either Perlag or gravel. Root growth was similar and fine roots spread between the individual chunks of crocking material thus growing along the miniscule channels through which water rises into or drains from pots.

The varieties of plants on which these conclusions were based are as follows:

(1) **Cuttings:**
   (a) Shrubs: *Fuchsia* 'Alice Hoffman', *Fuchsia magellanica* 'Variegata', *Phygelius capensis.*
   (b) Alpines: *Androsace sempervivoides, Artemesia schmidtiana* 'Nana', *Dryas octopetala, Gypsophila cerastioides, Leucogenes leontopodium, Sedum middendorffianum, Sedum kamtschaticum* 'Variegatum', *Sedum pluricaule.*

(2) **Seedlings:**
   (a) Easy alpines from 1985 seed distribution: *Allium flavum, Erysimum caespitosum, Helleborus foetidus, Veronica prostrata* 'Spode Blue', *Wahlenbergia saxicola.*
   (b) Annuals grown for charity sale: *Ageratum* 'Blue Mink', *Antirrhinum* 'Suttons Triumph', *Aquilegia* 'Nora Barlow', *Dianthus heddewiggi* 'Telstar' (F1 hybrid), *Eschscholtzia caespitosa, Mesembryanthemum* 'Lunette', *Salpiglossus* 'Ingrid' (F1 hybrid), Tomato 'Alicante', Tomato 'Golden Sunrise', Parsley 'Moss curled', Tarragon.

(3) **Seeds:**
   Sweet pea 'Knee Hi'.

The only exception to the equality of growth between Perlag and gravel crocked plants was among the small number of streptocarpus and miniature geranium plants which were overwintered in a cool but frost-free greenhouse. The plants crocked with gravel fared better than those with Perlag, but the numbers were too small for any conclusions to be drawn.

Discussion

My experiments showed that both Fine and Medium Grade Perlag were as effective as gravel for crocking the range of plants grown in my small garden. I live near the sea and gravel is readily available on a nearby beach. It costs me only my labour, so I shall continue to use it to crock my pots. But gardeners who have to purchase gravel may substitute Perlag with confidence. It is widely available at garden centres and, being very light, is easy to carry.

I had hoped to be able to see if the crocking material made any difference

to water requirements, but in retrospect this was a foolish thought as my experiments were designed to disguise the nature of the crocking material; pots containing the same seedlings were deliberately mixed and moved around, were topped with gravel which hid the soil and hence any sign of drying, and finally the experiments took place during the unusually wet summer of 1985. Once the pots were in the outdoor plunge bed they needed no watering and were frequently doused by rain. Drainage was obviously good as no plants were lost. Capillary attraction, drawing water up into the pots, was almost certainly established in both gravel and Perlag pots as in the dry spells no watering was needed.

I speculate that the plants which were overwintered in the greenhouse and were crocked with Perlag did less well than those crocked with gravel because of the moisture-absorbing characteristics of Perlag, the water being held *within* the Perlag chunks, and so being unavailable to the roots, rather than being *between* the chunks which is the case with gravel crocked pots. So plants crocked with Perlag and dependent on water from a watering can may need more water than gravel crocked plants.

Conclusions

In these simple experiments on a variety of easy plants, Fine and Medium Grade Perlag and fine and medium gravel were equally effective as crocking material. Where suitable free gravel is not easy to get, gardeners can substitute Perlag with confidence.

The Peloponnese in early spring

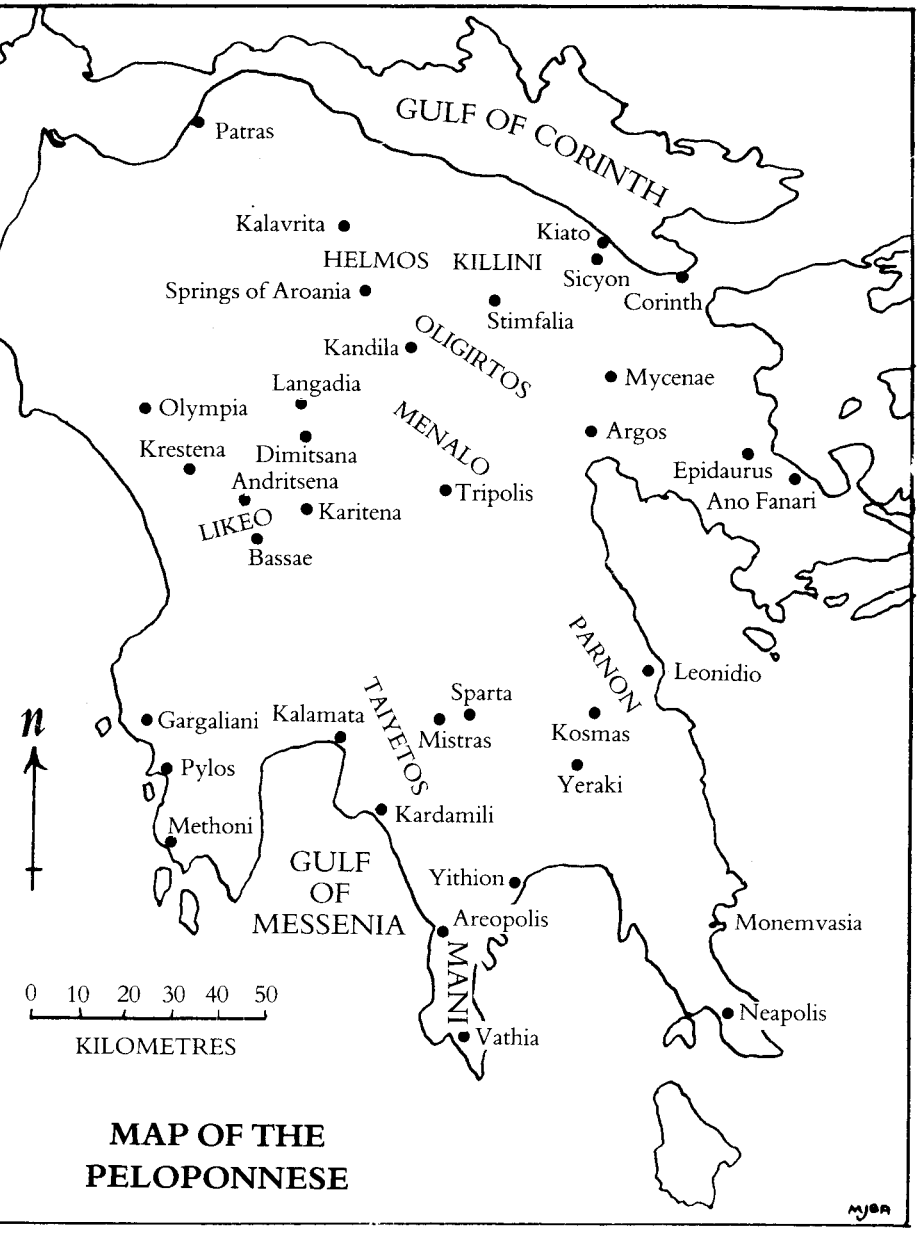
MICHAEL & LYNN ALMOND

THE last week in March and the first week in April were a little early, we discovered, to see a great deal in flower on the mountain tops of the Peloponnese or on the wind-swept uplands of Arcadia, although the very early risers – in particular crocuses – were already giving of their best. On the low hills of the southern Peloponnese, however, and in particular on the Mani peninsula, the season was at its height. Virtually every patch of stony ground in an area that resembles a desert later in the year was a riot of colour and a treasure house of interesting flowers.

At the beginning of the last week in March, spring was just arriving at the ancient site of Sicyon, overlooking the Gulf of Corinth from its elevated site some twenty kilometres west of Corinth. The thorn bushes were in full blossom and tall spikes of *Barlia robertiana* had pushed their way up here and there through the undergrowth of *Phlomis fruticosa*, sage-brush and poterium. *Ophrys lutea* and *O. sphegodes* (the early spider orchid) were the only other orchids in evidence, but colour was also provided by the large, brilliant red flowers of *Anemone pavonina* (which were to be so much in evidence throughout our trip round the Peloponnese) and by sheets of small, dark blue *Muscari commutatum* in front of the ancient theatre. In the theatre itself there were flowers of gagea and *Globularia alypum*, and in the deep shadows of one of the vomitoria *Arisarum vulgare* was pushing its flowers up above the canopy of its large, emerald-green leaves.

The road from Kiato, on the shores of the Gulf of Corinth, to Stimfalia (about forty kilometres to the south-west) climbs up above Sicyon between small fields and through olive groves. In the groves and on the banks of the roadside ditch were masses of *Hermodactylus tuberosus*, with its very striking velvety black falls and greeny yellow standards; and in the shade of the occasional pine copse were *Iris unguicularis*, with its showy purple flowers, and leaves of the autumn-flowering *Cyclamen graecum*. Higher up, where olives had almost entirely given way to pine, the bright yellow flowers of *Crocus flavus* dotted the ground beneath the trees; and patches of *Anemone blanda*, varying in colour from ice-blue to a bright lilac, grew here with the crocuses and further on among the bare-stemmed vines in the vineyards on the lower slopes of Mt. Killini.

The road up from the coast of the Gulf of Corinth to Kalavrita, past the Spileo monastery nestling in its cliff-face eyrie, yielded little of interest except some bright pink *Anemone pavonina* and some very impressive cushions of aubrietia on the stone revetment of the narrow gauge rail-



MAP OF THE PELOPONNESE

way that toils up to Kalavrita from the sea. Below the melting snow above Kalavrita there were orchid leaves, primroses (*Primula vulgaris*), *Crocus flavus*, gagea, *Colchicum triphyllum* and more *Anemone blanda*. As the sky grew darker and more threatening and as the trees closed in around us, we toiled up for a mile or more over the snow banks, heading for the elusive skyline; the *Crocus sieberi* ssp. *sublimis* forma *tricolor* reputed to grow in this area eluded us, however, and we concluded that it must lie beneath the two to three metres of snow that still cocooned the ridges of Mt. Helmos above Kalavrita.

The high mountain plains of Achaea and Arcadia had not yet properly shaken off the grip of winter and had little to show. The Springs of Aroania, south-west of Mt. Helmos, were garlanded with primroses, but otherwise there were just a few flowers of aubrietia, *Anemone pavonina* and erodium, and some *Cyclamen hederifolium* (Fig. 10, p.49) leaves. South of the village of Panagitsa, by the main road from Patras to Tripolis, a few *Iris unguicularis* and muscari were in flower, but the only other plants of note in this well-grazed area were some ophrys in bud and some *Cyclamen hederifolium* leaves under the close-cropped bushes of evergreen oak.

The pass over the flank of Mt. Oligirtos, between Stimfalia and Kandila, could offer some fine, deep blue *Anemone blanda*, a golden carpet of *Crocus flavus* covering part of the path, a few scilla and some *Cyclamen hederifolium* leaves, but nothing else. South from Oligirtos, through the waves of snowy white blossom breaking on the trees around Kandila and on the other side of the plain of Orchomenos, lies Mt. Menalo: alongside the road up to the mountain hut and the ski runs, a road that affords easy access to the high tops, could be found aubrietia, *Euphorbia rigida* in various colours, a charming little primrose-coloured viola and leaves of orchids and *Cyclamen hederifolium*. Higher up under the pine trees were *Anemone blanda*, varying in colour from almost white to deep blue, big sturdy flowers of *Crocus flavus, C. sieberi* ssp. *sublimis* (a good form with a distinct yellow band – almost *forma tricolour* but not quite – and dark purple tips to the petals). *Colchicum triphyllum, Draba aizoides* and gagea (not to mention a rather torpid adder wrapped round one of the clumps of *Anemone blanda*!). The loose scree near the hut, where the snow had already melted, was dotted with *Crocus sieberi* – but higher up all was still completely snow-bound.

From the little town of Dimitsana, where many of the walls were festooned with campanula leaves but nothing was yet in flower, there are two routes down west to the sea near Olympia. On both roads at the end of March the spring advances visibly as you drop down from the bleak uplands of Arcadia to the lush meadows of Elis. On the track down to the remains of ancient Gortyna, to the north of the medieval castle of Karitena to which it gave its name, as well as the almost ubiquitous cyclamen leaves

there were flowers of *Iris unguicularis, Anemone pavonina* (mostly pink), *A. blanda, Ophrys lutea,* ornithogalum, veronica, gagea and *Romulea bulbocodium.* Below the citadel of Karitena itself, by the side of the main road, there were *Euphorbia characias* ssp. *wulfenii, Vinca major* and sheets of red *Anemone pavonina* among the olive trees – and, scattered among the anemones and ornithogalum, were tall spikes of *Ophrys spruneri* and the occasional *Barlia robertiana.* On the other side of the citadel rock, in the grounds of the Byzantine church of St Nicholas with its five pantiled domes, were anemones of all shades from light pink to dark purple and deep red, appearing in many cases to be crosses between *Anemone coronaria* and *A. pavonina.*

As the road crossed the bare, windswept flanks of Mt. Likeo, between Karitena and Andritsena, the verges were generally devoid of colours, although in one place a whole boggy hillside was coloured yellow by primroses, which also festooned the rough stone fountain at the roadside. High up above Andritsena, the temple of Apollo of Bassae graced the empty hillside, and the ground above it under the leafless trees was covered with gagea, ornithogalum and *Anemone blanda.*

Lower down towards Krestena – near where the charcoal burners were putting the finishing touches to one closely packed pile of branches while another smouldered nearby – *Astragalus lusitanica* ssp. *orientalis* lined the road and, beneath the scattered bushes, the ground was red with *Anemone pavonina* interspersed with a few white forms, ornithogalum, dark blue *Vinca major, Iris unguicularis, Ophrys lutea, O. sphegodes* ssp. *mammosa, O. spruneri, Barlia robertiana* and *Bellevalia dubia.*

The other route from Dimitsana to Olympia, via Langadia, displayed much of the same, with the diverting addition of a cigarette-smoking huckster in full dress fustanella and accoutrements who leapt out in front of the car and persuaded us to buy a "hand-woven" tablecloth. On the slopes east of Olympia the tree heather growing beneath the resin-producing pine trees was in full bloom. At Olympia itself the sloping sides of the ancient stadium were awash with brilliant red *Anemone pavonina* and, although weedkiller was being used on the site, we also found purple *Anemone coronaria, Barlia robertiana, Ophrys lutea, Hermodactylus tuberosus, Muscari commosum* and cerinthe.

Further down the west coast, just north of Gargaliani, the *Salvia triloba* scrub concealed *Gynandriris sisyrinchium,* muscari, *Ophrys lutea* and some fine specimens of *Orchis papilionacea* – with both light and dark pink petals. The roadside grit was host to *Malcolmia maritima* and clumps of *Ophrys speculum.* At Nestor's Palace, with its sweeping view south over sandy Pylos and the Bay of Navarino, the entrance to the three-and-a-half-thousand-year-old "beehive" tomb was garlanded with large patterned

leaves of *Cyclamen graecum*; there were other cyclamen leaves fighting the ravages of weedkiller beneath the trees beside the path, and also patches of *Tetragonolobus purpureus*. Just south of modern Pylos, beside a small chapel by the roadside, the oak scrub abounded in orchids: *Ophrys spruneri, O. ferrum-equinum, O. fusca, O. tenthredinifera, O. lutea, Serapias vomeracea, Barlia robertiana, Orchis lactea* and *O. papilionacea* – as well as *Gynandriris sisyrinchium*, red *Anemone pavonina* and *Cyclamen graecum* leaves. Although it was still not yet April, we were at last really beginning to catch up with the spring.

In the pistachio and poterium scrub on the low-lying land to the east of the picturesque little town of Methoni, with its magnificent Venetian fortress, there were pink, mauve and (mostly) red *Anemone pavonina*, lots of *Orchis papilionacea* and *Serapias vomeracea*, some *Ophrys bombyliflora, O. fusca, O. lutea* and *O. tenthredinifera*, and also *Iris unguicularis* and *Gynandriris sisyrinchium*. South of Kalamata, on the other side of the Gulf of Messina and on the western slopes of Mt. Taiyetos, there were patches of *Ophrys speculum* at the roadside, together with *O. lutea, Malcolmia maritima*, lithodora, red *Anemone pavonina, Iris unguicularis* and *Cyclamen graecum* leaves. At one point, abandoned terraces sported odd flowers of *Fritillaria messanensis* and *Orchis italica* together with a solid mass of *Cyclamen repandum* flowers (the light pink Peloponnesian form), stretching for hundreds of yards along the terraces and covering two or three terraces one above the other. In spite of memorable finds elsewhere, nowhere else did we find cyclamen flowering in such profusion.

Euphorbia characias ssp. *wulfenii* and *E. dendroides* lined the road south of Kardamili together with bright red clumps of silene, and near the little church of St Nicholas Kambinari the scrub contained *Ophrys spruneri, O. ferrum-equinum* and *O. lutea*. At the roadside opposite the most southerly of the churches in the village of Nomitsi grew a clump of a peculiar distorted form of *Ophrys lutea*, with the dark patches on the petals forming a weird scrambled pattern. Near the village of Ayios Nikonas we found a small yellow erysimum and a fine double form of the yellow *Adonis microcarpa*; and, among the yellow and white asphodel in the roadside fields were *Ophrys ferrum-equinum, O. fusca, O. speculum* and *O. tenthredinifera*. Under the olive trees in the fields near the sea at Neo Itilo, tall *Gladiolus segetum* outgrew the growing corn and, beside the road as it wound up the hill towards Areopolis, *Serapias vomeracea, Barlia robertiana*, and cyclamen leaves could be found among the scrub.

Areopolis is the main town of the Mani, an area which includes the whole of the southern "prong" of the Peloponnese south of an east-west line drawn roughly through the castle of Passava (about ten kilometres south-west of Yithion) – the "deep" or "inner" Mani – and also the whole

of the western flanks of Mt. Taiyetos roughly as far north as Kardamili – the "outer" Mani. It is an area of stark beauty and fascinating architecture, notably the numerous small Byzantine churches, with their carved stone doorways, pantiled roofs and painted interiors, and the imposing tower houses, built for defence against family feuds and marauding pirates, bunched together in scattered villages hedged round with prickly pear. In spring it is awash with colour and in summer parched and dry. The population is dwindling and there are not enough grazing animals seriously to affect the flora. Motorable roads are a recent innovation and the lack of a good summer water supply means that large-scale tourism seems unlikely to make much of an impact.

At the beginning of April the olive groves beside the road south of Aeropolis were purple with tall, majestic *Serapias vomeracea* and the roadside verges bright with astragalus and *Lupinus micranthus*. Orchids such as *Ophrys ferrum-equinum, O. speculum, O. tenthredinifera* and *Orchis quadripunctata* were scattered throughout the poterium scrub. Beside the lane down to the church of St Michael the Taxiarch at Harouda there were patches of *Anacamptis pyramidalis* var *albiflora*, some pure white and some the lightest blush pink in colour. Along the road we also saw *Arum italicum, Cerinthe retorta* and seed (only) of fritillary (presumably the *Fritillaria davisii* mentioned by Bill Ivey in his article "Along the Donkey Paths of Greece": JSRGC no. 71 (Jan. 1983) p.137).

Right down near the tip of the peninsula, south of Vathia on the way to Cape Matapan, white *Cistus salvifolius* and pink *Salvia triloba* grew in profusion on the hillsides above and below the road, with *Ophrys lutea, O. ferrum-equinum, O. fusca, O. fusca* x *lutea, O. tenthredinifera, Serapias vomeracea, Anacamptis pyramidalis*, cyclamen leaves and vivid red flowers of *Papaver rhoeas* among them. On the rocks grew globularia, *Malcolmia maritima* and *Fumana thymifolia*, and beside the road bright pink silene of two different species. An area of burnt-off scrub (poterium?) provided the most exciting finds, however: red *Tulipa goulimyi* and a small dark fritillary.

The village of Pirrihos, south-east of Aeropolis, also proved a happy hunting ground. The path up from the village to the small white chapel in its grove of cypress trees was lined with leaves of *Cyclamen graecum* and also masses of *Cyclamen repandum* (in this favoured spot, however, the flowers were already over by 3 April). Among the bushes here we found *Barlia robertiana, Orchis quadripunctata, Ophrys speculum, O. lutea, O. fusca, O. sphegodes* and *O. carmeli*.

In the scrub beside the road from Aeropolis to Yithion there were *Ophrys lutea, O. ferrum-equinum, O. fusca, O. scolopax, O. scolopax* ssp. *cornuta, O. bombyliflora, O. tenthredinifera, Orchis quadripunctata, Serapias vomeracea, Adonis annua*, onosma and a few cyclamen leaves. *Campanula rupestris*

(Fig. 1, p.13) was in flower on the cliffs below the castle of Passava and, in a roadside wood a little near Yithion, there were large numbers of stately *Orchis italica*, masses of *Cyclamen repandum* (in flower – the pink Peloponnesian form), a few *Ophrys argolica* and *O. fuciflora* ssp. *fuciflora* and a solitary (as far as we could see) *Ophrys reinholdii*. The scrub just south of Yithion, overlooking the orange groves with the snow-capped summit of Mt. Taiyetos looming above them in the distance, also displayed the usual crop of orchids – here *Ophrys lutea, O. sphegodes, O. speculum, O. ferrum-equinum, O. scolopax, O. fusca* and serapias.

Yithion itself is a pleasant little port and makes a good base for exploring the southern Peloponnese. Along the coast north-east of the town, the low cliffs are covered in scrub of *Cistus salvifolius* and *C. parviflorus*, containing *Orchis papilionacea, Ophrys speculum, O. tenthredinifera, Serapias vomeracea,* globularia and scattered cyclamen leaves. South of Sikea, on the eastern-most "prong" of the Peloponnese, en route from Monemvasia, the uncultivated terraces have been taken over by poterium and pistachio scrub which protects large numbers of *Ophrys speculum* and *Orchis papilionacea*, a few *Ophrys ferrum-equinum, O. tenthredinifera, Orchis tridentata*, small *Serapias lingua* and other unidentified orchids (in leaf only at the beginning of April) and tulips (again, in leaf only). The nearby fields were bright with *Gladiolus segetum* and fine, large heads of *Muscari commosum*.

The cliffs outside the imposing medieval walls of Monemvasia were bright pink with *Malcolmia maritima*. South-west of Monemvasia, near the village of Elika, there were masses of *Ophrys lutea* in an area of burnt-off scrub, together with *O. ferrum-equinum, O. sphegodes* and some magnificent big flowers of *O. fusca*. Below the village of Kalovrisi we found some more *Cyclamen repandum* in flower, but this time it was not the pink Peloponnesian form but the deep magenta colour that this species usually exhibits elsewhere in its range. Much of the ground under the nearby olive trees was covered in *Cyclamen graecum* leaves, and in the same area we also found a beautiful pale-blue dwarf lupin, red *Anemone coronaria*, some very attractive campanulas and a solitary *Dactylorhiza romana*. Further south, the fields above Neapolis were bright with yellow *Lupinus luteus, Gynandriris sisyrinchium* and *Armeria canescens*.

Beside the road north from Yithion to Sparta, as well as *Fumana thymifolia, Lupinus angustifolius* and *Lavandula stoechas*, we found some very statuesque *Orchis italica* together with a few *Ophrys ferrum-equinum* and *O. lutea*; and, near the village of Potamia, the roadside verge was once again pink with *Cyclamen repandum*.

The eastern flanks of Mt. Taiyetos are cut by many deep gorges, some of which are relatively easy of access. The gorge above the village of Xirocambi has a rough but motorable track up it, and the slopes above a

natural arch over the torrent were dotted with lots of *Orchis italica* and with *Orchis papilionacea, O. quadripunctata, Ophrys lutea, O. sphegodes,* a scilla, *Iris unguicularis, Cyclamen repandum* flowers and *C. hederifolium* leaves. The Parori Gorge, south of Mistras, is more overgrown and boasted lots of *Cyclamen repandum*, some with very large, beautifully marked leaves (Fig. 6, p.15). In places the ground beside the path was carpeted with *Cyclamen hederifolium* leaves, also finely marked and some the size of tea plates. Among the undergrowth and on the rocks there grew *Muscari commutatum*, aubrietia, *Iris unguicularis, Ophrys lutea, O. sphegodes* and *Orchis tridentata.* Mistras itself was decked in ivy, honesty and *Euphorbia characias* ssp *wulfenii*, and as we wound along its steep, twisting alleyways we came across occasional patches of *Ophrys lutea* (including one group of *O. lutea* var. *flavescens* – with flowers completely yellow in colour), *O. fusca, O. spruneri, O. sphegodes, Orchis papilionacea, Muscari commutatum, Barlia robertiana*, globularia and red *Anemone pavonina* and *A. coronaria.*

At the top of the Langada Pass, between Sparta and Kalamata, and on the road up from Sparta there was little to see in the way of flowers: *Gynandriris sisyrinchium, Anemone blanda* and primroses, a few cyclamen and galanthus leaves and, at the top of the pass, the occasional *Crocus sieberi.* In spite of the earliness of the season, we struggled up through the snow to the alpine hut on the eastern upper slopes of Mt. Taiyetos (Fig. 7, p.16); luckily we chose to do this walk on a Monday and were able to follow the tracks of the Sunday walkers through the forest, where the snow drifts were completely obliterating all traces of the path for much of the way. We were rewarded by magnificent views and an equally magnificent display of *Crocus sieberi* covering the slopes below the melting snow. This crocus has quite a large flower and is generally considered to be among the most beautiful of the genus. Of the several distinct varieties that have been named, all have the distinctive golden-yellow throat. The variety we found by the hut on Taiyetos would appear to be subspecies *nivalis*, which was described by Bory as growing on the 'sommités du Taygète', and which is confined to this area. Like other forms of *Crocus sieberi* it has broad, dark green leaves; yellow anthers; orange or scarlet style, large and frilled at the apex with three more or less distinct divisions. The flowers are produced with the leaves or very shortly before they emerge and are somewhat variable in colour. This subspecies differs from other forms in this area in that the throat of the perianth is smooth and free from hairs.

Apart from the crocus, however, the only reward for all our efforts in struggling through the snow was a few very small *Scilla bifolia.* Even on the way up, apart from the masses of primrose flowers cascading down the bank above the track where we left our car for the long trek up to the hut, the only things of interest we had seen had been colchicum leaves,

orchid leaves, cyclamen leaves, primrose leaves and leaves of *Galanthus nivalis* ssp. *reginae-olgae*.

We left the south Peloponnese via the passes over Mt. Parnon and the road up the eastern coast rather than by taking the usual road through Sparta and Tripolis. The town of Yeraki boasts more than its fair share of magnificently preserved little Byzantine churches, many of them with beautiful wall paintings and all of them architectural gems in their own right, as well as an impressive citadel east of the town; all in all, although not nearly so well known, it ranks close behind Mistras in the list of places to visit in this part of Greece. Near the citadel we found more *Cyclamen repandum* with deep magenta coloured flowers. In the scrub and on the rocks there were also red *Anemone coronaria* and *pavonina, A. blanda, Cymbalaria microcalyx,* globularia and lithodora. The pass over Mt. Parnon above Kosmas yielded little except a fine flush of yellow gagea, some *Romulea linaresii, Crocus sieberi* (mostly over) and *Cyclamen repandum* leaves.

Below Kosmas there was not much more – a few *Iris unguicularis, Anemone blanda, Cyclamen graecum* and *C. repandum* leaves and some pink *Anemone pavonina*. The east coast itself between Leonidio and Argos was not much better: occasional patches of *Ophrys speculum*, a few *Cyclamen repandum* (including a very dark red one) by the roadside and in the pistachio scrub. Our best find was a fine group of large plants of *Campanula rupestris* in full flower on the cliffs above and below the road north of Astros. Generally the hillsides were remarkably bare, particularly compared with the west coast, and we noticed an apparent absence of even anemones, asphodel and euphorbia.

More interesting was a trip beyond the great ancient theatre of Epidaurus up to the village of Ano Fanari, where we had found *Sternbergia lutea* in flower in October 1980 (see JSRGC No. 70, p.56). In exactly the same spot, by rocks above the village, we found some more small fritillaries, similar but not identical to those we had found south of Vathia (see photograph) and also one solitary *Cyclamen hederifolium* in flower! There was no sign of the leaves of *Sternbergia lutea*, however, and they must have been grazed off. On our way up to Ano Fanari, south of the village of Trahia, we found red anemones growing in the fields on the left of the road and in the fields on the right red tulips – *Tulipa boeotica*, the more northerly cousin of *Tulipa goulimyi*. Apart from these, however, and some *Bellevalia romana, Iris unguicularis* and *Anemone blanda*, not a great deal seemed to be in flower in this north-west corner of the Peloponnese. The only new finds we noted en route for Corinth via the coast road from Epidaurus were some small *Neotinea maculata* virtually hidden in the pine woods above Korfos, some *Orchis italica* and a field full of *Ornithogalum nutans* south of Corinth itself – like a snowdrift beneath the blossoming fruit trees.

Clematis x cartmanii 'Joe' P.C.

MARGARET AND HENRY TAYLOR

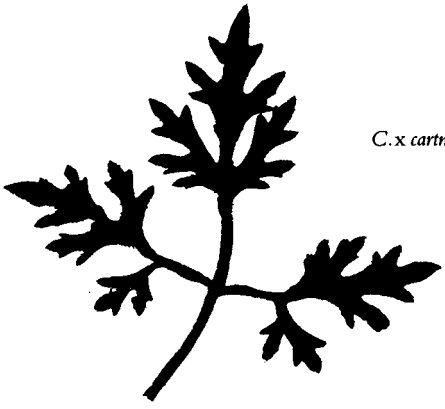
THE cover of this issue has a picture of an exciting new chance hybrid which first flowered in late April 1985 and had the following origin.

In recent years, seed of *Clematis marmoraria* has been very generously sent to Britain by Mr Joe Cartman, of Christchurch, New Zealand. Among our seedlings raised from a sowing on 30.6.83, one plant grew more vigorously than its neighbours and eventually produced white flowers double the size of those of *C. marmoraria*. We were puzzled by our attractive freak and sent photos to Mr Cartman who, after discussion with NZ botanists, has postulated the parentage as *C. marmoraria* x *paniculata*. *Clematis marmoraria* has separate male and female plants and, though Mr Cartman had hand-pollinated pot plants in his glasshouse, a bee or the wind may have carried in some stray pollen from a male *C. paniculata* growing outside with an overlapping flowering period. We have coined the grex name *x cartmanii* for the progeny of *Clematis marmoraria* x *paniculata* and our first clone is named 'Joe'.

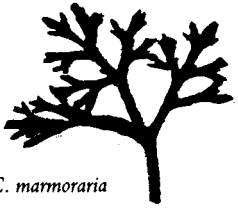
Perhaps a brief description of the parents would be helpful before discussing the hybrid.

Clematis marmoraria is a NZ endemic, "From N.W. Nelson a low-growing semi-woody plant of rocky alpine situations found in open herb fields in crevices among rocks and among low scrambling shrubs". "The flowers are creamy white and held clear of the plant, so far found only on two mountains on hard creviced marble". (Rare and Endangered Plants of NZ, by Dr David Given.) First specimens were collected above the treeline at 1280 to 1462m in 1970 by Dr Barry Sneddon of Victoria University, who subsequently described the species. In our experience the male flowers with a large brush of stamens open wide, whereas the smaller green-tinged female flowers remain cup-shaped. Later the silky, fluffy seed heads of the females are very spectacular. The whole plant looks more like an evergreen dwarf white-flowered ranunculus rather than a clematis. It forms an uneven hummock about 6cm high with flower buds which are visible 3 to 4 months prior to swelling and opening.

Clematis paniculata, another NZ endemic, has three-foliate leaves with dissected to entire leaflets. Mr Cartman's has entire leaflets as in the accompanying diagram. This species tends to grow in lowland forest where it



C. x *cartmanii* 'Joe'



C. marmoraria

C. paniculata

climbs to the top of some very big trees. "It is a rampant climber with thick vines and leathery leaves with twining stalks and large flowers". (The Oxford Book of NZ Plants, by Moore and Irwin.) According to Mr Cartman it is hardy in Christchurch, NZ, where it gets −12°C ground frost, but very little air frost. It also grows naturally in situations which are quite a bit colder than Christchurch.

Clematis (*marmoraria* x *paniculata*) x *cartmanii* 'Joe', our chance hybrid, is male flowered. In Scotland, flower buds are visible in December, and these greenish buds open in late April to snowy white flowers on short stalks. The plant in our 1985 photo has a small stake holding it upright, now in 1986 it has 14 radiating floppy stems each 10 to 30cm long. It has long-lasting evergreen leaves similar in shape to those of *C. marmoraria* with finely dissected leaflets and short petioles. There is no tendency to climb and it does not appear to have sensitive leaf stalks like its other parent. Some NZ botanists reckon that there could be genetic interest in a cross between a climbing species and a non-climber such as *C. marmoraria* which might be a relict species.

So far our plant has been grown in an unheated alpine house with air temperatures down to −11.6°C, but, since *C. marmoraria* is growing undamaged outdoors, hopefully the hybrid may also be fully hardy. When we grew the former in compost containing limestone chips, the leaves turned an unhealthy yellow, but quickly reverted to dark green on repotting in an acid compost. The hybrid is easily propagated using internodal cuttings, whereas Mr Cartman has found that *C. paniculata* is difficult and *C. marmoraria* easy. If cuttings are inserted with a set of buds below ground, this gives the plant a chance to sucker, which is its natural habit of growth, though no doubt cuttings without underground buds would root just as well. In NZ, Mr Cartman has deliberately crossed the two species and has germinated the seed, which confirms the possibility of a viable cross.

Another accidental hybrid has also turned up in NZ in Mr Cartman's latest batch of *C. marmoraria* seedlings. He writes, "It suddenly grew away and is now several times larger than the others," and he wonders, have any other hybrids appeared in Britain from the *C. marmoraria* seed which he has sent to the club exchanges?

C. x *cartmanii* 'Joe' was awarded a Preliminary Commendation when shown at Chelsea on 19 May 1986.

Does anyone care?

TONY LOWE

MY APOLOGIES to Philip Swindells for stealing the title from an article on conservation which he wrote in 1983. As General Secretary of the National Council for the Conservation of Plants and Gardens, I have to ask this question continually. Among the dedicated horticultural enthusiasts there seems to be little doubt that what we are trying to do is in principle sound, though some have reservations. Internationally we are beginning to make an impact, as we are the only conservation organisation dealing with cultivated plants. We have the verbal support, but do we have the practical support? Do we have sufficient workers actually doing something more positive than talking? The Deed of Trust gives excellent guidance as to our objectives, but I must ask the question and also prompt Council to ask the question – are we making any headway in achieving those objectives? The task we have set ourselves is vast and daunting; those who expected something to happen as soon as we were formed have probably been disappointed. However, although we may have been rather quiet, it is not because we have been idle; it is because it takes time to set up an organisation and to achieve results. I intend that this article should be a pot-pourri of my normal lecture on the work of the NCCPG which, in itself, is a pot-pourri. I hope to précis the 7,000-word lecture so as to leave you with some idea of our progress without giving you conservation indigestion.

Firstly, a brief history. In October 1978, Lord Aberconway opened the Royal Horticultural Society conservation conference, the conclusions of which were subsequently published in 'The Garden'. In March 1981, Duncan Donald was appointed Horticultural Taxonomist and subsequently General Secretary. He was later joined by Elizabeth Crowle, and between them they set up the organisation as we know it today. It was not until July 1984 that they got any help with a rapidly growing workload. At that time three Manpower Services Commission employees joined the staff, each to work in one of the major areas of interest, namely: the collation of a list of rare plants, the administration of National Collections and the conservation of gardens. I joined the NCCPG a year ago as the administrator, not as a horticulturist. My interest in plants and in gardening is considerable, but my horticultural knowledge is limited.

The main point that comes out of the short history is that we are young, and it is unreasonable to expect miracles from a being of such youth. I

believe that what we have achieved in less than five years is quite remarkable. We have had the normal problems of any fledgling volunteer organisation. We have nearly run out of money and had a number of administrative upheavals. These we have survived, and now find ourselves with a sound, well-balanced central team and sufficient funds to operate at a modest level for the next two and a half years. Our track record has now persuaded many of our earlier detractors that we are here to stay and to work for the long-term benefit of horticulture.

The all-important factor in any volunteer organisation is the human one, the member. Despite our efforts, we do not appear to progress past 3,500, but that figure is misleading as it represents only those members who have paid their subscriptions. It does not reflect those who, though not members, still give us invaluable support. It requires a capacious pocket to belong to all the horticultural organisations. The members of many of these organisations applaud what we are doing and give us practical and moral support, but their funds and time do not permit them to become members of the NCCPG. Initially many, particularly the longer-established organisations, viewed the arrival of this new infant in the horticultural family with suspicion; would it survive and would it, in fact, have a contribution to make? It appears that the verdict has been favourable, because more and more we are being accepted. This is healthy, because we cannot do this thing alone. We need the knowlede and assistance of the specialists and the distributive power of the trade. With these and our own membership we can achieve our objectives.

The membership is organised into 35 County or Area Groups, 20 of which are well established and strong, the remainder growing. Whatever their size or maturity, each makes a significant contribution. There are six groups in Scotland; Ireland is looked after by the Irish Plant Society; the Isle of Man has a strong Group, and with few exceptions all areas of England are represented. It is hoped that the Welsh infant Group will soon be strong enough to walk.

The Groups are the field force and are involved in all aspects of the NCCPG Trust's work. In their own areas they search out those plants which, in particular, the trade cannot supply, propagate them and distribute them. Some Groups concentrate on plants of particular interest to their part of the country, perhaps the plants of a particular breeder or plantsman, or the introductions of a plant hunter who was born or who resided in the County. Because a lot of this distribution is by plant exchange, this method will not save plants; it will only satisfy the interest of the enthusiasts. It also fails to educate the vast gardening public and show them these beautiful and fascinating plants which they will enjoy growing.

Many of these are no longer available from nurseries because commercial

expedience has required them to rationalise their lists. A number of Groups have gained a reputation for selling a wide range of well-presented, well-grown, interesting plants, many of which are not available from commercial sources. Local nurserymen and plantsmen, in particular the specialist, are welcome at such sales. Initially it was the enthusiast who attended these sales, but slowly their reputation has brought in a wider public. One Group has little difficulty in selling £1,000 worth of plants whenever it opens its doors.

The Groups also involve themselves with the National Collections in their areas. It was the concept of National Collections which attracted some adverse criticism in early days. There are now 280 National Collections and about 75 new collections are designated annually. The Holders cover a wide spectrum: Botanic Gardens, Local Authorities, the National Trusts, a middle school and many private holders. For an increasing number of genera, there are now duplicate collections held in areas which are climatically and edaphically disparate. Disease has not so far been a major problem: a controllable incidence of violet root-rot, *Helicobasidium purpureum* in kniphofia; pansy sickness which Leicester Botanic believed to be primarily a climatic problem – nevertheless the collection will have to be re-established with pathogen-free plants; honey fungus and fireblight among the sorbus in Winkworth, but that was there before the National Collection was formed and could have happened to anyone. Promiscuity is another problem, and wherever possible this is being overcome by establishing dispersed collections in the care of County Groups. One problem which is going to exercise us for some time to come is identification and naming. However, by collecting a large number of species, varieties and cultivars together, comparison is possible, and an acknowledged expert can give assistance in sorting out the mess that exists within many genera. As more and more Collections come nearer to the definitive state, which is the ultimate aim, more and more taxonomical and botanical work can be undertaken. As from February 1986 the Collections will be starting to contribute material to the herbarium of cultivated plants being established by the RHS at Wisley.

A major problem with National Collections is theft. It has been apparently quite acceptable in some areas of horticulture to steal propagating material and plants. Sadly, the thieves see the National Collections as good hunting areas. This will not cease until all organisations persuade their members that stealing plants is just as much a crime as shoplifting.

Some Groups have been very active in Garden Conservation. However, it was necessary first to define the criteria for conservation efforts, which gardens and what within them is the area of interest. The 1978 Conference stated that, 'In order to preserve and conserve plants, it was of vital

importance to preserve the gardens, and no type of garden should be excluded'. This was all too sweeping, so the criteria were further defined in November 1985 and are now:

"a. Large and small sites of good design containing rare or threatened plants, good plant associations or plant collections.
b. Established gardens which are in danger.
c. Examples of a particular style".

It was necessary first to find the gardens, and this is being done by Groups working within their boundaries, recording in as much detail as possible those gardens which meet the criteria. We then came across another problem: garden conservation was becoming fashionable and many organisation 'want in' on the act. It was clear that valuable resources were being wasted. A set of liaison meetings was set up to define each specialist organisation's purview. This has been completed for some of the major active organisations, and a Report will appear in the relevant Newsletters by early next year. It is essential that we correct the errors of the past, the main one being a lack of records. The first task is, therefore, to get all County and Area Groups to visit, survey and record. In this we are working in conjunction with the York Centre and English Heritage. NCCPG has the largest membership spread over the widest area involved in garden recording. As most other organisations involved have limited membership, the main onus of this task falls on us. We intend not only to survey the layout of the garden, but also to list the plants. This will help build up records of where the less common plants are growing. When we find some choice rarities, we would hope that the local group would be able to propagate and distribute them.

Yes, someone does care, but the sum of the someones, in the overall context of gardening, is very small. If we are to conserve the greater part of our wonderful garden heritage, we need the help of all interested in gardening, from those who love the majestic and monumental to those whose affection is for the petit and perfumed. We are a young organisation and as such our footsteps sometimes falter, sometimes they go the wrong way and sometimes get put in the wrong place. We welcome co-operation and help so that in the future it will not be someone caring but everyone caring.

Tony Lowe is General Secretary of the National Council for the Conservation of Plants and Gardens and whose address is c/o Wisley Garden, Woking, Surrey.

Finding a place for it: The W. C. Buchanan lecture

DAVID MOWLE

ONE of the fascinations of gardening is the variety of garden styles one can find in visiting the gardens of friends and acquaintances. One rock-gardener may strive to perfect a year-round balance of foliage colour and architectural shape while another may delight in massed flowers at one particular season. My garden is a small one and yet I have always wanted to grow the maximum number and the widest possible range of alpine plants. My gardening satisfaction therefore comes from "finding a place for it".

My 400 square metres of garden is within a few hundred metres of the tideline of Morecambe Bay on the north-west coast of England, so that it has a narrow annual temperature range (−10°C to +20°C) and a high rainfall (110cm) spread fairly evenly throughout the year. Snow is rare and lasts only two or three days.

From my earliest attempts it became apparent that many alpine plants would grow happily in the natural heavy garden soil in moist shade, but that very few enjoyed dry shade. The driest most shaded narrow strip on the north-east side of the house was therefore used as the site for frame-covered raised sand-beds for seed germination and for housing young potted plants where artificial watering would be needed anyway. A wide range of alpine seeds will germinate and grow on in these inhospitable conditions, but there will obviously be exceptions, the most notable being primulas and ericaceous seeds which are germinated in warmer, lighter cutting frames under glass. Once germinatd, some of the trickier new primula introductions from Nepal have lived entirely in these cold draughty frames, with *Primula wollastonii* still flowering regularly from Dr George Smith's 1976 introduction, and with *P. concinna* consenting to flower during its short, three to four year lifespan.

Plantlets showing poor leaf colour or lanky growth in these miserable plunge-beds are moved into slightly lighter areas which are reached by sunshine for an hour or two a day. Many plants stay plunged in pots in these lighter conditions, but *Primula barnardoana* joined the Scottish native *Trientalis europea* in a lighter and therefore slightly warmer small peatbed. I find it surprising that the European primulas enjoy these almost sunless conditions in this garden. *Primula hirsuta* and *P. clusiana* both flower

reliably in a trough filled with a John Innes type mixture and seeing virtually no direct sunlight though open to the sky overhead and to the north. Although most saxifrages require more light than these conditions, *Saxifraga brunoniana* B.M.W. 128, another Nepalese plant, flowers and thrives in this same trough.

In the dappled shade happily cast by a neighbour's cherry tree, many more plants will grow successfully. Here *Primula polyneura* has seeded itself round *Trillium grandiflorum* to make a delightful flowering contrast. These plants are in the natural heavy loam of the garden which is top-dressed annually with leafmould and a little grit to imitate woodland conditions.

No leafmould has been added to the area where the strange purple-spotted yellow flowers of *Tricyrtis macrantha* appear each June, following on from the flowers of *Iris suaveolens* and *Fritillaria lusitanica*. These and many other bulbs, rhizomes and corms occupy the dappled shade under the sunny side of a small apple tree whose roots help to keep the ground rather drier during the summer, when *Viola tricolor* and dwarf linaria species disguise the dying bulb foliage. The lovely *Zygadenus fremontii minor* lives here. This Californian native was raised from seed sent over by Wayne Roderick in 1973. I can think of no tougher foliage than the leaves of this plant which emerge each November, yet the worst winters inflict no damage on it and it is still handsome in May when the 30cm-high flowering spike bears its scores of yellow-centred white stars. Not far away, *Fritillaria pallidiflora* flourishes in similar conditions along with Ff. *gracilis* and *messanensis*. In trying to copy these conditions in another part of the garden, *Fritillaria pallidiflora* bulbs were planted at the outer edge of the foliage of a young *Chamaecyparis* 'Boulevard'. This semi-dwarf conifer has spread with alarming speed but the fritillaries have also thrived and now their stems make their way along the ground for eighteen inches (50cm) before reaching the sunlight and turning vertically to flower!

In slightly sunnier conditions but still in the heavy, moist, natural soil, *Sanguinaria canadensis* fl. pl. has slowly increased from a small clump to a magnificent 60cm across in twelve years, after which it has been divided up. Unlike so many plants which expand outwards, the centre of the mature plant remained floriferous and in full leaf. *Crocus gargaricus* has also enjoyed these sunnier conditions, nestling under the solid foliage of *Helleborus* x *nigericors* 'Beatrix' and the gentians, *G. septemfida* and *G. lagodechiana*, give colour later in the summer. However, there do not seem to be many alpine plants which relish full sun and a heavy soil, and we must turn either to the enhanced moisture supply of the peat bed or to the specialised mixtures of the scree beds to clothe our sunnier ground with happy alpine plants.

The moisture-loving fritillaries of the Himalayas and farther east are happy in the cooler parts of the peat bed where *Cypripedium reginae* (Fig. 4, p.14) slowly increases. The asiatic gentians and such plants as *Meconopsis integrifolia* enjoy more sunshine in the same mixture, and the really dwarf ericaceous shrubs revel in full sun. Here *Cassiope fastigiata* (Fig. 5, p.15) covers itself with flowers, each red stem and calyx appearing to stain the white flowers with pink in the form brought back as seed by the late Len Beer under the number B.542. There are several good recent reintroductions of this widespread Nepalese plant which are worth seeking out. Because of the high rainfall, the garden soil under these beds had plenty of granite chippings incorporated before being overlaid with 10cm of peat and leafmould about one quarter by volume of 3mm granite chippings.

So far we have confined our attention to plants which will grow well in moisture-retentive habitats making use of areas of the garden without too much drying sunshine or, where the sunshine is stronger, adding humus to avoid over-dry conditions. But the largest bulk of alpine plants are enthusiastic sun lovers growing in soils notable for their ability to drain off surplus water rapidly. Before we move on to looking at suitable garden sites for such plants we must first note that rapid drainage and dryness are quite different things and that the bulk of alpines need comparatively large volumes of water flowing through the rapid drainage to grow well. This need not worry west-coast gardeners but can cause difficulties in areas of low rainfall unless a hosepipe is kept at the ready.

Alpine plants can be grown in a wide range of soil mixtures from an unmodified, well-drained, sandy or gravelly loam through to a bed of 45cm of pure 6mm chippings. To claim that one special soil mixture will give optimum results in many different gardens would be misleading. In practice, alpine plants need excellent drainage and some humus, the best balance varying from plant to plant and from garden to garden. Six mm chippings will satisfy our needs and are easy to obtain, being a standard road-making material. Some limestones contain a dust which can form concrete-hard layers below the surface and, as limestone appears to confer no particular benefit to the plants under garden conditions, shales, slates, granites and hard sandstones would seem to be the first choice. As the cost of chippings is almost entirely the cost of transporting them to the garden, the nearest supply will be the most attractive.

If the ordinary garden soil of the garden is not subject to water-logging, all that is necessary is to mix the chippings with one tenth their volume of peat and spread 20-25cm of this mixture on to the soil surface and plant into it. If the alpine mixture is to be retained by walls, these should not be water-retaining but should be left as far as is possible without cement or mortar. Beds of greater depth than 20-25cm seem to be of no benefit to the plants

Fig 9 *Pleione hookeriana* (See p.57) Photo B. Starling

Fig 10 *Cyclamen hederifolium* (See p.32) Photo H. Esslemont

Fig 11 *Ranunculus x 'Ahrendsii'* (See p.66) Photo L. J. Bacon

and suffer settlement over the years, leaving the retaining walls standing above the bed surface. This mixture of 10% peat with chippings I refer to as a rich scree. It could be that rather more peat would be beneficial in a garden with a rainfall of less than 1100mm a year.

My oldest scree of this type is now eleven years old and is still satisfactory. The density of plant growth has increased over the years by natural spread and by the self-seeding of a wide range of plants and bulbs so that it is beginning to approximate to an alpine lawn. Occasional investigation has revealed that worm activity has now added a proportion of soil to the bottom 7-10cm of the scree, and I think that this will eventually reduce the number of species able to grow successfully in it. Meanwhile *Gentiana acaulis* forms are more successful here than in any other situation in the garden, and *Campanula alpestris* runs happily about. *Tulipa aucheriana* and *T. urumiensis* seed themselves around as do *Fritillaria acmopetala* and *F. pyrenaica*. These bulbs have probably pulled themselves down to near the soil beneath, but the many crocus species stay quite close to the surface and are occasionally replanted lower down.

But we must not ignore the need to search out in more detail the microclimatic needs of each species. Where the scree surface slopes slightly away to the north is a slightly cooler area appreciated by the Nepalese *Androsace rotundifolia*. A small step down on the north side of a small terraced scree allows an area of shade behind the retaining stones which is much enjoyed by *Jeffersonia dubia* lifting its flowers and leaves into the sun from its cool root run. The dwarf wild species of narcissi enjoy this site as does *Tsusiophyllum tanakae* whose branches spread up and over the sunlit tops of the sandstone blocks.

At the opposite end of the habitat range are the south-facing steps of the same bed, or, on a larger scale, a rich scree below south-facing interwoven fencing. Here flourish *Edrianthus pumilio* and *Cyclamen cilicium, Paeonia cambessidesii* from Majorca and *Tulipa linifolia* – but not together or the clash of pink and bright red is frightful!

When planting into any scree mixture, two points should be kept in mind. Firstly, most of the soil should be removed from the roots of the plants which are then spread as widely as possible amongst the chippings. If this is not done, the roots will try to stay in the original soil-ball and the plant will not establish. Secondly, the scree around the plant must be kept well watered until the plant has settled in. Planting in spring and early summer is generally most successful unless a plant is known to develop new roots at other times of the year. Bulbs should be planted towards the end of their dormant period – usually during early September.

With reputedly difficult or with rare plants it is as well to pot on purchased or seedling plants into a four-inch (10cm) pot of a 50/50 mixture of

leafmould and chippings before thinking about outdoor planting. Just as the roots are seen to reach the edge of the pot it can be turned out and gently planted without too much disturbance. *Silene hookeri* was established in this way and will give three or four years of pleasure. Although hardy, it seems to be susceptible to late frosts damaging its new growth, and a small pane of glass in April is recommended. Seedlings of the rare *Pulsatilla aurea* from the Caucasus were established by this technique although, as it becomes more readily available, routine removal of the soil from its roots will probably prove to be quite satisfactory.

With so many lovely plants growing happily, further progress might seem unnecessary, but a careful look at the high alpine species will suggest that growth is a little *too* lush and a look at the record book will show that such plants are only surviving for perhaps three or four years against a natural lifespan which is many times longer. The time has come to build a leaner scree. Harder growing conditions can be achieved by using just pure stone chippings or by mixing in just a small quantity of soil to form a film on the chippings surface. Both mixtures have their place in the enthusiast's garden.

Plants take much longer to establish in these lean screes; perhaps two or three years will pass before they look vigorous and content, but the reward is the compact and natural look of the plants as they mature, and flowers are usually abundant.

Bulbs in general do not like these very lean conditions, but, as always, there are exceptions. *Narcissus minor* and the October flowering *Galanthus reginae-olgae* are flowering and multiplying slowly, and *Fritillaria pontica* and *Romulea bulbocodium* survive and flower occasionally. The smaller campanula species respond well with *C. tomasiniana* even managing to grow too vigorously, and *C. hercegovinensis* disappearing under its cover of bloom. Here *Calliathemum kernerianum* keeps its tight alpine mats and does not try to imitate a lowland oxeye daisy!

In the very leanest scree of all, just 45cm of bare chippings, success is limited. *Erinacea pungens* is well established and completely hardy, flowering and seeding well. A surprising success is *Saxifraga luteo-viridis* with its bright yellow flowers on hairy croziers. So often stated to require moist shade, it is here in full sunshine.

The true high alpines, needing extensive root runs but little sustenance, find a happy home here. *Androsace globifera* grew compactly and flowered respectably until overlooked in a rare summer drought. Such successes serve to ameliorate the many failures to get plants established in such harsh conditions.

I have tried to outline a strategy for filling a small garden with a wide range of different alpine plants, a strategy of balancing growing mediums with moisture availability and exposure to sun or shade. In doing so I have told you mainly of the plants which have succeeded in different areas, but there are still many problems.

Confessions of a prodder

JAMES COBB

I USED to have a friend called Ken who grew tomatoes with a passion that gnawed at his very soul. He claimed that horticulture was pure science and that there were no green fingers only black ones. He never seemed to produce anything that even approached his ideas of perfection, and his dump became a legend among the back-street traders of a nearby mining village, and my mother and I worked shifts producing chutney for the local Women's Institute stall. Fortunately he earned his living singing in a dance band and he now grows totally uniform F1 hybrid cucumbers which soothe his peptic ulcer. I had completed one year at university when I first came across him and we both thought I was intellectually pretty hot stuff, and we argued for hours over his extraordinary horticultural philosophy. Black fingers, he argued, belong to people who annoy plants by prodding them. I've no doubt he had right on his side, too, with all the different skin secretions that could be transferred. Since those heady days I have become a professional experimental biologist or a post-doctoral prodder. Scientific endeavour is thinking of an idea, then devising a series of experiments to prove yourself right, or *in extremis* fudging the answer with statistics. This is all very well if you have an unlimited supply of biological material, but rather more fraught if you have only one plant of *Eritrichium nanum* which has looked progressively sicker from the moment you acquired it.

Sadly, the last few years have taught me that I am a prodder by nature, and I ask myself has the mayhem that I have inflicted on my long-suffering plants actually taught me anything. One even sadder thought fills my mind as I write, since I know if you, too, are a prodder these cautionary words will have a salutory effect only until you next pick up a pot of *Cypripedium macranthum* that "should have been through ages ago".

I always believe that the labels on containers of insecticides, fungicides and fertilisers are written by the unimaginative. Even at the tender age of six I planted carrots for succession by stratifying them in layers 25cm deep and emptying a whole packet of Clay's fertiliser on the top. Recent advice that Bill used double-strength fertiliser appealed to me and burnt the roots off 90% of my bulb collection; only Oncocyclus iris loved it. It is fortunate that bulbs are forgiving, though even two years later many are still not back to their original size. Interestingly, a friend gave me a battery-operated prodder that "bleeps" faster the wetter the pot. It positively shrieks at you

if the salt concentration is too high. I would have laughed at this sort of gimmick once, but in the alpine house with a mixture of various sizes of clay and plastic pots, some plunged and some free-standing and all generously covered with grit, it really can help. The "bleeping" is much better than a visual dial as it intrudes into one's complacency, and for dormant bulbs in spring it is excellent for keeping them all just right and I tip far fewer out "to see what's going on". Twice recently with dryish pots a shriek has warned of high salt concentrations, and investigations make me wonder if an excess of some lightweight materials sold (not Perlite) do not selectively adsorb nutrient salts and build up concentrations.

I have done a good deal of prodding in my time on cyclamen and Oncocyclus iris. In both cases moisture below the ground is critical. I used to grow cyclamen too wet and they rotted, now I grow them too dry and they stay dormant. I am gradually acquiring a species collection from seed, and the robustness of the seedlings and their much closer adherence to the proper seasons of growth is teaching me a lot more about their cultivation than the collection of mature tubers that I originally purchased. Oncocyclus iris, too, seem to need exact moisture conditions. Dry round the rhizome but moist 20cm down. My original bed was well raised, about 50cm above ground, and they grew well in this because I had control over the moisture at all depths. The new bed is lower and the Oncocyclus do not like it; the Junos thrive, however, and the Regelia iris are positively rampant. I spend many a happy hour digging for Oncos, and I'm sure nearly all species have roots that are fat with stores at all times of the year. In fact when happy, some almost resemble the Juno iris. Even at their most baked in summer some roots are active, and when split up and all the roots go dormant they invariably sulk for a year. Maybe the oft-given advice to lift and dry them is fine in areas where they grow well, but in marginal areas ensures a lingering death. Too wet, mind you, is sudden death.

I agonise over Cypripediums. In spring my children are sent out as escorts to report back to higher authority, but I always sneak back later. I've dug up more Cypripediums than I have had hot dinners; in fact my wife would tell you that if I bought fewer Cypripediums I might be able to afford more hot dinners! I can't offer much comfort here except to say that they die slowly. One *C. guttatum* is still alive as a length of root after six years below the ground. I suspect that success is related to root damage. Imported plants are often severed with only a few roots per living bud or with most roots damaged. Prod, with care, and you will find the roots die back cm by cm, one by one. Once established many will thrive, and by judicious prodding and careful division a single small plant of *C. reginae* (Fig. 4, p.15) is seven plants in ten years. I have an ambition to produce 100 flowers in a single year from this plant before I too fade away.

One genera that loves prodding is Pleione. It's a great joy in spring to take all the pots to bits and repot in all sorts of quaint and wondrous mixtures. They are forgiving plants, for after flowering they are banished to the gloomy recesses of the chicken-run roof. Up until this year I dried them off in autumn and kept them frost-free. This late autumn however, it did not stop raining long enough to dry the front path off and they went into winter quarters soaking. They are plunged in sand in fish boxes and large onion sacks filled with polystyrene chips are placed over the top. This six-inch quilt lets them breathe but keeps out all frost (no heat is used and the water tub in the greenhouse is often frozen hard). This spring one could squeeze handfuls of water from the dead old pseudobulbs, but not one of the new ones was anything but fat and happy.

I would therefore like to advance the philosophy of my old friend Ken and propose the idea that a prodder is a scientist who does not have green fingers, and that the corollary is that someone with green fingers is a scientist who is intuitively so sure of his facts that he does not need to prod. Actually, and this is sour grapes (which is all one usually grows in Scotland), I'm glad I'm a prodder. I may never win a Forrest Medal, but it's awful fun.

Obituary

ROBERT MASTERTON was the Vet at Aberfeldy for more than 40 years and it is with deep sadness that we report of his death at Cluny on Saturday 29 March, 1986. It is not as an experienced veterinary surgeon that we remember him, however, for he had another absorbing interest in which he excelled, gardening. With help and encouragement from his wife, Betty, who died recently, he created a wonderful garden at Cluny which, over the years, was visited by thousands of enthusiastic plant people. They went to admire a garden that had been fashioned from a derelict site on a Scottish hillside overlooking the River Tay and to gaze on plants which flourished as though in nature. Trees and shrubs, rhododendrons, primulas, lilies, nomocharis and many other genera were successfully cultivated at Cluny, for Bobby seemed to have the knack of finding the correct environmental setting in which to place his special rarities. Petiolarid primulas were grown to perfection, and those of us who were fortunate enough to visit Cluny when *Primula sonchifolia* was in bloom will always remember that stream-side planting where they flowered magnificently. An illustration of that area can be seen in the "Alpines '81" Conference Report.

Bobby Masterton served our Club for many years, being first elected to the Council in 1947. It was he who conceived and started the very successful Seed Distribution Scheme in 1948/49 which many of us still benefit from today, and he was its Manager for the first six years. For a time he was also Curator of the Davidson Slide Library, and by his skill as a photographer added many new transparencies to the collection. He was a successful exhibitor of plants in the days when there was keen competition in the six and three pan classes. Naturally he was frequently invited to judge at Club Shows, and he very much enjoyed being a member of the RHS Joint Rock Garden Plant Committee, often travelling to Chelsea to represent the SRGC there. Many Groups invited him to talk of his experiences in the garden, and from these meetings they learned a great deal.

Bobby was a shy but extremely generous person who gave freely to interested visitors whom he thought would look after his particular favourite plants. He will be missed by experienced and by relatively new members to the Club, and we extend our deepest sympathy to his three daughters, Marjorie, Gail and Wendy and the families.

ALFRED EVANS

Plant Portraits

Pleione hookeriana

J. D. Crosland

One of the smaller flowered of the species in cultivation, *Pleione hookeriana* Lindl. (Fig. 9, p.49) makes a worthy contribution to the diversity of interests in a genus steadily gaining wider popularity among specialist growers of alpines. Not only is it reported to be one of the most widespread of the species in the wild, inhabiting Burma, Assam, Sikkim, Nepal, Thailand and Tibet, but also, in general, it is to be found at higher altitudes than most other species, the altitudinal range extending from 2,000 to 4,000 metres.

A plant of the forests consisting of rhododendrons and other trees, it grows strictly as an epiphyte on moss-covered branches, as well as moss-covered rocks.

Not surprisingly in a species of such wide distribution, the flower exhibits some variation of colour, the sepals and petals a lilac to rose pink, very rarely white, the lip white, flushed yellow, usually spotted purple or yellowish brown.

During the growing season it is warm and wet, followed by a drier autumn, so the pseudo bulbs enjoy a ripening before the onset of winter, during which they are frequently under snow.

Cultivation presents no special problems and, although the hardiness of the species varies quite markedly, this is one of the most suitable for cultivation in an unheated alpine house, or cold frame. A compost comprising one part each by bulk of loam, peat and sand, plus three parts of live sphagnum moss, suits it well. Shallow pans are adequate, as the bulbs are not deep rooting, but these should be well crocked to ensure perfect drainage. Repot annually, in February or March, just before new growth begins after winter dormancy. Watering should be minimal at this stage and, until after flowering, when a single leaf begins to develop. As the leaf develops, watering should increase to ensure maximum growth during summer.

The cycle is complete when, in autumn, the leaf turns yellow and falls.

When grown cold, no further watering is necessary until the new season's growth begins the following spring.

Lupinus lepidus var lobbii (L. lyallii)

Richard Sullivan

This wondrous little lupin is graced with all the qualities that drive alpine gardeners mad with desire. It is a perfectly proportional miniature member of a much loved genus. The flowers are beautifully neat with a rich colour embellished by contrast with delicate silver foliage, and, as if to secure our fascination, the plant carries an infamous reputation for being difficult to grow. I have listened to litanies of "fishermen's tales" about the one that "got away" before flowering.

From a forked tap-root (carrying the usual nitrogen-fixing nodules of the Leguminosae) arise the many short sturdy stems. These are close-pressed to the ground and spread out to form a mat, in my case about 20cm wide. (The word carpet is sometimes used, tantalisingly, of plants in the wild, but I am quite content with the most modest of mats.) The delicate leaves arise on petioles about 2cm long and are divided into 5-7 leaflets about 1cm long, each folded into a V shape. Both leaves and stems are covered in silky hairs giving a fine silver filigree effect. In winter the leaves are lost and the stems exhibit a purple suffusion. In midsummer flowers are borne in dense racemes and are carried proudly above the foliage reaching about 10cm in height. The colour varies considerably from a clear blue, with individuals having more or less purple or white markings. The upper petal or banner is marked with a white central stripe.

This species is native to Western North America, particularly the Cascade Mountains of British Columbia, Washington State and Oregon. It grows in screes of weathered pumice side by side with other alpine aristocrats, e.g. *Phacelia sericea* and *Erigeron aureus*.

In cultivation it is very short lived, although it throve for two years for me in a trough containing a very crunchy well-drained granite chipping scree mixture. (Lupins dislike limy soil.)

In its first winter the plant was covered with a pane of glass as the remains of the woolly foliage retain moisture which can lead to rotting. Early spring is the really dangerous time, with plants often failing to revive. The following summer it bloomed profusely and had set seed, being self-fertile, by August. The seed was carefully collected as the pods tended to explode on drying. My plant then promptly died, but I had good seed to try again. Seed should be sown in spring rather than autumn as winter casualties can be high.

A single seedling now carries all my hopes for next year, and I can vouch that it merits all the cosseting needed to make it flower.

Asperula nitida ssp. puberula (Asperula sintenisii)

Sandy Leven

This delightful plant (Fig. 3, p.14) has been grown under the same name of *Asperula nitida* ssp. *puberula* since its introduction to cultivation in 1966.

A beautiful plant no matter what its name, is still a beautiful plant. As explained in a recent AGS bulletin (Vol. 52, page 120), the plant widely grown as *Asperula nitida puberula* must now be called *Asperula sintenisii.*

A. sintenisii is endemic to Mt. Ida (Kaz Dag) in Turkey. Most of the plants currently grown derive from the collections of Albury, Cheese, McPhail and Watson in 1966 and 1977. John Watson gives a wonderful account of this expedition in Vol. 39 of the AGS bulletin. He tells how they wanted to visit Kaz Dag in order to find *Dianthus erinaceus* var *alpinus.* Kaz Dag is a limestone mountain whose slopes are clad in pine forests. They were able to drive to the summit in their Land-Rovers. At the tree line they found their dianthus flowering in large springy cushions. This in itself might have been reward enough but, exploring the top of the mountain which is composed of almost bare limestone pavement, they found other cushion plants – acantholimons, arenarias, phyteumas, drabas and *Asperula sintenisii.* Since they were there between 5-7th August most of the asperula cushions had already flowered but they were able to collect seed.

In flower it is a magnificent low pink dome; out of flower, a pleasing, irregular, slightly glaucous cushion of tiny pine needles. The linear leaves are 2-5mm long, soft, slightly glaucous, opposite usually held in groups of 4 along the stem. Each leaf seems to start inside the one lower down so that the stem is clothed in little needles. As the stems grow and the cushion gets bigger, the lower leaves on the stems die. The cushion is quite firm but "jaggy".

The flowers start almost white on opening, possibly with the tips tinged pale pink. As they age, they become a pure soft pink until after about three weeks they are dark pink. The corollas are narrowly tubular, with four pointed lobes. They are held at the tips of the leaf rosettes in pairs but occasionally one or three. Interestingly, both flowers in one rosette are at different stages. One opens before the other, prolonging the flowering period.

As in androsaces, there is a peak flowering period during the 6 weeks or so the plant is in flower, when the cushion is covered in flowers.

Once the cushion gets to about 25cm or so across, it is more difficult to keep the plant in good condition as there is a tendency to die back. However, it is easily propagated by cuttings taken in summer after flowering.

It can be grown outside in a raised bed or trough where it can be protected from winter wet. As an alpine house plant in a pot or deepish pan,

it is magnificent. I have found a compost made up of 1 part John Innes No. 3, 1 part gravel, one part sharp sand suits it well. It needs regular watering from late spring until after flowering when it should be kept slightly drier, certainly not parched.

When one sees *Asperula sintenisii* flowering after *Fritillaria michailovskyi* and before *Dianthus erinaceus* var *alpinus*, it makes one want to book the first spring flight to Turkey and stay there till summer. Alpine gardeners must thank Messrs. Albury, Cheese, McPhail and Watson for collecting these plants for us.

Asperula sintenisii can be purchased at most alpine nurseries in the U.K. and from Siskiyou Rare Plant Nursery – Oregon. I have not seen seed advertised in the seed lists, but maybe it will be collected by Jim and Jenny Archibald who publish an annual list of wild collected seed.

Under its previous name of *Asperula nitida puberula*, it was awarded an AM on 23 May 1983 when shown by Mr F. Larkbey, Twickenham.

Erratum

In the last issue the colour plate of *Buglossoides gastonii* (p.409) was wrongly entitled *Lithospermum buglossoides*. The correct name was given on p.386.

East Germany

HERMAN C. M. VAN BEUSEKOM

I HAVE ALWAYS found it most enjoyable to see other gardens, not only because of an often different range of plants which one encounters, but because a discussion with the owner about "why and how" might bring new ideas which one can take home.

So the answer was quickly found when an invitation came – from a gardening friend in East Germany – to come and "talk plants". Early June – in a heatwave – we went off to the south of the G.D.R. in the foothills of the Erts Mountains at a height of 330m. The climate there is a Continental one, with hot (up to 33 degrees C.) summers and cold (down to minus 24 degrees C.) winters.

Rainfall in summer totals 230mm, and during the winter 111mm. Air humidity is low, and in winter snow is not always a reliable source for plant protection.

Low air humidity together with summer temperatures are considered to be disadvantages to grow the more difficult high alpines because it weakens them.

On the other hand, the low winter rainfall is a happy affair, and I have seen, for instance, a smashing-looking *Saponaria* 'Bressingham hybrid' which is difficult to get through a Dutch winter without protection. The rock garden itself was unconventional, at least to Dutch standards. When we are building a free-standing rock garden, we first lay a base of rock and fill it up with appropriate soil. Now comes, with the first layer, a second layer of rocks which we again fill up with soil. When needed, a third or fourth layer can be formed. Most of the times it will not exceed one metre in height.

But in East Germany they form a mound of soil, uneven in shape with a height from at least one metre to two metres. Now the rocks are laid or, better still, put against the mound, meanwhile making sure that they cannot slide down with heavy rain or snow. The mound, except the top, which stays flat and more or less open, is now packed in rock.

The spaces between the rocks can be made small or big, depending on the plants which one wants to grow, and so nice small crevices can be formed in which one can grow the more difficult ones, with the neck of the plant free of soil. Thus I have seen a nice specimen of *Campanula raineri* running through such a crevice.

The alpine houses were up to the side windows in the soil, and are so –

together with a shade netting – providing the coolness which keeps high alpines in good health.

Here is just a selection of the rarities: *Milligania densiflora, Orites diversifolia, Tricyrtis nanum, Phlox bryoides, Lewisia sierrae, Anemone fasciculata, Campanula morettiana, C. cenisia, Gentiana orbiculare, G. froelichii, G. bavarica subacaulis, Woodsia polystichioides, Ceterach javorskianum* (the lime loving counterpart of *C. officinarum*), *Viola alpina, V. grisebachii, Saxifraga florulenta, Jankaea heldreichii, Aciphylla procumbens, Potentilla divina* (a beauty with grey foliage and rosy red flowers), *Androsace zambalensis, A. brevis, Primula reniforme, P. farinosa acaule, Salix x onyciophylla* (a natural hybrid between *S. reticulata* and *S. herbacea*). And many more!

The next day we were invited to see the famous alpine house of the Jena Botanic Garden. It is 10 x 3½ metres and there are no benches in the main part of it, but all along the walls are tufa stones in which and in between which some rare plants are growing in situ: *Geum reptans, Tanakea radicans, Myosotis australis* with her tiny yellow flowers, *Saxifraga sempervivum, Acantholimon livinovii, Ramonda serbica* and others. But our highlight to this visit were, of course, the gesneriads, for which this garden is very famous.

Still under the directorship of Prof. Schwartz, a female *Briggsia aurantiaca* was crossed with *Opithandra primuloides*, and the resulting plant is now finally named *x Briggantha callicantha*. We had the good fortune to see the three plants, next to each other, in flower. We were thrilled. Unfortunately the resulting plant is not fully hardy and can only stand down to minus 5 degrees C.

Our third and last day was reserved for some sightseeing, but can you imagine three plant-lovers going sightseeing close to the Botanic Garden of Dresden? Unfortunately, there was no alpine house, but the Garden itself was a delight to rock gardeners and beautifully constructed. The first area was devoted to plants from Siberia, from which I noted the following plants as being new to me: *Allium artropurpureum* (80 cm, purple-red), *Phlomis alpina* (purple, 140 cm), *Adelocaryum anchusoides* (nice blue, 60 cm). The rock garden was made of several different types of rock, and I saw nice patches of *Physoplexis comosa, Astragalus angustifolia, Helleborus viridis* and many more.

Weedkilling with Glyphosate – a warning

D. M. STEAD

GLYPHOSATE (proprietary names Tumbleweed and Roundup) is a very useful herbicide and copes with many tap- and deep-rooted plants of which only the tops are removed by Paraquat. It is claimed that it is inactivated by soil. Thus, dormant bulbs *should* be unaffected.

A recent experience indicates that in light, very sandy soil bulbs are at risk. In the hot weather of July 1984 a crazy-paved terrace, set in sand/lime mix, where *Campanula pusilla* had taken over and become a nuisance, was sprayed with Glyphosate. At this time a good clump of *Narcissus asturiensis*, at least 10 years old, was quite dormant. The *C. pusilla* was completely killed, but in 1985 only one distorted *N. asturiensis* appeared and did not flower. This year nothing has appeared.

The makers, Murphy Chemical Ltd., on being informed, said they had never experienced any similar problem, but '. . . as the "soil" between the paving contains a high proportion of sand and lime, there was perhaps too little soil to absorb the chemical'. They went on to suggest that Narcissus Fly was the trouble.

Miss M. Michael tells me that she had a very similar experience with *N. cyclamineus*.

As Murphy Chemical Ltd. did not agree that the matter was worthy of investigation or justified a warning note in their instructions, it was thought worthwhile to draw it to Members' attention.

The Genus Ranunculus Part II – European species A-C

ALASTAIR McKELVIE

MOST attention in this list of species is given to those which are garden worthy, including some which are only sporadically in cultivation. Mention is also made of species which are, or have been, in cultivation even although they are of no especial merit. Species omitted are those not known in cultivation and not thought to have garden potential. For most species a silhouette of a basal leaf is given; these are only vaguely to scale since leaves vary a bit in size and since, without actual specimens, it is not always easy to know correct size. The silhouette does, however, give a good idea of the general leaf shape and helps in identification.

Ranunculus abnormis Cutanda and Willk.

This species of Section Ranuncella (Fig. 2, p.13) is a perennial with large tuberous roots. Stems are 5-20cm tall, glabrous or slightly pubescent. Basal leaves are linear-lanceolate (long and lance-shaped). There are usually 1-3 flowers per stem, each flower being 25mm in diameter with yellow petals. Instead of the usual 4-5 petals in the genus, *R. abnormis* has 8-10, hence the specific name. It is native to mountains of west and central Spain and Portugal, growing amongst alpine herbs.

As Jim Archibald pointed out in Alpines '81, gardeners have not always been successful in evolving techniques for growing European alpines from the mountains of Spain and the Balkans in spite of repeated fresh introductions from the wild. Many Mediterranean plants definitely need protection to give of their best or even to survive. One of the more successful of these Mediterranean species is *R. abnormis* which Dr L. J. Bacon introduced into this country from central Spain. It was given an Award of Merit in March 1977 as a flowering plant for rock garden and alpine house when shown by Mrs Bacon.

Dr Bacon says that *R. abnormis* will last two-three years outside in any reasonable soil but then has to be renewed by seed or by tubers from the alpine house. In nature it tends to grow on acid soils so that it may not appreciate lime in the garden. It is certainly an attractive plant with its large, bright, shining yellow flowers and is worth trying to grow. It flowers early, around March-April.

Ranunculus acetosellifolius Boiss.

This species of Section Acetosellifolius (Fig. 19, p.87) grows wild in the Sierra Nevada in Spain where it is endemic, at around 2400m on wet snow-melt slopes in areas of mica-schist.

It is a glabrous perennial with flowering stems 3-20cm high. Leaves are hastate-sagittate (shield or arrow-like) with upturned basal appendages, irregularly laciniate (cut) at the base. Flowers are pure white, 15-25mm in diameter and with broad round petals. Flower colour can vary in the Sierra Nevada where it is often deep pink in the bud. Margaret Taylor (JSRGC 1982, 17, 343) found that the largest-flowered forms grow in damp areas near streams.

It is a particularly distinguished member of the genus with its attractive leaves and striking flowers, but it has not proved amenable in cultivation. It has frequently been collected in the wild but has seldom survived for more than a few years even in the alpine house.

The Taylors have, however, managed to grow it well in a capillary system, and they report that it can be propagated by division. It appears above ground by mid-February so that it has to face the worst of the winter weather, flowers in early spring and is dormant quite early in the summer.

To compound the many problems of growing this desirable plant, it is absolutely adored by slugs.

It was awarded a Preliminary Commendation by the RHS in 1959 when shown by C. H. Hammer.

Ranunculus aconitifolius L.

This species of Section Aconitifolii (Fig. 12, p.67) grows wild in meadows and woods up to 2600m in many parts of central Europe from Spain to Yugoslavia.

It is a stout perennial which can grow up to 50cm. Leaves are palmately 3-5 lobed; flowers are 10-20mm in diameter with sepals which are red or purple beneath and with five pure white petals.

Flowering outside in April, it is a species very much worthwhile growing in the herbaceous border. It is an old-world favourite with its dark green buttercup leaves and pure white flowers. Preferring a rich moist soil where it will make slow but steady growth, it dies away completely after flowering so that it should be marked carefully. Re-growth is from crowns with fleshy feeding roots which appreciate an autumn mulch.

There is a double-flowered variety of this species known botanically as *R. aconitifolius flore pleno*, and by gardeners variously as White Bachelor's

Buttons, Maids of France, Fair Maids of France or Fair Maids of Kent. In Gerard's Historie of Plantes published in 1597 it is called *R. albus multiflorus*. It is now surprisingly scarce in gardens but is worth growing for its massed display of double white flowers which last for many weeks. It is still available from some nurseries.

The double form was given an Award of Merit by the RHS in 1958 when shown by Sunningdale Nurseries, Windlesham, Surrey.

Ranunculus acris L.

This species of Section Ranunculus is widespread throughout most of Europe, reaching as high as 2,000m in wet places in the Sierra Nevada.

It is a stout perennial 30-100cm tall. Basal leaves are hairy and coarse with 3-7 sessile (stemless) segments. The flowers are 15-25mm in diameter with bright golden yellow petals. It is a variable species with five named subspecies and many intermediates.

To gardeners, it is the meadow buttercup, a weed not to be encouraged although not as pernicious as *R. repens*, the creeping buttercup. It flowers from early summer onwards.

There is, however, a double-flowered variety known as Yellow Bachelor's Buttons, which is sometimes grown in gardens and which, because it is sterile, does not set seed and spread. It forms a bold clump 60cm across and up to 90cm tall. The perfect double intensely glossy yellow flowers appear in great profusion from April throughout the summer. It is a mat-forming plant which should be divided and replanted every three years.

The double form is probably the plant referred to as "cuckoo buds" in Shakespeare's Love's Labours Lost. It was illustrated in the Botanical Magazine as long ago as 1793.

A variety known as *R.acris* "Stevenii" was one of Bowle's curiosities and was grown for a while at Maidwell Hall, Northants, by Mrs O. E. P. Wyatt.

Ranunculus x **"Ahrendsii"**

This plant, which is sometimes spelt *R.* x *Arendsii*, is a hybrid between *R. gramineus* and *R. amplexicaulis* (Fig. 11, p.50).

Leaves narrow, dark green with stems 5cm tall, and handsome, fairly large creamy-yellow flowers. It received an Award of Merit in 1935 from the RHS when shown by Messrs Elliott of Stevenage, but it is now fairly uncommon in cultivation.

It is not a long-lived plant and, like many species of ranunculus it needs regular splitting immediately growth starts in the spring to keep it healthy.

Fig 12 *Ranunculus aconitifolius* (See p.65) Photo L. J. Bacon

Fig 13 *Ranunculus bulbosus flore pleno* (See p.76) Photo A. Evans

Fig 14 *Ranunculus bullatus* (see p.77) Photo B. Mathew

Fig 15 *Ranunculus bilobus* (See p.75) Phoo M. & H. Taylor

Fig 16 *Ranunculus brevifolius* (See p.75) Photo A. Evans

Fig 17 *Ranunculus asiaticus* (See p.73) Photo H. Esslemont

Fig 18 *Ranunculus alpestris* (See p. 71) Photo M. & H. Taylor

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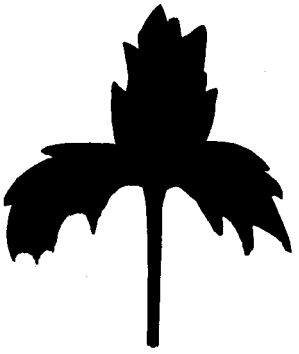
Any reasonable soil in a sunny spot seems to suit. It flowers in May-June.

Margaret Taylor (JSRGC 17, 344) reported repeating this cross and flowered two offspring, both with green petals and of no garden merit.

Ranunculus aduncus Gren.



This species of Section Ranunculus is a rare plant of the south-western Alps and the Pyrenees in meadows up to 2800m. It is synonymous with *R. villarsii* DC. In the wild it flowers June-July.

With its small yellow flowers up to 15mm in diameter on tallish stems, it is of no apparent garden merit and there are no records of its being grown, even although it is an alpine plant.

R. alpestris L.

This species of Section Leucoranunculus (Fig. 18, p.70) is widespread throughout the mountains of Europe, from the Pyrenees to the Alps and east to the Carpathians, in deep meadows and snow patches up to 3000m. In many areas it takes over in altitude from *R. aconitifolius*. It is a bushy dwarf glabrous perennial 3-12cm tall. Leaves are shiny, 3-5 lobed and deeply crenate or cut. The white flowers are around 20mm in diameter, two to three on a pedicel with distinctively obcordate petals. In the wild it flowers throughout the summer.

R. alpestris varies considerably in the wild. Mr Wolley Dod described it in the Gardeners's Chronicle in 1889 as not thriving in gardens and having small white flowers not freely produced. Margaret Taylor (JSRGC 17, 344) pointed out, however, that although the flowers may be tiny in the Pyrenees, there are fine forms with large flowers on the Klaussen in Switzerland. The Taylors found that it grew best in cultivation in a moist rich scree (or in a pot) and that it had a long growing season from late spring onwards.

It was given an Award of Merit by the RHS in May 1951 when exhibited by Mr Joe Elliott, but it has never been an easy plant to grow and rarely thrives for any length of time. Writing in the Gardener's Chronicle 1889, M. Correvon advocated a rich porous soil facing north or east, but he did not say how successful he had been.

R. alpestris traunfellneri is best regarded as a species in its own right, and

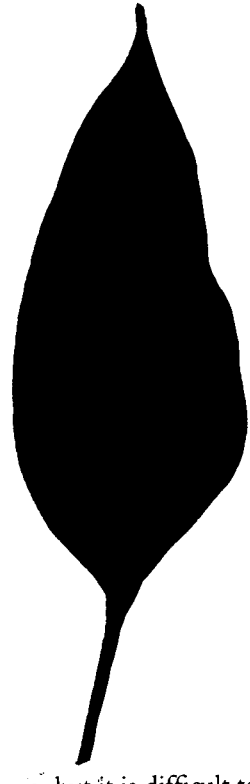
it will be described later under *R. traunfellneri*. It differs from *R. alpestris* in having matt instead of glossy leaves and it is not caespitose (tufted).

R. alpestris is sometimes confused with *R. bilobus* and *R. crenatus*, but it is not evergreen.

Ranunculus altaicus – synonymous with *R.lapponicus* q.v.

Ranunculus amplexicaulis L.

This species in Section Ranuncella (Fig. 20, p.88) is found in the Pyrenees and the mountains of northern Spain at around 2,000m, usually growing in turf. It is the Spanish equivalent of *R. pyreanaeus* in the Alps. It is a perennial, 8-30cm in height in the wild, but often taller in gardens. Basal leaves are ovate-lanceolate, glaucous, blue-grey, sometimes with silky hairs; the stem (or cauline) leaves are amplexicaul (clasping the stem), hence the name given to the species.



The branching flower stems carry several large flowers 20–40mm in diameter with brilliant white petals surrounding clusters of yellow stamens. Pink-flowered forms can occasionally be found in the wild.

It is easily grown in a good loam in a sunny position. It can be raised from seed, preferably sown as soon as ripe, or it can readily be increased by division. It is a real aristocrat among buttercups and, flowering from April-May, should be in every garden.

It is important to obtain a good form with many-petalled large, round flowers; there are a number of poor forms currently in cultivation. One form has been given the name 'Grandiflora' because of its particularly large flowers, but it is difficult to justify such terminology.

The species was given an Award of Merit by the RHS in 1975 when exhibited by Mrs Joan Stead.

Ranunculus anemonoides Zahlb.

This species from the Austrian Alps is now more correctly known as *Callianthemum rutifolium* and therefore does not come into the remit of these articles.

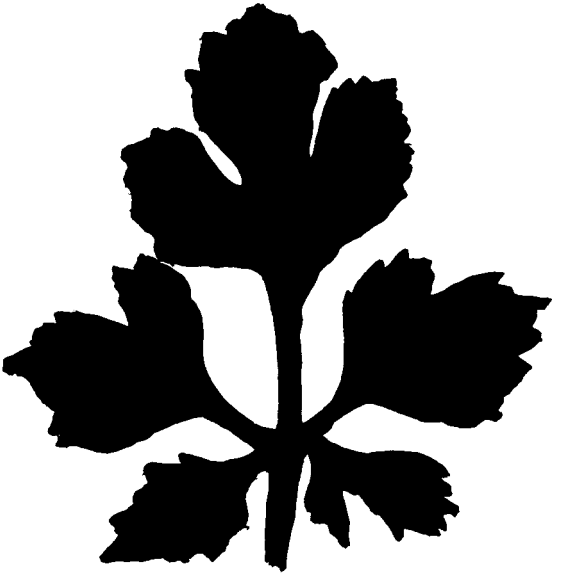
Ranunculus angustifolius – more correctly *R. pyrenaeus pyrenaeus* q.v.

Ranunculus angustifolius alismoides – more correctly *R. pyrenaeus alismoides* q.v.

Ranunculus aquatilis L.
This aquatic species in Section Ranuncella is a British native and a plant of running water rather than of stagnant ponds. It is not suitable for growing in gardens but is a useful oxygenating plant for ponds. It has finely cut submerged foliage and deeply-lobed, bright green floating leaves. The attractive flowers are like small paper chalices of white and gold. The best variety to grow is "Floribundus" which is commercially available.

Ranunculus arvensis L.
This species of Section Echinella is the "corn crowfoot", an arable weed of clay soil of the south of England and introduced into the south of Scotland. It is a tall annual with smallish yellow flowers, is of no garden merit and is occasionally a weed.

Ranunculus asiaticus L.
This species of Section Ranunculastrum (Fig. 17, p.69) is a pubescent perennial from south-west Asia and Southern Europe, its westerly limit being Crete.



The outer leaves are very variable, but are frequently three-lobed and dentate with the leaf segments being shortly stalked and deeply divided. The flowers are 30–50mm in diameter with petals which are white, yellow, red or purple. In Crete the flowers are usually white or pale rose, while in Rhodes the predominant colour is red.

In many ways *R. asiaticus* resembles an anemone but differs in having sepals as well as petals and by having tuberous roots like tiny radiating fingers.

Like many plants from the Mediterranean, *R. asiaticus* (particularly the wild species) is not easy to grow outside because it is susceptible to cold and wet and tends to come into growth during late winter. It needs shelter outside or the protection of an alpine house, particularly in the case of young plants. It prefers a well-drained alkaline soil in full sun sheltered from the wind. It is best raised from seed, but care needs to be taken to give some degree of frost protection in early years as growth is quite slow and seedlings are tender.

R. asiaticus is the ancestor of the Persian and Turban ranunculus, which came to western Europe in the 17th century from south-west Asia. Parkinson mentions the plant in his Paradisus published in 1629. The Persian (or Florist's) ranunculus is the true *R. asiaticus*. This group is very variable in form and colour, with fully double flowers but is tricky to grow.

The gardener's section of Turban Ranunculus is the variety *R. asiaticus africanus*. They have broad, divided leaves and larger and broader fully double flowers. The petals curve inwards forming an almost spherical flower as in a double peony.

Roots of the Persian and Turban ranunculus should be planted in early spring with the claws downwards, and covered with sand to prevent rotting. The plants should be watered in April/May if the soil is dry. The roots should be lifted each autumn and kept dry and frost-proof.

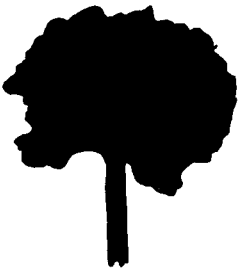
Ranunculus auricomus

This species of Section Auricomus belongs to a widespread and complex group, forming a more or less continuous species with *R. cassubicus, R. fallax, R. monophyllos, R. affinis, R. degenii* and *R. flabellifolius*. Since none is of particular garden merit and they are rarely grown, there is no need to dwell on them. *R. auricomus* grows throughout Europe and northern Asia and is a common woodland herb in the U.K.

It is a tall (40cm) perennial herb with yellow flowers, not exceeding 10mm in diameter. Flowers are frequently imperfect which further detracts from its garden value.

Ranunculus bilobus Bertol.

This species of Section Leucoranunculus (Fig. 15, p.68) grows in turf and on limestone rocks of northern Italy around 2,000m altitude. Margaret Taylor (JSRGC 17, 345) has reported it as being particularly good on Caplone (Tombea) and on the Rosetta in the Dolomites.



It is a dwarf alpine not exceeding 10cm in height, each stem bearing 1-3 white flowers. The leaves are bright green, rounded, long-stalked and toothed with roundish lobes. The basal leaves are lobed and have prominent veins. The flowers are up to 2cm in diameter with rounded and notched petals.

It is often confused with its close relative *R. crenatus*, from which it differs in its prominently veined and lobed bright-green leaves. The petals are more deeply notched. In the wild the two species should not be confused, since *R. bilobus* is a plant of limestone in northern Italy while *R. crenatus* only grows on acid rocks and to the east.

It is an easy and rewarding plant to grow, flowering in May. It grows easily from seed and should flower in its second year. It makes a good alpine-house plant where it is evergreen, but it is perfectly easy to grow outside, either in troughs or at the front of a raised bed. It splits very readily and is thus easily propagated.

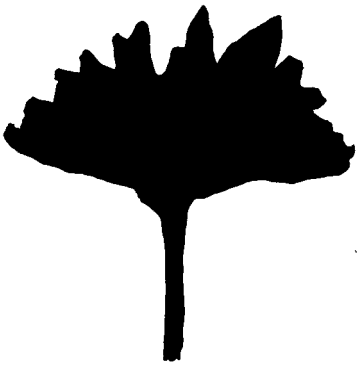
R. bilobus is a splendid alpine to grow and, unlike some other alpine ranunculus, is very easy. Farrer in "The English Rock Garden" said it had the habit and tastes of *R. alpestris*, but it is a much earlier plant. He described *R. bilobus* as "exquisite wee pure-white dog roses". He also confessed to having misguidedly sent it out as *R. crenatus*.

Ranunculus breyninus auct. non Crantz.

This species has also been known as *R. breynianus* and *R. villarsii*, but should more correctly be named *R. nemorosus* q.v. It is included in this series because Monsieur D. Correvon extolled its virtues as long ago as 1889 in the Gardener's Chronicle.

Ranunculus brevifolius Ten.

This species of Section Thora (Fig. 16, p.69) is listed because it is closely



related to *R. thora* which is sometimes cultivated. It grows in the wild in Italy and the Balkans and can be found on the highest slopes of Parnassos and of Crete. It has sometimes been called *R. pythora* or *R. phthora* and has been confused with *R.* 'Phethora' which is a cross of no great beauty between *R. thora* and *R. brevifolius*.

It is a deciduous perennial with a few large, grey, rounded and scalloped leaves in spring. These give rise to a 10cm branching stem with 1-2 golden flowers up to 25mm in diameter. It differs from *R. thora* mainly in its more numerous but smaller basal leaves.

In essence it is a small plant of no particular attraction, but quite straightforward to grow if anyone is keen to cultivate "interest" plants. The last word should go to Farrer who called it "a rather ugly buttercup with shrill yellow flowers".

Ranunculus broteri – synonymous with *R. bulbosus gallecicus* q.v.

Ranunculus brutius Ten.
This species of Section Ranunculus is a plant of no particular merit from mountains of Italy and Greece, eastwards to the Caucasus. An idea of its garden merit can be gauged from the information that it is closely related to our own *R. acris*.

Ranunculus bulbosus L.
This species of Section Ranunculus (Fig. 13, p.67) is widespread throughout north and central Europe including the U.K. It is a variable and imperfectly understood species. It is a perennial herb up to 40cm tall, sometimes with a swollen base and with characteristic reflexed sepals. Petals are up to 20mm, bright yellow, round and glossy.

It is not of any garden merit and may indeed be a pernicious weed of light sandy lawns. One way to eradicate it is said to be to allow poultry to seek out its bulbous bases of which they are fond and so diminish it.

Its only merit is in its semi-double form. This

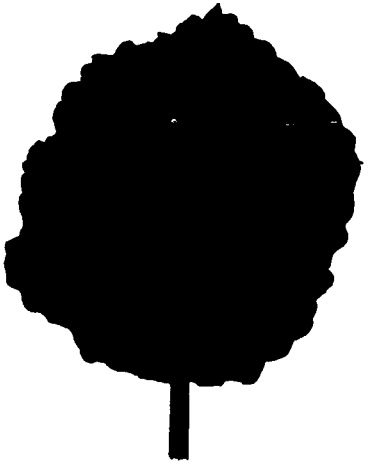
has variously been known as 'Pleniflorus', 'Flore-pleno', *R. speciosus* 'Plenus' or *R. gouanii* 'Plenus'. This form has the usual buttercup leaves which make a canopy of greenery out of which come double chrome-yellow flowers, tinged green at the centre, on stems up to 30cm tall. The flowers are 40mm across and are exceptionally showy.

Its exact botanical status is uncertain, but it is a worthwhile plant for the herbaceous border.

A subspecies *R. bulbosus gallecicus* Freyn x Willk., from central Europe, differs from the type species by not having a swollen rootstock. Although apparently grown occasionally in the past, it has no garden merit. It is synonymous with *R. broteri*.

Ranunculus bullatus L.

This species of Section Phyophyllum (Fig. 14, p.68) is a native of the Mediterranean region extending westwards to north-west Spain and to Portugal. It is a perennial plant up to 30cm tall with ovate, crenate leaves which are blistered or bullate, hence the specific name. There are 1-2 scented flowers per stem, yellow and up to 25mm in diameter. The sepals are green and hairy while the petals are oblong.



It is widely distributed in the Mediterranean region and prefers a light damp soil, hence its preference in Crete for damp spots among the olive trees.

R. bullatus used to be quite widely grown as a border or rock-garden plant, flowering in early September, but is rarely seen nowadays. Its sweet scent, like a violet, is unusual in the genus. It is somewhat tender and should be lifted in the autumn in cold areas and its tuberous roots stored dry.

A double form of the species, *R. bullatus* 'Flore Pleno', exists in commerce, but its correct name is *R. speciosus* 'Flore Pleno' q.v.

Ranunculus bupleuroides Brot.

This species of Section Ranuncella grows in north-west Spain and Portugal. It is a dwarf perennial species closely allied to *R. pyrenaeus*, but is more branched and taller, reaching 25cm in cultivation. The glabrous

leaves are long and lance-shaped, but rather broader than in *R. pyrenaeus*. The flowers are rounded and about 2cm in diameter. There is some confusion about flower colour in the true species. Flora Europaea says that they are pale yellow, but Farrer and others claim they are white. Farrer thought *R. bupleuroides* was simply a form of *R. pyrenaeus* with broader, long, pointed leaves and generally more delicate. Sarah Bovey (AGS Bulletin 1975, 43, 168) describes it in the Pyrenees, peeping out of the melting snow, as a white alpine buttercup with a yellow centre, growing among carpets of *Gentiana verna*. It flowers in the wild from May to July.

Whatever the flower colour of the true species, it seems that it might be an attractive garden plant but it does not appear to have been in cultivation. If it has, the occurrence has been fleeting, and inadequately recorded.

Ranunculus cacuminis Strid and Papanicolaou.

This species of Section Leucoranunculus grows at around 2500m on Mt. Kajmakčalan and adjacent peaks on the Greek-Yugoslavian border. It is a local endemic but mentioned here since it is closely related to *R. alpestris* so that it may be worth cultivating. It differs from *R. alpestris* in its thicker roots, ascending stem (12cm) and rounded petals without any notch at the apex.

There seems to be no record in cultivation of this plant, which was collected by Arne Strid of Copenhagen in 1976.

Ranunculus cadmicus auct., non Boiss is synonymous with *R. subhomophyllus* Vierh q.v.

Ranunculus calthaefolius L. is synonymous with *R. ficaria ficariiformis* Rouy & Fouc q.v.

Ranunculus carinthiacus Hoppe in Sturm.

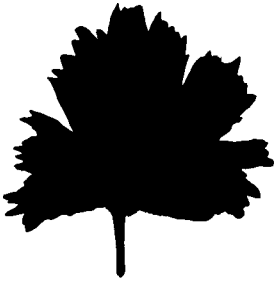
This species of Section Ranunculus extends from the Pyrenees and the Alps eastwards to the Balkans. It is very similar to *R. montanus* and simply regarded by some botanists as a subspecies. It is, however, shorter than *R. montanus*, only 6-15cm tall

with narrowly dissected and claw-cut leaves. It has slender stems and yellow flowers 1-3cm in diameter. It grows in meadows, woods and screes up to 3000m.

It has been in cultivation from time to time, growing readily in any reasonable position and flowering in April-May. Farrer did not consider it had any special claim to our attention and dismissed it along with two other golden mountaineers, *R. carpaticus* and *R. caucasicus* as rather stunted field buttercups out of place in their high station.

Ranunculus carpaticus Herbich.

This species of Section Ranunculus grows in Hungary and the eastern Carpathian mountains. It is very similar to *R. carinthiacus*, already described, but has a creeping rhizome. The large basal leaves are up to 15cm wide and deeply cut. It grows to 30cm in the wild, but more in cultivation. The golden yellow flowers are 20cm across, flowering in early summer. It has been in cultivation since last century, sometimes incorrectly known as *R. gouanii*, which it somewhat resembles. Farrer dismissed it of little account, but there used to be a double form which, according to one description, had large double orange-yellow flowers like *Caltha palustris* which were often viviparous. Unfortunately there seems no trace now of this remarkable variety.



Bailey lists *R. carpaticus* as *R. montanus dentatus*.

Ranunculus carpetanus Boiss & Reuter is a synonym of *R. gregarius* Brot q.v.

Ranunculus cassubicus L.

This species of Section Auricomus grows wild throughout north and east Europe where it is a tall (40cm) stout perennial of no apparent garden merit. It is, however, given a mention in the RHS Dictionary of Gardening where it is described as being 15cm tall with smooth, kidney-shaped, crenate (scalloped) basal leaves and linear toothed stem leaves. It has yellow flowers and the flowering period is June-July. That is the only reference seen about it as a garden plant, and there must therefore be some doubt about it. The true species certainly does not appear to be garden-worthy.

Ranunculus caucasicus Bieb.

This species of Section Ranunculus is closely related to *R. carpaticus* and is a slender pubescent perennial with 10mm-diameter yellow flowers.

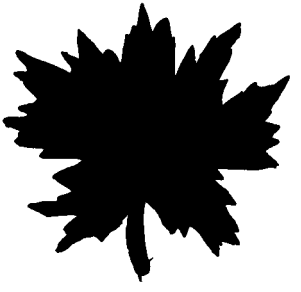
It has been reported as a garden plant, but the description in Flora Europaea would support Farrer's condemnation of it along with *R. carinthiacus*.

Ranunculus chaerophyllos auct. non L. is synonymous with *R. flabellatus* (described in the Flora of the British Isles as a native plant in Jersey), but more properly to be called *R. paludosus* Poiret. q.v.

Ranunculus chius DC.

This species of Section Echinella is a native of the Balkans and of Mediterranean islands. It is a pale-green, soft, hairy annual with tiny, pale-yellow flowers 8mm in diameter. Its only claim to fame is that its germination behaviour has been examined at some length. It is a typical Mediterranean species in that fresh seed will not germinate when the temperature is above 20°C, but after dry storage for six months this limitation disappears. This is an obvious adaptation to hot summers with little rain.

Ranunculus constantinopolitanus (DC.) D'Urv.



This species of Section Ranunculus is a stout, densely pubescent perennial from thorn scrub and rocky places in south-east Europe. Its basal leaves are triangular to ovate and its stem leaves linear. The bright yellow flowers appearing in May are 15-25mm in diameter on 45cm stalks.

It looks exactly like a particularly coarse version of *R. acris*, the meadow buttercup. Nobody would think it worth growing, easy as it is in any decent soil, except that when looking through seed lists people are attracted by its splendid-sounding name.

The fact that it failed to gain an award at the Joint Rock Garden Plant Committee, when shown by RBG Kew in May 1979, must say something about it.

Ranunculus cortusifolius Willd.

This species of Section Ranunculastrum is synonymous with *R. cortusaefolius*, which is an incorrect spelling. It is a robust, densely hairy perennial up to 100cm tall. It has spindle-shaped tubers and a large, flat-topped inflorescence of golden yellow flowers 50mm in diameter. It is native to the Azores and Canary Islands.

Farrer described this species as a "gigantic two-foot golden buttercup flowering in July and with handsome foliage. It comes from the Canaries and is of no long-enduring hardiness though worth attempting in a hot and especially well-drained corner in light soil".

Farrer ignored what seems to be its crowning glory – its scent. The Gardener's Chronicle in 1889 describes it as sweetly fragrant in the sun and detectable several yards away. One plant could perfume a greenhouse, where it was best grown because of its slight lack of hardiness.

It was awarded a FCC (First Class Certificate) by the RHS in 1892 (10 votes for – 1 against) as a herbaceous plant when shown by Lord Hylton of Merstham House, Surrey. It seems to have disappeared from cultivation, although it still grows in the Azores and Canaries. It certainly sounds worth reintroducing if indeed it has vanished from our gardens.

Ranunculus "Creamcup"

A plant with this name was exhibited at the RHS in 1918 but has apparently sunk without trace thereafter.

Ranunculus crenatus Waldst. & Kit.

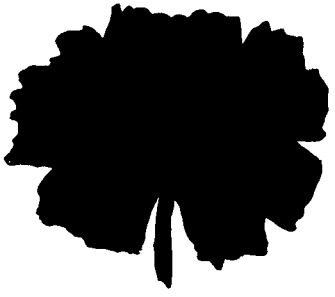
This species of Section Leucoranunculus grows in the eastern Alps and into the Balkans at altitudes between 2,000 and 2,500m on acidic rocks and damp debris. It is a dwarf glabrous perennial up to 10cm tall. Basal leaves, more or less circular, slightly heart-shaped. There are one or two white flowers 20-25mm in diameter on each stem. The petals are almost entire, which is a good means of distinguishing from *R. bilobus* where the petals are slightly notched.

In the wild it flowers on dripping wet, peaty slopes, often in great masses, just as the snow melts. In cultivation it flowers in April-May and

seems to do best in a moist scree, but it is by no means difficult provided the soil is more or less lime-free. It rarely produces seed but can be propagated vegetatively by nodes on the flower stem. The flower buds should be nipped off; the node on the stem then produces a rosette which can easily be rooted.

It is every bit as beautiful as *R. bilobus*, but does not split by division. It is less commonly grown than *R. bilobus* which often masquerades under the name of *R. crenatus*.

Ranunculus creticus L.



This species of Section Ranunculastrum grows on shady limestone rocks in the Greek Islands, especially Crete and Karpathos. It is a branched, hairy perennial up to 30cm in height but often much shorter in rocky places. The basal leaves are deep-lobed and reniform (kidney-shaped) and the stem leaves few and deeply cut into three lobes. Each stem carries a few large yellow flowers up to 30mm in diameter.

It is an attractive and fairly easy plant, which even Farrer deigned to praise, albeit reluctantly, as "a handsome golden buttercup" of the field persuasion with soft foliage and brilliant blossom".

It was given an Award of Merit by the RHS in 1931 when exhibited by Mr Baker. It is still occasionally seen in cultivation; seed in recent AGS and SRGC lists seems to give rise to smaller and neater plants than usually found in the wild. If a dwarf strain can be found it is certainly worth growing.

A white form was reported in cultivation in the 1930s but seems to have been lost.

Ranunculus cupreus Boiss. & Heldr. in Boiss.

This species of Section Ranunculustrum is endemic to Crete where it grows between 200 and 1400m in shaded crevices and on limestone ledges. Some early accounts, including Farrer, suggest that it grows on the highest summits in Crete, but around 1400m does seem to be its limit. It has longish root tubers; basal leaves are rounded, much divided giving the impression of an alpine poppy. Stems are up to 15cm tall, one to two flowered. The flowers are 5-10mm in diameter, yellow above and copper-coloured underneath, hence the specific name.

Farrer was ecstatic about this "most exquisite treasure with fern-like frail foliage like a poppy. The dainty almost naked stems carry one large

flower which continues copying the poppy in being a hot copper orange".

There are very few references to this plant in cultivation, but from all accounts it would be worth growing. Seed is not listed in seed exchanges.

Ranunculus cymbalaria Pursh.

This species of Section Coptidium is really a native of North America, but it has long been naturalised in parts of Europe. It is a dwarf perennial with ascending stems from creeping stolons. The basal leaves are ovate with large, rounded teeth. The yellow flowers are 6-10mm in diameter on 25cm stalks. Although mentioned in the RHS Dictionary of Horticulture and in Ingwersen's Manual of Alpine Plants, there are only fleeting references to it elsewhere and it would seem to be of little merit.

The Editor would be grateful for any additional information on or corrections to the species mentioned in this article.

Discussion Weekend September 1986

St Andrew's College of Education, Bearsden, Glasgow
Friday 19 to Sunday 21 September 1986

Programme

Friday 19	
4.30pm-6.00pm –	Registration
6.30pm –	Dinner
8.00pm –	*The Plants We Grow*
	John McWhirter and Bob Gordon
Saturday 20	
8.00am –	Breakfast
9.00am-10.00am	Show Room open to receive exhibits
10.00am-12.30pm	Registration
1.00pm –	Lunch
2.15pm –	Welcome by the President
2.30pm –	The William C. Buchanan Memorial Lecture
	Growing Alpines in True Character
	Jim Jermyn
3.45pm –	Tea
4.15pm –	*High Spots in the European Mountains*
	Lionel Bacon
6.30pm –	Dinner
8.00pm –	Informal Discussion and Members' Slides
Sunday 21	
9.00am –	Breakfast
9.45am –	*No Myths, No Magic, Just Seed*
	Mike and Polly Stone
11.00am –	Coffee
11.30am –	The Harold Esslemont Lecture
	In Search of Alpine Plants in the Himalayas
	Ron McBeath
1.00pm –	Lunch

2.30pm –	*Alpines in Sinks and Troughs* Ralph Haywood
3.45pm –	Close of Proceedings
4.00pm –	Tea

Accommodation will be in single student-type bed-sitters. The Conference centre, formerly Notre Dame College of Education, is situated at the junction of the A809 and A810. Full directions and a map will be sent on application.

The Autumn Show will be held in conjunction with the Conference. Donations of plants will be very welcome for the Bring and Buy Stall.

Charges
Full board from Friday dinner till Monday breakfast – £69.00
Full board from Friday dinner till Sunday tea – £53.00
Full board from Saturday lunch till Sunday tea – £39.00

Day Charges
Saturday: Lunch, tea, dinner – £18.00
Sunday: Coffee, lunch, tea – £11.00
Saturday and Sunday: £29.00

Applications for bookings, together with the appropriate remittance, should be sent to the Registration Secretary, Mrs E. M. Bezzant, Monievreckie, Port of Menteith, Perthshire FK8 3RD.

All Bookings must be received by 28 August 1986

The northern-most romulea

ARNFRIED ABRAHAM

ALTHOUGH romuleas are not at all hardy perennials, they are very pretty additions for the ordinary rock garden, like lapeyrousia, sternbergia and tulips.

Certainly few of the fellow-members of the SRGC know that tiny Iridaceae which nowadays extends northwards up to the only station in England at Dawlish Warren, Devon: *Romulea columnae*, named by Sebastiani et Mauri in the year 1818.[1] But do you also know what a wicked matter botanic nomenclature is? And what would you say if the romulea occurring in the southern part of England has to be called not *Romulea columnae* S. & M., but *Romulea armoricana* Jordan?

Analysing about four dozen different treatises, additional information from about one dozen personal intimations and plant material itself, it has been found that there is much confusion on this romulea.

The confusion goes back to the turn of the previous century when our taxon was treated as *Ixia bulbocodium* var. *parviflora* or *Ixia parviflora*. Later on, Ixia (partly) was transformed into Trichonema. Perhaps because of the relatively dark purple coloration of the upper tepal part, the northern strain of this single variety was intermingled with *Romulea bulbocodium* S. & M., an Italian species, and because of its short style length it was named as *Romulea columnae* S. & M., also an Italian species.

Following Dr Augustino Béguinot, who was the expert at the turn of the century, Desvaux gave the entity species rank, introducing it as *Trichonema littoralis*. But Béguinot himself decided for variety rank, not absolutely excluding species rank, but retaining a question mark.[2] His judgment reads as *Romulea columae* var. *occidentalis* Bég. Alas, Béguinot didn't know obviously another treatment by the late Prof. Jordan published a few years earlier.[3] Jordan gave a description of *Romulea armoricana* J. That's our taxon distributed from Dawlish Warren towards the French department Vendée including the islands of Ré and Oléron.

If you now think it's all for today – oh, no! In the year 1901 the Italian botanist Otto Penzig edited the Flora Pyrenaea of the late Pietro Bubani. There a very short account of *Romulea parviflora* is given, a synonym sometimes cited with English publications.[4] But just recently I've found the solution: *Romulea parviflora* Bubani *sensu stricto* is a synonym of *Romulea uliginosa* Kunze var. *debilis* Bég.![5] And this plant is illustrated by

Fig 19 *Ranunculus acetosellifolius* (See p.65)

Photo M. Hodgman

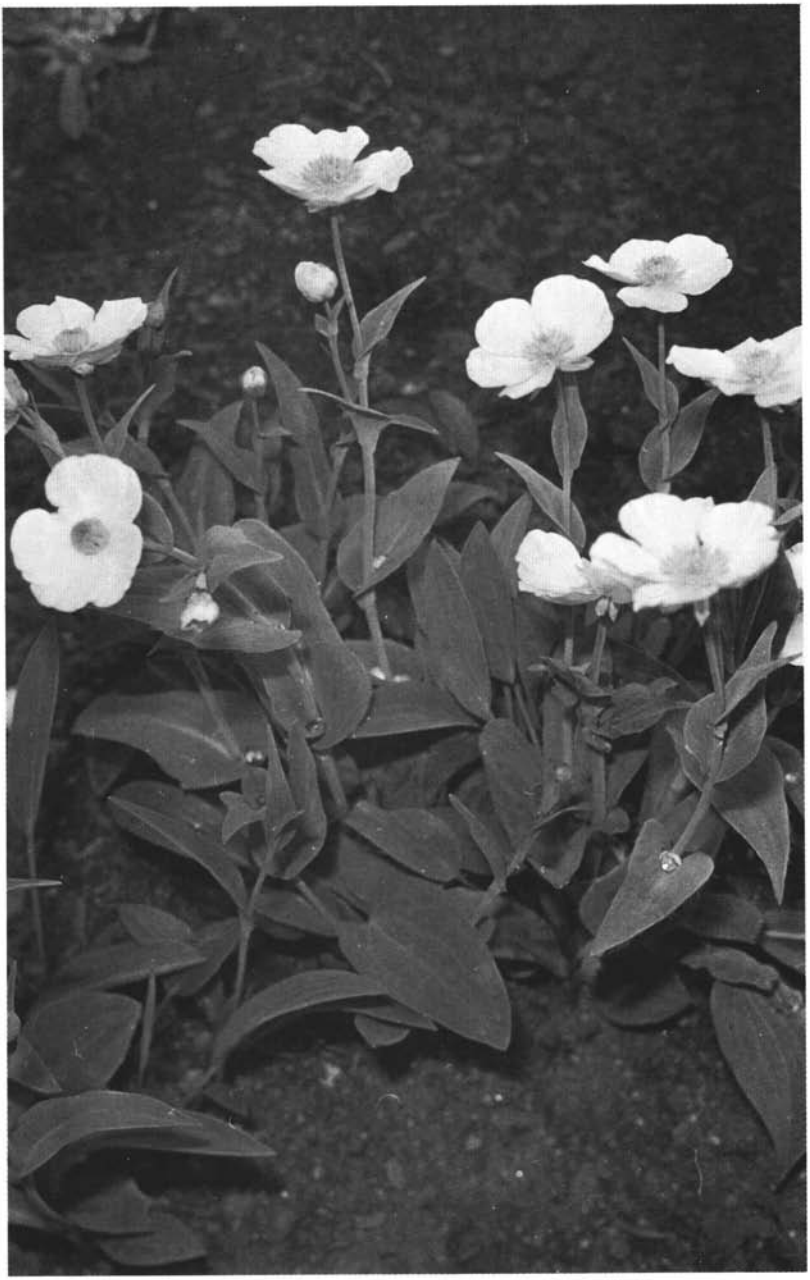


Fig 20 *Ranunculus amplexicaulis* (See p.72) Photo R. Elliott

Butcher as the Dawlish-native *Romulea columae*.[6]

Even Béguinot's variety *occidentalis* cannot be accepted entirely because of two strong details in particular, the bract shape and the tube length.

And which features are those to allow separation of *Romulea columnae* S. & W., var. typica Bég. and our *Romulea armoricana* Jordan? Here they are:

	R. columnae	*R. armoricana*
Corm diameter (mm)	15	7
Leaf width (mm)	1-5	0.5-0.7
Bract length (mm)	10	8
Bracteole centre consistence	herbaceous	narrow purple stripe
Perianth Length (mm)	10–12	13
Tube length (mm)	3–4	2–3
Coloration of upper part of tepals	pale yellow-green	fading lilac purple
Seed diameter (mm)	1.5–2	1.3–1.5
Flowering season	Feb.-March	March-May

For more details and the separations towards *Romulea rollii* Parlatore and *Romulea syrtica* Jordan et Fourreau, you can consult my treatment already prepared in October 1985 and which is stored as a single copy at the library of the British Museum of Natural History, London.[7]

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[5] A. Béguinot, in Boletim da Sociedade Broteriana. *22*. Coímbra 1906. Page 10.

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Shuffling – a warning

MICHAEL J. B. ALMOND

ALTHOUGH no doubt all your readers would be prepared to agree that 'shuffling' (The Rock Garden, January 1986, pp.368-371) may be indulged in to a moderate degree by healthy adults without any serious dangers to their wellbeing, the risks attendant to over-indulgence in this and similar activities must always be borne in mind. As well as the obvious physical risks involved, there is the serious problem of addiction; too frequent resort to the activities described in the article mentioned above will lead susceptible individuals to develop an insatiable craving to carry on their 'shuffling' activities even in the most unlikely settings. Your readers may have detected signs of this addiction in the writers of the article referred to and, indeed, it is my sad duty to confirm this suspicion. My fears, having been awakened on more than one occasion previously, were more than amply justified one cold and wet day last autumn when I had the painful experience of observing the extent of their problem at particularly close quarters. I found them, totally oblivious to the adverse weather conditions, busy excavating huge rhododendron bushes from the hillside at the bottom end of Mrs Brenda Anderson's garden above the Carse of Gowrie, manhandling the trees and attached root-balls upwards of a quarter of a mile along the rough burnside tracks and then literally winching them up a near vertical slope (which was so muddy that it was impossible to gain a secure foothold on it) to a new planting site near the top of the bank.

I hope I am not too late, therefore, to warn your readers of the terrible consequences of immoderate indulgence in the seemingly harmless pastime of 'shuffling'. If they are not very careful they, too, could end up in the same sad state as the writers of the article: let this be a warning to all!

Shuffling – an appreciation

BRENDA ANDERSON

SHUFFLING is not only good for you and your plant, it is addictive. A wistful 'If only I could move some of the "rhodies" from the bottom of the glen up nearer the house' was sufficient to spark a gleam in the eyes of that addicted pair, Henry and Margaret Taylor.

The site I had chosen was not only near the house, it was also on a very steep bank and a long uphill haul from the bottom of the glen. Quite undismayed, the shufflers set to, making recessed platforms in the bank, and supporting the path above, which was in imminent danger of collapse. This involved finding and carting, by sledge or clasped to the chest, large stones and logs from over an extensive area, not to mention many sacks of leafmould and peat. There are far too many steps at Balruddery to use a wheelbarrow.

Rhododendron cinnibarinum roylei and its companion *R. roylei magnificum* had enjoyed about 14 years "in the bottom", where they had grown well over 2m tall, with generous root-balls, well saturated by a wet summer; a challenge of Capability Brown standards! Excavation was nothing to a couple of born badgers, but transportation was a little bit more of a problem. The first rhododendron was persuaded to shuffle on to a plastic sheet, and then on to a sledge, which was dragged up the long, long incline, through a boggy area, over a narrow bridge, to the foot of the chosen bank, but once there, it was obvious that not even Taylor-power could get it farther. Quite undismayed, Henry surveyed the scene and announced that he would borrow a block and tackle. This was duly procured, attached to a convenient tree trunk and, hey presto, one bush sitting in its saucer, waiting to be bolstered in with stones, logs, and plenty of leafsoil and "goodies". Instant gardening . . . old Capability would have approved; so would John, who was another inveterate mover.

The next candidate for a shuffle was already on a built-up slope, surrounded with companions, and might be more tricky, so Henry co-opted a low trolley and more manpower in the form of Mike Almond. Mike solved the problem of how to persuade a large rhododendron to step down from its perch, without disturbing its neighbours – dig the trolley in underneath it. The journey up the glen had one hiccup, when a wheel sank into soft ground, the whole thing lurched sideways, and the rotund, white-swathed form of *R. Roylei magnificum* was in imminent danger of

making an undignified header into a thicket of ponticum. Desperate determination and muscle power prevailed, and his shrouded form waddled precariously through the bog, over the bridge, with a couple of inches wheel space to spare, to be block-and-tackled up to his cosy niche. After that, extracting and transporting several lesser plants appeared child's play. The result – a new, fully-clothed and established-looking area.

The glow of satisfaction felt at a difficult job satisfactorily completed, beamed from every face and the addict's gleam lit the eye of a newly-born shuffler – Mike Almond. Were there any more plants in need of a move? There are indeed – God bless all shufflers!

Footnote: To truly dedicated shufflers, like the Taylors, shuffling can include shifting boulders and stones by torchlight, up to the knees in icy water, to divert the force of a burn in spate, and hell-bent on destruction.

From the President's Address, October 1948

A FEW excerpts from the address by Major Walmsley show the way we have changed – or have we?

". . . it had been necessary to increase the annual subscription from 5/- to 10/-, and as was to be expected a number of members dropped out. Our membership has nevertheless increased from 330 to about 440. The main credit . . . is due to the County representative system we started in the spring".

". . . Shows were held in Glasgow . . . and in Edinburgh. But we do need more competitors, even if they bring along only one or two plants".

"In connection with the Journal may I take this opportunity of asking everyone . . . to bombard Mr Corsar, our Hon. Editor, with short articles and notes on individual plants. A second Journal will only be possible when sufficient copy is forthcoming".

"A scheme for the collection and distribution of seeds among members has been worked out and will be carried out by Mr Masterton . . ."

"It has been decided to have an emblem for our stationery and your Committee recommends *Dryas octopetala* . . ."

"If there are any members who have not paid their subscriptions . . . may I remind them that it is now due".

Plant hunting around Cape St Vincent

CHRIS AND MARIE NORTH

CAPE ST VINCENT lies at the extreme south-west of the Portuguese Algarve – like a European Land's End. This sunny, windswept corner is renowned for its unique flora which is typically Mediterranean in character though all Portuguese coasts are, strictly speaking, Atlantic. Around the Cape there are large areas of limestone garrigue which has not been spoiled by overgrazing, and this type of natural vegetation stretches, with few modifications, in a broken line between cultivations the length of the Algarve. The Portuguese call it the 'barrocal'.

Before visiting the area, it is helpful to read the section on the Algarve in Polunin and Smythies (1973). Nevertheless, this by no means covers all the species to be seen near Cape St Vincent and it is not difficult to add plants to their lists. Furthermore, most of the species mentioned in their section on the Serra da Arrabida – an area further north, towards Lisbon – can be found near Sagres. We consulted, also, a lengthy treatise by Rothmaler (1943) dealing in detail with climate and plant associations of the Cape St Vincent area, but it says comparatively little about bulbous and herbaceous species of special interest to most amateur plant enthusiasts. Unfortunately we were unable to see a copy of one other interesting sounding paper by da Costa (1936).

We stayed at Sagres, the nearest small town to Cape St Vincent, for the month of March – the peak period for flowering of the most interesting species of the barrocal. Our first plant hunting was done around the Sagres motel which is a short walk northwards along the sea shore from the port of Sagres. Near the motel is a small lake by the shore, and here, on one occasion, we heard the seagulls, which usually seemed to be quieter than those at home, making a great deal of noise. On looking up we saw an osprey some three metres above our heads carrying a large fish in typical head-first fashion and being mobbed by gulls. Needless to say, it managed to shake them off. Apparently ospreys have only recently returned to Portugal, and one pair is known to nest on the cliffs north of Cape St Vincent, so it was a very fortunate encounter from our point of view.

Of all the places we visited, the garrigue around the Sagres motel

proved to be the richest for plant species and even better than around the Cape itself. The scrub, on rocky soil with good views of the sea coast at times, was composed mainly of the following shrubby species:

Cistus albidus	*Juniperus phoenicea*
C. ladanifer	*Lavandula stoechas*
C. monspeliensis	*Phlomis purpurea*
C. palhinhae	*Rosmarinus officinalis*
C salvifolius	*Ulex minor*

Cistus palhinhae is the glory of the area, found only in this corner of south-west Portugal. It typically forms neat, rounded bushes with dark green leaves covered by a sticky exudate so that they glisten as though they have been newly varnished and show off the large white flowers. It closely resembles *C. ladanifer* but has a dwarfer and more branched growth habit. The white flowers occasionally have dark blotches at the base of the petals, but this form is rarely seen whereas the flowers of *C. ladanifer* are usually blotched. Where the two species grow together there are intermediate forms suggesting that they hybridise. Other less common shrubby species occurring here and there included:

Chamaerops humilis	*Ononis* sp.
Cistus crispus	*Phillyrea angustifolia*
Daphne gnidium	*Pistacia lentiscus*
Genista hirsuta	*Quercus coccifera*
Jasminum fruticans	*Teucrium fruticans*

Lithodora diffusum ssp. *lusitanicum*

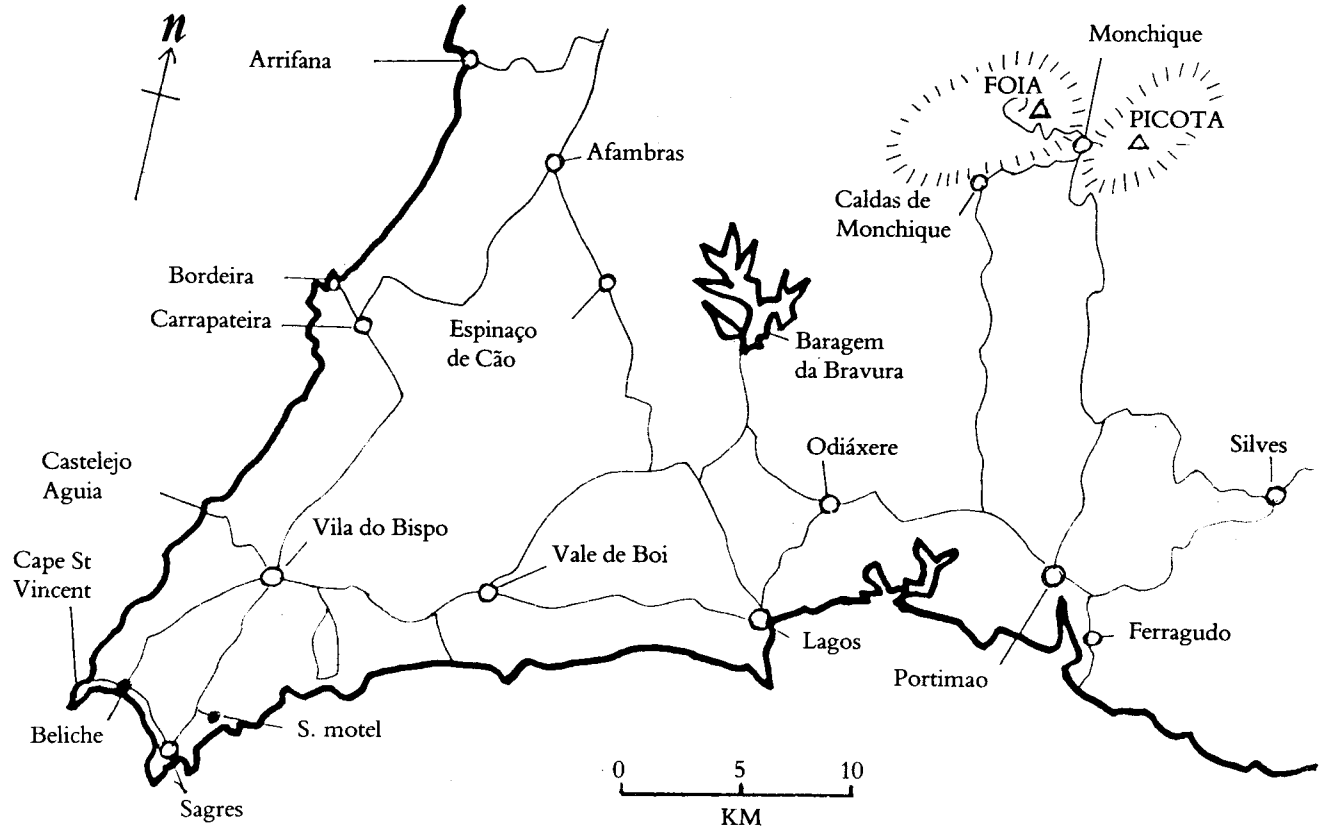
The lithodora (lithospermum) is a plant special to the area and in some places it is common, both on basic and acid soils, and it is always easy to spot at a distance because of its beautiful blue flowers. We were unable to identify the ononis, which was not in flower; it formed neat rounded bushes with small, somewhat sticky, leaves. It was common in many places but is not mentioned by Polunin and Smythies (1973).

Amongst the shrubs grew many herbaceous and sub-shrubby species, notably:

Anagallis arvensis	*Cerinthe major*
Misopates orontium	*Linaria algarviana*
Astragalus lusitanicus	*Lobularia maritima*
Bellis annua	*Salvia verbenaca*
Calendula suffruticosa	*Tuberaria guttata*
Campanula lusitanica	*Viola arborescens*

Several of these need special mention. *Astragalus lusitanicus* is a rather tall-growing species with large white flowers and inflated pods, more resembling a broad bean than a typical astragalus. It has a curious distribu-

SOUTH-WEST ALGARVE



tion – only in Portugal and in Cyprus, though a subspecies is to be found in the Peloponnese. Near Cape St Vincent it grows in a variety of sites and not infrequently by the roadside. *Campanula lusitanica* is a fragile annual endemic with bright mauve-blue flowers which are not produced in any quantity until the end of March. *Viola arborescens* is a sub-shrubby plant which, at times, forms clumps that look at a distance rather like a pale-coloured aubretia. Amongst the shrubby and herbaceous species there were several tuberous and bulbous rooted plants of special interest to plant hunters:

Arisarum vulgare
Asphodelus ramosus
Anemone palmata
Bellevalia hackellii
Fritillaria lusitanica
Gynandriris sisyrinchium
Muscari comosum
Narcissus obesus
Orchis morio
Orchis italica
Ophrys bombyliflora
O. speculum
O. tenthredinifera
Romulea clusiana
Serapias lingua
Tulipa sylvestris australis
Valeriana tuberosa

Anemone palmata, which forms small, pea-like tubers, has beautiful yellow – and here not infrequently pure white – flowers. Farrer rates it as perfectly hardy and adaptable to colder, wetter climates, and fortunately we were able to collect freshly-ripened seed. *Bellevallia hackelii* is a grape hyacinth-like plant special to the area and plentiful, flowering towards the end of March. We were particularly interested to see the fritillaria, which is not mentioned for this area by Polunin and Smythies (1973). It grew in quantity, often with two flowers to the stem, and most specimens seemed to be the narrow-leaved form *F. lusitanica* var. *stenophylla*, though they varied in this respect. The romulea was probably the subspecies *R. clusiana*, but amongst the plants were some with longer stigmas suggesting that they were the type species *R. bulbocodium*. Of the orchids, *Ophrys tenthredinifera* was the most apparent early in March but soon finished flowering. The most numerous were undoubtedly *Orchis morio* and the mirror orchid *Ophrys speculum*, which often grew no taller than the tiny annual *Bellis annua* with which it associated. *Orchis italica* occurred in groups here and there, but *Ophrys bombylliflora* and *Serapias* species grew mainly as individual specimens and were relatively uncommon.

On one occasion we walked north-eastwards from the motel along the top of the sea cliffs for several kilometres. In places the ground was covered by *Omphalodes linifolia* like a sheet of pale blue forget-me-nots. Some bushes gave shelter from grazing cattle for fair quantities of the Spanish bluebell *Endymion hispanicus*, and scattered plants of the brown

bluebell *Dipcadi serotinum*. On exposed sites there were a few flowering rosettes of the tiny, and rather rare, crucifer *Ionopsidium acaule* which also grows on the Sagres peninsula, but it is very small and not easy to see. It is a native here, but it is also frequently cultivated as an ornamental ground cover in other parts of the Mediterranean.

To walk to Cape St Vincent from Sagres takes just over an hour. One follows the well-surfaced road from which it is easy to step off into the barrocal. As one leaves the roundabout joined by the main road to Faro, and before one reaches the naval telegraphy station, there is an interesting flora on the east side. Here grew much *Scilla monophyllos, Narcissus obesus, Ophrys tenthredinifera* and some plants of the endemic crucifer *Biscutella vincentina* with yellow alyssum-like flowers and characteristic fruits.

Past the radio station one sees much *Scilla vincentina*, a local endemic quoted by Polunin and Smythies (1973), but seemingly ignored by the Flora Europaea. It is distinguished from *S. monophyllos* by having several basal leaves instead of a single one, and two bracts to the flower stem. Here also grew *Halimium commutatum*, a yellow-flowered rock-rose-like plant which is common in the barrocal near the coast. About half the way from Sagres to Cape St Vincent the road takes a sharp bend to the west, and near here, where the vegetation had recently been burned, grew hundreds of yellow and white *Anemone palmata* with large groups of *Fritillaria lusitanica*. Nearby was *Ophrys scolopax, Orchis italica*, the white candytuft *Iberis crenata, Teucrium pseudochamaepitys, Convolvolus althaeoides*, a few plants of *Allium roseum* and one or two of the yellow-flowered *Phlomis lychnitis* just coming into bloom.

About one kilometre farther along the road, on the south side one comes to the small fort of Beliche perched on the cliffs. The most noticeable species here was *Antirrhinum majus* ssp. *linkianum*, a showy red-flowered form of our garden snapdragon which has the habit of climbing through the undergrowth by twisting its petioles around its neighbours. It grew with masses of *Allium subhirsutum* – a rather small garlic with white flowers and sparse hairs on the leaves. There was a fine group of *Ophrys fusca* near the castle walls with 28 flowering stems, and the interesting *Cerinthe major*. On the cliffs, inside the fort, grew much antirrhinum and low bushes of the fleshy-leaved, spiny *Lycium intricatum* with small dusky-mauve, trumpet-shaped flowers. All around here the plants are typical of the Cape St Vincent area and, from a botanical point of view, it is not necessary to walk the next few kilometres to the Cape. However, we made the pilgrimage to the lighthouse where we noted an association of the following species of shrubs:

Atriplex sp. *Phillyrea latifolia*

Cistus palhinhae
C. salvifolius
Helichrysum stoechas
Juniperus phoenicea
Ononis sp.
Pistacia lentiscus
Teucrium polium
Rosmarinus officinalis
Thymus camphoratus

The *Cistus palhinhae,* juniperus and teucrium were dominant, and amongst them, on the windswept clifftops grew:

Allium ampeloprasum
Astericus maritimus
Armeria pungens
Astragalus lusitanicus
Bellis annua
Biscutella vincentina
Cerinthe major
Calendula suffruticosa
Lobularia maritima
Silene littorea
Narcissus obesus
Urginea maritima

Allium ampeloprasum is the wild form of our cultivated leek, and *Armeria pungens* is a tall, robust thrift with spiny leaves. Amongst these we found one superb plant of the showy, pink-flowered *Centaurium erythraea* ssp. *grandiflorum* and a glistening white-flowered form of the candytuft *Iberis procumbens.* Nesting hoopoes were fairly common here and there were noisy flocks of choughs.

Walking back to Sagres, it is surprising to see colonised sand dunes on the north side of the road nearly opposite to the Beliche fort. Here *Cistus palhinhae* is rare or absent, but *C. salvifolius, Halimium commutatum, Lithodora diffusum, Helichrysum stoechas* and the wild olive *Olea europaea* var *sylvestris* are common, together with the curious *Corema album* which resembles a tall form of our crowberry *Empetrum nigrum,* to which it is closely related though it grows in a completely different environment.

The small town of Vila do Bispo is a twenty-minute bus ride from Sagres. Just to the west of the town an unsurfaced road (1256 on the map) leaves to join up with the Cape St Vincent road near Beliche. It passes through well-watered farmland where the paper-white narcissus *N. papyraceus* is fairly abundant in places, though it was past its best in March. The moist habitat here also favours *Vinca difformis* and the little *Muscari atlanticum* and an occasional plant of the spectacular *Scilla peruviana.* Another road from Vila do Bispo goes to the coast at Castelejo Aguia – an easy walk there and back. Woods of maritime pine *Pinus pinaster* and wind-stunted eucalyptus on the way to the sea-harboured small groups of the unassuming little green-flowered orchid *Gennaria diphylla* growing with *Orchis morio.* It is rare in Europe, being found only in south-west Iberia, but common in parts of the Canary Islands. A field nearby, which had recently been cultivated, was purple in places with the minute flowers of *Linaria algarviana.* Another interesting feature of the area near the coast is

the extensive woodland of spontaneous *Pinus pinea* – the umbrella pine – which here grew no more than 3–4 metres high, and in some places many specimens had fallen over due to the borings of some insect at ground level. Gennaria grew sparsely in these woods.

Hiring a car, we took the Lisbon road (268) out of Bispo to Carrapatiera and then to the sand dunes and very impressive sea cliffs that comprise the coast from Bordeira southwards. The tops of the cliffs have typical *Cistus palhinhae* garrigue and truly magnificent coastal scenery. The flora of the well-colonised sand dunes included:

Asparagus acutifolius
Allium subvillosum
Antirrhinum majus linkianum
Armeria pungens
Carpobrotus edulis
Centaurea sphaerocephala ssp. *polyacantha*
Corema album
Helichrysum stoechas
Linaria sp.
Malcolmia littorea
Scilla monophyllos
Silene colorata

Centaurea sphaerocephala ssp. *polyacantha* is one of the most beautiful of the genus with large reddish-mauve cornflowers and spiny involucral bracts. The linaria, with small yellow flowers, was plentiful. It was probably *L. spartea*. On recently colonised dunes and in pure sand, there were large drifts of *Cryptostemma calendulacea*, a naturalised South African composite with beautiful yellow, gazania-like flower heads. It also grows on sites near houses in Sagres, but it becomes coarse and weedy in rich soil.

Driving along the main road (125) to Lagos and beyond, the roadsides are lined in places with mimosa (*Acacia* sp.) and *Myoporum tenuifolium* – both Australian species – and occasional bushes of the beautiful native *Lygos monosperma*, which has scented, white, broom-like flowers on hanging branches. Large groups of the orchids *Orchis morio, Ophrys fusca* and *O. lutea* can be seen in places, and the common fennel *Foeniculum vulgare* is just coming through the ground in March. One should look out for the strange vetch *Lathyrus ochrus* which has flattened leaf-stalks but no proper leaves and pale yellow flowers. Amongst the mixed, and often geriatric, orchards of figs, almonds, peaches and carobs, there are drifts of the ubiquitous yellow *Oxalis pes-caprae*, contrasted in places with sheets of the purple *Fedia cornucopiae*. Later in the season these are joined by the yellow and white *Chrysanthemum segetum* and the less common yellow *C. myconis*.

We drove along the main road past the pleasant small town of Lagos, where we saw storks soaring, and turned south just east of Portimao along 530 to Ferragudo and the lighthouse on the coast. Here is a nesting colony of cattle egrets on a rock stack at a short distance out to sea. These birds are fairly common inland in small numbers accompanying cattle, but here

there were at least 100 on the rock which they shared with a few cormorants.

On the top of the mainland cliffs here was typical barrocal flora, though *Cistus palhinhae* seemed to be absent, and amongst other shrubs we noted much of the aromatic rue *Ruta chalepensis*. This site was very colourful with cistus, gynandriris and lithodora, being visited by swallowtails and blue butterflies. Other lepidoptera present in good numbers included the cleopatra, Chapman's green hairstreak, wall brown, painted lady, red admiral, clouded yellow, small copper and Spanish festoon.

Apart from the typical 'barrocal' limestone garrigue and the cultivated field and roadside flora, there is a different association of plants on the high acid rocks north-east of Sagres. One needs a car to visit these areas, the most obvious venues being the peaks of Foia and Picota which rise to over 900 metres and once had a very interesting woodland flora, though most of this has been destroyed. First we visited the dam to the west of Foia, the Barragem da Bravura. One can either go there via Lagos and then northwards at Odiaxere or avoid Lagos by turning north earlier from Vale de Boi to Bensafrim. Taking the last road, there are extensive areas with a cover of 1.5 metre tall *Cistus ladanifer* and very little growing beneath except for *Scilla vincentina* and *Arisarum vulgare*. Approaching the dam one sees also *Ulex parviflorus, Myrtus communis*, a beautiful pink-flowered form of *Erica australis, Lavandula stoechas*, our own native *Calluna vulgaris* and masses of *Gynandriris sisyrinchium*. Around the dam there are extensive woods of eucalyptus, and one feels somewhat apprehensive at the way these trees are taking over from the native flora. Under the eucalyptus there was little growing except for drifts of *Scilla monophyllos* in a range of colours from white through pale to dark blue. However, it was peaceful and calm with honey-scented air and the sound of millions of bees working the eucalyptus flowers.

In the same area of acid rocks, one can cross from Bensafrim on the Lisbon road (120) to Afambras. The highest point on the route is somewhat over 200 metres at Espinhaco de Cao, and here there are cork oak plantations with the heathers *Erica arborea, E. lusitanica* and *E. australis*, with *Cistus ladanifer* and the spiny gorse-like shrub *Chamaespartium tridentatum*. Here and there are specimens of the strawberry tree *Arbutus unedo* called the 'Medronheiro' in Portugal where the fruit is used to produce a fiery spirit of that name. One other plant we noted here was *Bellis sylvestris*, like an extra-large daisy (*Bellis perennis*), in contrast to the tiny *Bellis annua* found in thousands by the roadside, and even in garrigue, near Sagres. Though we continued from Afambras to the coast at Arrifana, we saw few species that were new to us except for one or two flowering bushes of the attractive *Rhamnus alaternus* growing in garrigue, and a buttercup, *Ranunculus*

paludosus, which just gets into the British flora as it is found in Jersey. By the roadside there were fine specimens of the blue *Anagallis monelli* which is surely one of the most beautiful plants of the region.

The trip that nearly everybody makes from the Algarve is to the small town of Monchique which lies between the two highest points in the area, Foia and Picota. One can drive north from Portimao direct or make a detour eastwards via the old Moorish capital of Silves. In river valleys round here, one may see the mud flats covered with the curious little camomile-like *Cotula coronopifolia*, which has small, hanging, yellow capitulae that lack ray florets. It is aptly called brass buttons, and though it occurs wild in parts of Iberia, it is an introduced species from South Africa. The road northwards from Portimao (266) passes through well-watered country with orange orchards, and here we saw a short-toed eagle hovering like a kestrel – probably looking for snakes.

Shortly before Monchique, at a turning to the left, one comes to the small spa of Caldas de Monchique. This is a quaint little place with a pump house that reminds one of a part of the Brighton Pavilion. There is a kind of fairy-story glen through which the spa waters flow, and here grew fine flowering bushes of the native *Viburnum tinus*, festooned, in places, with the curious *Aristolochia baetica*. Carrying on to Mouchique, one can drive to the top of Foia, but there is no vehicle road to Picota. The summit of Foia is spoiled with many telecommunications masts and there was not much to be seen, plant-wise, at the summit – it may have been too early in the year. The ground was covered with *Cistus salvifolius* which had been browned by winter snow, and a very prickly genista-like plant we were unable to identify. However, there were thousands of stars of *Romulea bulbocodium*, and just to the south of the highest point we saw groups of *Paeonia broteri* not yet in flower. Lower down the mountain there were tree heathers and *Rhododendron ponticum* which grows wild there.

On the way back we turned west to Casais, and this proved to be a verdant area with orange and olive orchards. The road south from Casais is flanked in places with eucalyptus plantations which seem to suppress other vegetation, but there were a few trees of *Arbutus* and two showy, but spiny, leguminous shrubs, *Chamaespartium tridentatum* and *Genista triacanthos*. *Scilla monophyllos* grew in profusion by the roadside.

We can thoroughly recommend the Cape St Vincent area in March to plant enthusiasts. A car is not essential; all the most interesting species can be seen within walking distance of Sagres or with the aid of a bicycle. Furthermore, there are no barriers whatsoever to walkers, no fences, hedges, barbed wire, walls or restrictions, and the vegetation is not excessively prickly except for dried heads of *Carlina racemosa*. All one needs to

worry about is where one sits down to avoid the *Carlina* and the strength of the sun which can be searing even in March. What could be more pleasant than to come back slightly weary and hungry from tramping through the barrocal to a superb meal of grilled fresh tuna or sea bass with vegetables, salad and a bottle of good, dry, Portuguese wine – all at a very reasonable cost?

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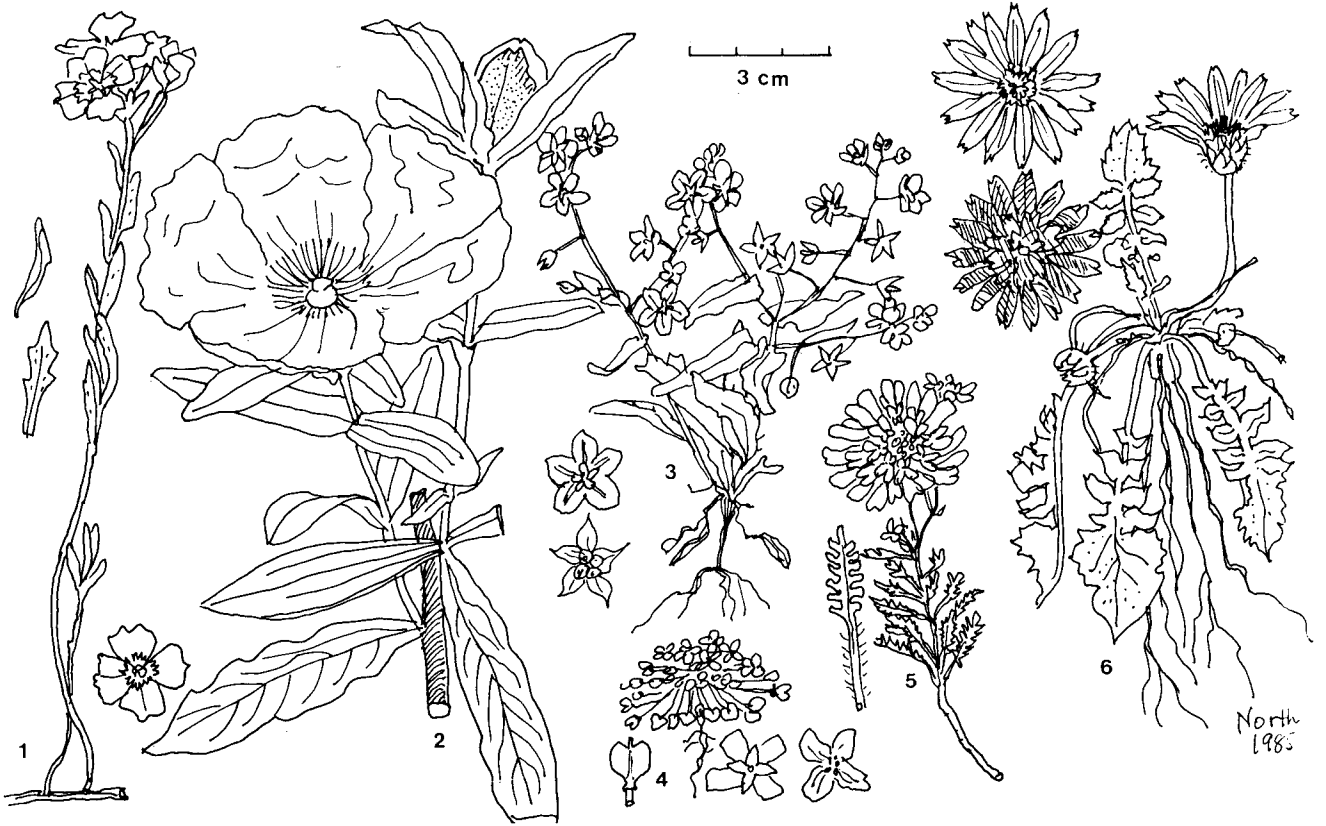
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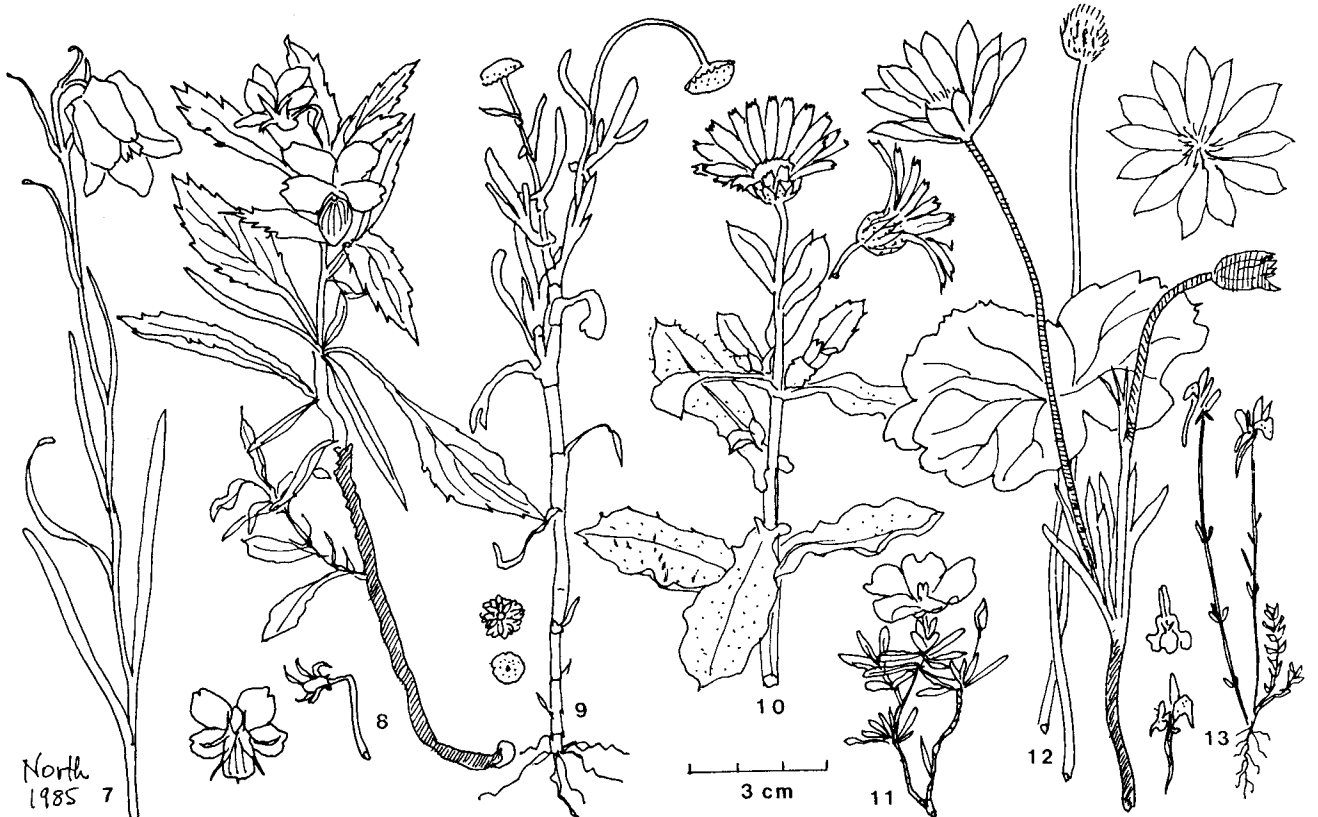
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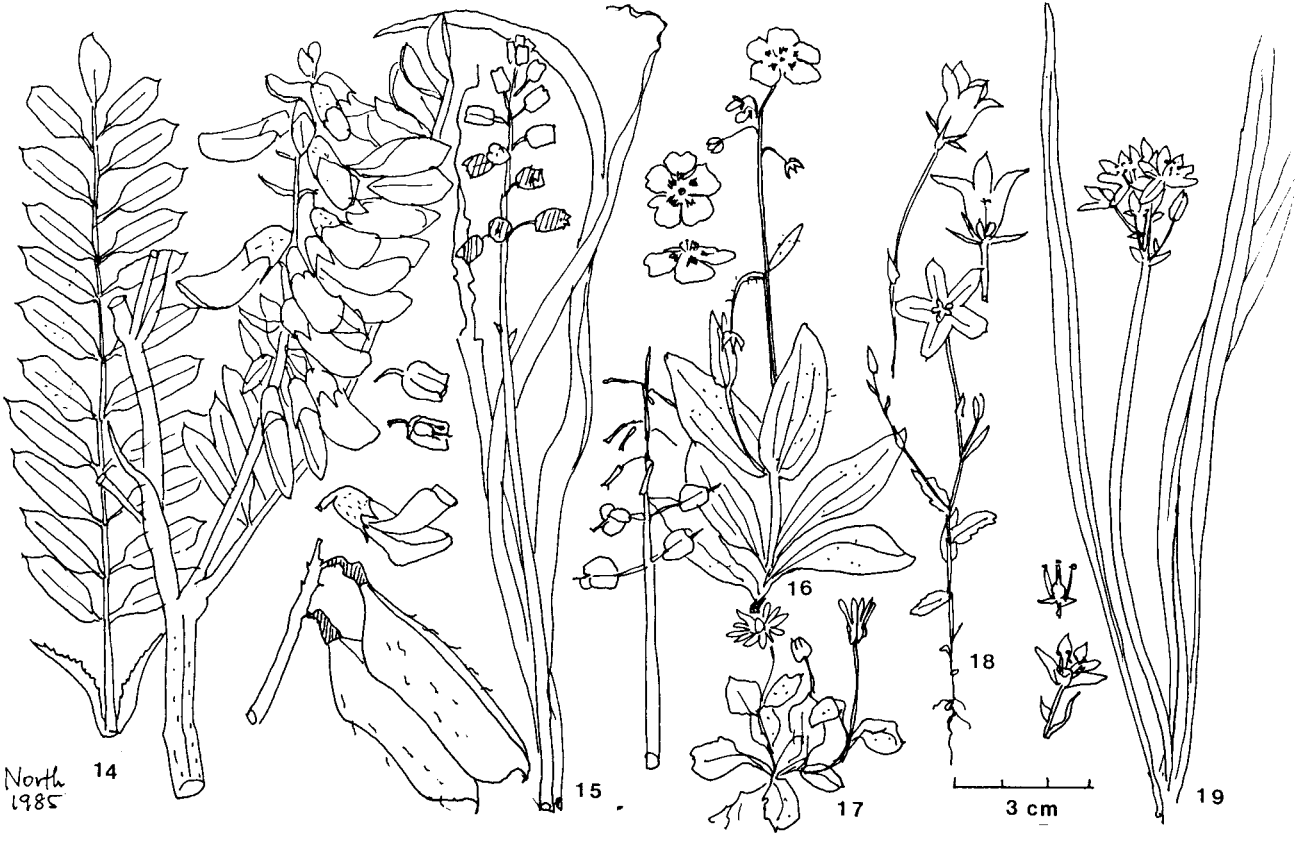
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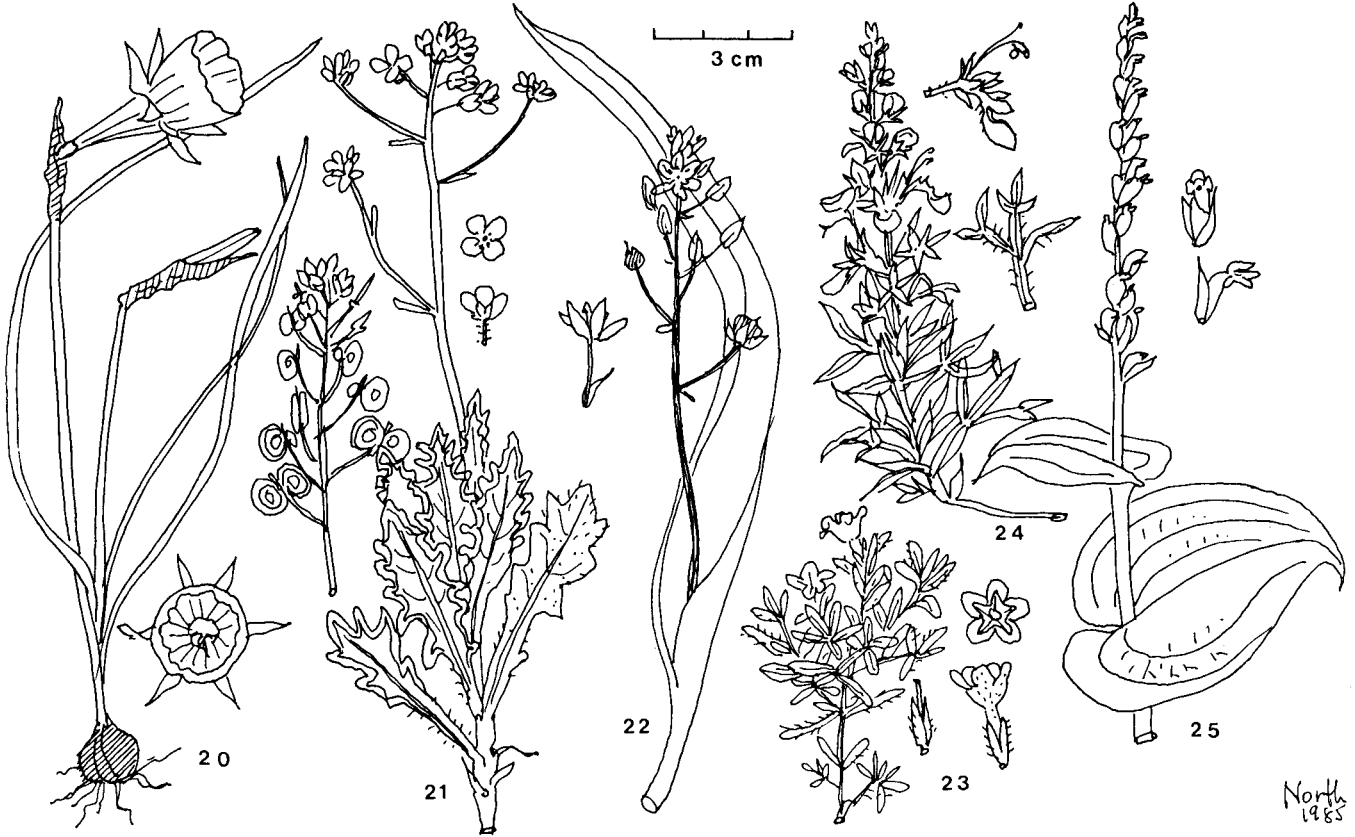
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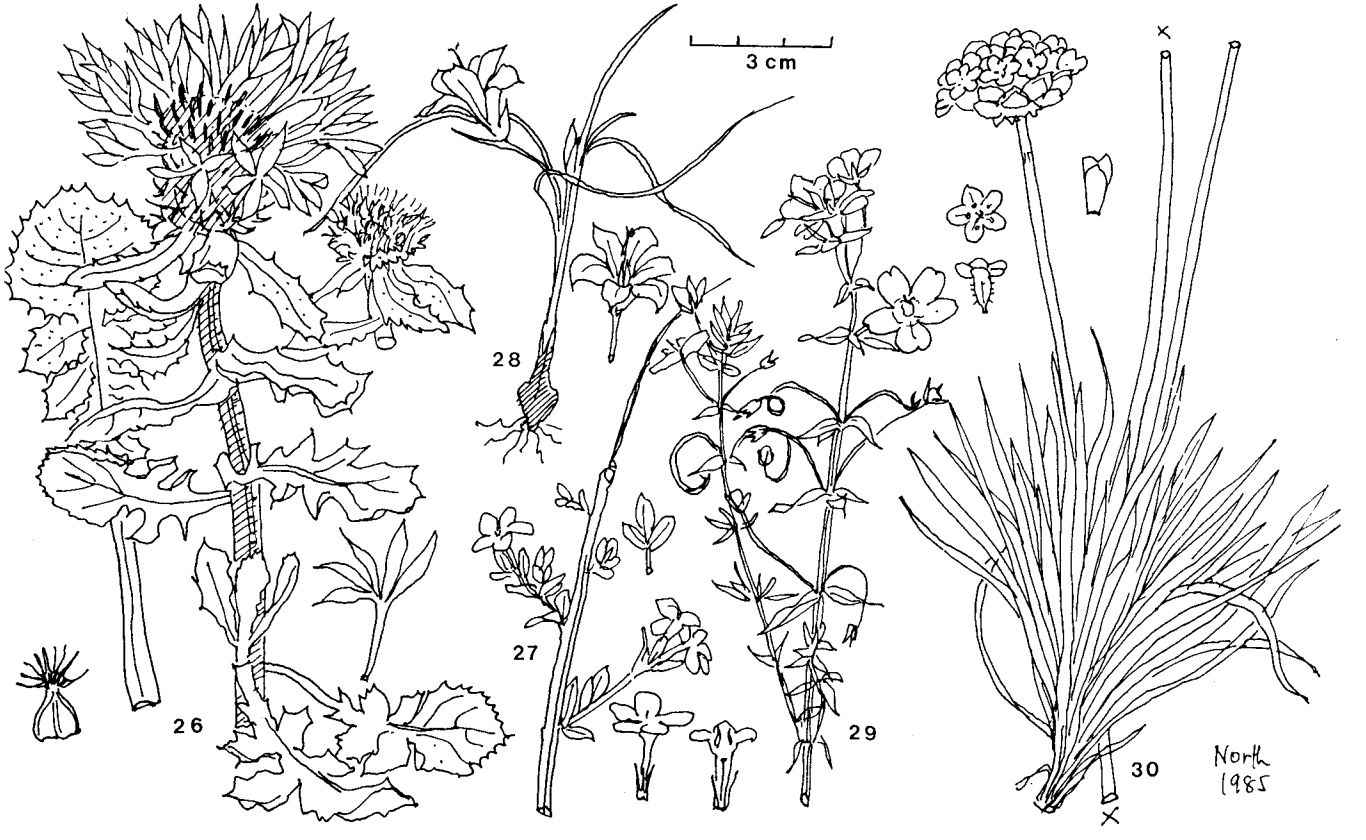
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Book Reviews

Primeln
by FRITZ KÖHLEIN
Ulmer. Printed in Germany. 406 pages. 112 colour pictures, 100 line drawings.
Price around £20. 1984

As our gardens continue to be stocked with plants of this great genus Primula, it is no surprise to be reading yet another book on the broad subject that is covered by this title.

Herr Köhlein has much experience and a broad interest in horticulture and has applied his knowledge to the subject of Primulaceae as seen in this book. I should hasten to add that this work is published in the German language only, at present, but regardless of this, many of us would find the general layout, descriptions and fine colour illustrations well worth investing in.

The introductory 100 pages cover the subjects of distribution and history along with helpful chapters dealing with cultivation and propagation guidelines. The choice of classifiication is the one preferred by most "down-to-earth" horticulturists, Sir William Wright Smith and Dr H. Fletcher's work. This has been rearranged alphabetically and forms the basis for introducing the species.

The individual descriptions have been handled in a refreshing way. Some further cultural thoughts have been added along with species which are to be found associating with the primula in nature, and often equally appropriate in our own gardens. Most notable amongst the descriptions of each species is the inclusion of many well-known primulas, either long-established or recently reintroduced, which were 'gapingly' absent from other recent works on the same subject.

Hybrids and cultivars are generally covered along with the species which has resulted in a smaller crop of these endless lists which seem to appear at the end of major monographs. Herr Köhlein's selection of colour photographs is generally pleasing, and indeed there is no shortage of them. Many of them give good guidance as to the general habit of the plant and how to associate them in the garden landscape.

There are additional descriptions of related genera including Androsace, Dodecatheon and Soldanella; this all adds to making this work one of the leaders in its field, and the subject is so dealt with to appeal to a very wide group of gardeners and plantsfolk.

J. J.

Mountain Flora of Greece – Volume I
by ARNE STRID
Cambridge University Press, ISBN 0521 257379, 1986. £65.

This 800 page Volume I of the Mountain Flora of Greece is the first of two volumes produced by a team of 25 European botanists. There have been several popular accounts of the Greek flora in recent years catering for the well-informed gardener and traveller but concentrating on the coasts and islands rather than on the mountains. Unlike these accounts, the one reviewed here attempts to describe all known species from the area. Volume I includes 926 species and subspecies, one third of which were not mentioned in Flora Europaea or were described under a different name.

This book is one for botanists or for gardeners who want a reference book. Illustrations are few, being limited to a number of line drawings. People using this book will find the many identification keys most helpful. For example, that most difficult genus, Viola, is splendidly covered by a key which separates the 34 different species found in the Greek mountains. Many of these are grown in our gardens so that the key can be used for naming them. This is the chance to obtain a description of the true *V. stojanowii* and to see how it differs from *V. eximia*. Naturally there is also a detailed description of the fabulous *V. delphinantha*.

The Mountain Flora of Greece would be a useful reference source for mountain plants of the Balkans and S.W. Asia since many of the species have a wide distribution which is quoted.

More than 500 mountains are mentioned in the text, their position shown by a number on a map and an index of mountains given at the end.

This is a splendidly produced book with a wealth of material not easily accessible elsewhere.

The editor is Professor Arne Strid, Professor of Botany in the University of Copenhagen, who has explored the Greek mountains thoroughly and named many new species.

A. D. M.

Seed Exchange

The members who use the seed exchange will wish me to thank the many donors who make the exchange possible and the willing Angus group members who do the tedious work of making up and dispatching your orders. There would be no exchange without these two groups.

Most donors managed to send their seed in time for the list this year. Please remember I must have seed, or a list of seed to come, by **31 October**.

I am sorry there were no lists available for dilatory members this season owing to unprecedented demand. The experiment of giving you labels to send for the lists was a mistake and we wish you to return to sending a S.A.E. for these. All overseas members will be sent a list, as will all home donors.

Applications for seed must be on the form provided and please read the instructions on page 2 of the list.

Printing the names of the seed on the packets you send is helpful, but do not use ordinary correspondence envelopes for seed – they leak!

This, the 1986-87 distribution, will be my last as I am handing over the exchange when we have completed it. The name and address of the new Seed Exchange Manager will be given in the January issue of "The Rock Garden" and in the Year Book, but if you don't receive these before you want to send seed, then I will see that they are delivered safely.

Until the end of the 1986-87 distribution all seed and order forms should be sent to:

Miss Joyce Halley,
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Letters to the Editor

Dr S.-Allende Str. 23, 5300 Weimar, East Germany

Dear Sir,

Might I ask you to correct a double mistake in the article about Rhodes in The Rock Garden 77, 408 (1986). The ordinary swallowtail butterfly is *Papilio machaon* and not *Papilo macheon* as stated. The tiger moth mentioned on the same page means the famous spotted harlequin, *Callimorpha quadripunctata.*

For the sake of eager botanists and gardeners may I say that when travelling in eastern Greece, the Flora of Turkey may be of great help. Volume 8, revised in 1984, includes attractive genera such as crocus and romulea. Of the latter, *Romulea bulbocodium* var *bulbocodium, R. tempskyana* and *R. ramiflora* ssp. *ramiflora* are natives of Rhodes.

I have recently written an article about *R. columnae* which occurs in the south of England (see p.86, Ed.).

Yours sincerely,
Arnfried Abraham

"Falconers", High Wych Road, Sawbridgeworth, Herts CM12 0AY

Dear Sir,

I have just read with some concern the article on Pearlworts and paraquat in the Journal Vol. XIX Part 4, Number 77. My concern stems from the technical inaccuracy of one of the statements in which the writer says that paraquat "can be safely sprayed right up to, and even on, the woody trunks of trees or shrubs . . . without damage". I would like to point out that this is true for trees and shrubs which have a cambium layer not containing chlorophyll, but all plants which have green pigments in their stems will be killed by applying this contact-acting herbicide on them – even accidentally.

Personally I have damaged laburnum and kerrya with paraquat when not being careful enough and have killed young plants completely.

One in twenty of British gardeners may well be beginners and it may well be this percentage that use this herbicide in the manner suggested only to find damage occurring.

Please do not take my comments as a criticism of the article, which I enjoyed, but I felt strongly that I should point out the danger associated

with this herbicide when put in contact with tissue containing chlorophyll. Thanking you for a very interesting volume.
Yours sincerely,
Christine Walkden

School of Biological Sciences, Universty College of Swansea,
Hendrefoilan Gower Road, Swansea SA2 RNB

Dear Sir,

As one who is a subscriber to the SRGC, I am wondering if you can help me with a query.

I am trying to discover to what extent *Caulophyllum thalictroides michy* and its geographical variant *C.th.* v *robustum* is cultivated in the United Kingdom, and whether in the pages of "The Rock Garden" there are any references to this plant, which has for many years been regarded as one of the herbaceous Berberidaceae, but is now placed by some authorities in Leonticaceae. I am aware of the article in "The Plantsman" by Rix in 1982, and reference to the plant by A. Evans in "The Peat Garden", p.109.

If you can direct me to any references other than the last two I would esteem it a privilege.
Yours sincerely,
R. B. Isherwood

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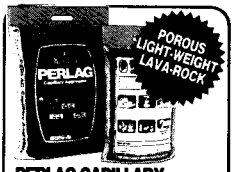

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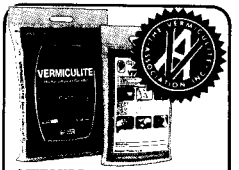

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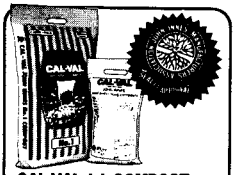

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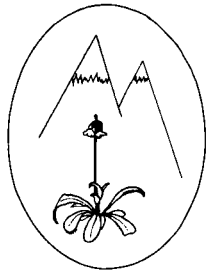

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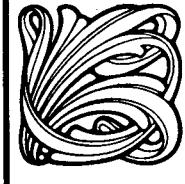

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Abbreviations- FaM Farrer medal, FM Forrest medal, FCC First Class Certificate, AM Award of Merit, PC Preliminary Commendation. Bold type (eg **25**) indicates an illustration number.

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