The JOURNAL of THE SCOTTISH ROCK GARDEN CLUB

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No. 67

SEPTEMBER 1980

Editor R. J. MITCHELL · University Botanic Garden · St. Andrews · KY16 8RT

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REVISION OF CONSTITUTION AND RULES

As the Constitution needed re-printing it was examined to see whether any revision was desirable. Copies of the proposed revised Constitution will be distributed at the A.G.M. but the **changes** which are involved are listed below, with reference to present and revised paragraph numbers.

Pres.	Revd.	
1	1	**Name and Objects.** "Rock and **Peat** Garden plants" instead of "Rock - - - -".
3	2	**Membership.** Four classes of membership:— Ordinary, Family, Junior and Corporate, are defined, otherwise no change.
—	3	**Groups.** These, not mentioned in the present Constitution, are now defined.
2	4	**Financial Year.** To end one month earlier (Aug. 31st instead of Sept. 30th) to allow more time for preparation of accounts and an earlier A.G.M. Membership year Oct. 1st — Sept. 30th as before.
4b	5.2	**Council.** Council, which has been found to be a little unwieldy, has been reduced from 30 to 22 by cutting out 3 Vice-Presidents, 2 Hon. Officers and 3 Elected Members. This is the most significant change proposed. It will not become fully effective for 3 years.
4c	5.3	Past Presidents no longer become Vice-Presidents but will be listed as such.
4d	5.4	Immediate Past President (instead of Senior Vice-President) deputises for President if necessary.
5	6.1	**Nomination and Election.** Consequent on 5.2, **four** Elected Members per annum instead of five.
—	6.4	**Co-option.** New and desirable power for Council to co-opt two members if necessary.
6d	7.5	**Group Conveners.** To be appointed by Groups, not by Council.
7a	8.1	**Honorary Office and Membership.** Minor changes in wording to conform with current practice.
8a	9.1	**A.G.M.** May be held earlier with change in Financial Year.
8c	9.3	**Special General Meeting.** Notification limited to U.K. members to save postage.
11	12.1	**Resolutions for A.G.M.** Date for submission altered to suit new Journal date.
—	12.2	New clause. **Amendments to Resolutions for A.G.M.** can be notified in writing.
—	12.3	New clause. To allow Amendments in **wording** to be accepted at the A.G.M. at the discretion of the Chairman.

Date of operation of Revised Constitution.

If agreed at this meeting, to come into operation following the meeting but:— elections made under the present Constitution for Hon. Officers are valid until the next A.G.M. and for Elected Members are valid for 3 years.

Note: Any member who wishes to see the complete Revised Constitution before the A.G.M. should write to the Hon. Secretary, enclosing a stamped addressed envelope.

SCOTTISH ROCK GARDEN CLUB

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(S.T.D. 082-14)

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Mr. D. J. DONALD,
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September 1980

RENEWAL OF MEMBERSHIP 1980-81

Subscriptions for 1980-81 are due to be paid on or before 15th October 1980. The current rates are as follows:—

		U.S.A. Currency
Ordinary Membership	£3.50	$8.50
Family Membership (resident at the same address)	0.50	$1.25
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Flower Seeking in Crete

by LEONARD CAMA

OUR PREVIOUS flower seeking holidays in Greece had been with Chris Brickell as guide, philosopher and friend. This was to be a do-it-yourself, preceded by a lot of reading and studying slides of other holidays. The weather is the gamble; if too early it is cold and wet but you see more of the early flowers; if too late you have more swimming and sightseeing as the flowers are going over. The latter part of April was a good choice, but we worried as Chris had returned from leading a party to Crete in March and found the spring well advanced with warm dry weather. He kindly told us of his sites that had been productive, but we only understood the request to try and get him an ordnance map of Crete after bitter experience.

We flew first to Athens to see the treasures on our own without guides rushing us through at breakneck speed. Then to Delphi for two days as we felt it necessary to wake up there to appreciate the awesome grandeur, see the site when it is quieter, and wait patiently for Apollo to answer our questions.

Wisley gave us a check list of plants and, after eliminating the grasses as only being of interest to cows, we got a very good start at Delphi. *Campanula rupestris*, *Onosma erecta*, *Alkanna graeca* and *Cerinthe major* flowered in the crevices of the ancient walls. As we climbed above the stadium to the natural rock garden below the cliffs of the Pheidriades we saw the canary yellow *Oxalis pes-caprae*, *Convolvulus althaeoides*, *Fumaria capreolata* and a variety of vetches struggling up through the undergrowth. At the very foot of the cliffs were a great variety of Spider orchids, Sawfly, Horseshoe, Bee and Pyramidal orchids. They all hybridise so freely, but especially *Ophrys sphegodes*, the Spider Orchid, that the amateur thankfully abandons the professional-sounding botanical Latin for more homely English names. Together with all this floral treasure is a carpet of poppies, daisies, *Anthemis*, *Chrysanthemum*, vetches and gladioli you soon take for granted and stop looking at. It was only the evening task of checking the specimens and ticking off the Wisley list that made us look at everything. From our bedroom we looked down the many hundreds of feet over millions of olive trees to the port of Itea, the way the ancient Greeks approached Delphi. Just out of reach of the camera were

several kinds of *Verbascum* in various stages of development, which was very frustrating as we never found them again. The hillsides outside the site renewed acquaintance with the lacerating properties of the shrubs which make up the thorny ground cover of the phrygana. *Calycotome villosa* is a very spiny broom which along with *Euphorbia acanthothamnos*, *Sarcopterium spinosum* or Thorny Burnet and the Kermes Oak will destroy your clothing and provide some evening entertainment to extract the thorns. The Kermes Oak is *Quercus coccifera*, an oak tree which looks like a holly, and is covered with the red galls of the scale insect which yields a red dye, the Scarlet of the Scriptures. A sprig of this plant is still the emblem of the Dyers' Company of the City of London. An interesting find was the little yellow *Hypecoum imberbe*, and it was pleasing to see again the architectural forms of the asphodels, *Acanthus* and Giant Fennel which are very Greek parts of the landscape together with the brilliant pink blossom of the Judas Tree from which Judas Iscariot is said to have hanged himself.

The next day we flew to Crete to pick up our hire car which was late in arriving and had a slow puncture on delivery. This unlikeable vehicle did its job but was awful to drive and produced the major financial shock of the holiday. We thought we had paid for it in England, but the girl who delivered it asked if we wanted insurance for third party, passenger liability, collision, theft and all kinds of unexpected disasters. Greek road tax, Crete road tax and 18% charges were added to the frightening total as a kind of Hellenistic V.A.T.

This expensive toy obviously had to be used continuously even though petrol was 160p a gallon. The hire company gave us the standard road map which could only be compared with the Speed hanging on the wall at home. Roads that didn't exist were on the map and roads existed that weren't on the map, there were crossroads without signposts and the other way round, and the proudly designated first class road turned out to be a very inferior cart track. Additionally the map was printed in Greek capital letters and the signposts in the small letters, which are totally different.

The first morning we set off to Profitis Elias which we knew of old and got hopelessly lost in the one way traffic system of the tiny village of Archanes. Eventually a guide got in the back of the car with all his friends and relations and took us to somewhere we didn't want to be, and didn't know where we were when they left us on some mysterious errand of their own. There was a scree here with *Cistus* ground cover accompanied by its interesting parasite *Cytinus hypocistus*, which looks

so like the savoury scrambled egg thing served at cocktail parties. That colourful Cretan endemic, *Ebenus cretica*, cascaded down the steeper banks, and there were many different kinds of Tongue orchids. We took this as the pattern for the holiday; if you don't find something good in five minutes move on quickly. If you find any orchids keep on looking, as there will be others. This proved to be so as there were Pink Butterfly orchids—*Orchis papilionacea*, Four-spotted orchids—*Orchis quadripunctata*, and so many sub-species of *Ophrys sphegodes* that it was difficult to believe they were all related. *Ophrys lutea* here was going over but not so in the higher mountains. We were so cheered we turned off the main road only to find we'd embarked on an endless series of rutted tracks, no signposts, nobody spoke English, and the only taverna we came across had no beer, only Pepsi-Cola. *Ranunculus asiaticus* in various colour forms, the Tassel Hyacinth—*Muscari comosum*, the Tongue orchids *Serapias vomeracea* and *S. orientalis* and a branched broomrape *Orobanche ramosa* showed we had chosen well botanically, but the navigational situation was very worrying. Musing over the worrying discovery of a slow puncture in a front tyre I ran into a recent landslide and found that one of the front wheels was almost square and the inner tube was visible between the rim and the outer cover for most of its circumference. This was really worrying as we were completely lost in the uncharted wastes of Profitis Elias, and if he was the Biblical gentleman who dashed off to Heaven in a chariot of fire his action was quite understandable. Fortunately the next turning but twenty-five brought us on to the main road, and at the first petrol station a small boy with an enormous hammer restored the wheel to its original circular shape. He didn't have to be asked and was obviously familiar with the problem. After that the Fiat went magnificently, lurching happily from pothole to pothole and always recovering in time from the brink of the precipice.

Next day we were told that a proper main road went to the beautiful site of Phaestos, and we only had to follow the tourist coaches. There were wonderful mountain views, unfortunately obscured by mist, but the car stopped at Phaestos amongst large groups of *Arum creticum* and its malodorous relative *Dracunculus vulgaris*. Later we found *Arum italicum* and were able to compare the slides. There were lots of the orchids we had already come across and the Yellow Bee Orchid —*Ophrys lutea* just coming into flower. *Ebenus cretica* again cascaded its pink lupin-like flowers down the hillside, interspersed with Jerusalem Sage—*Phlomis fruticosa* and the exciting discovery of masses of

Lavendula stoechas, known here as Greek lavender. The pyramidal orchids *Anacamptis pyramidalis* were taller than those at home, the habitat obviously suited them. Then a run down to the sea at Matala to sit on the beach with our invariable cheap lunch of bread and cheese, wine and deliciously fragrant oranges with the leaves and stalks still attached. Here were *Silene vulgaris*, *S. colorata*, *Medicago marina*, *Malcolmia maritima* and the Yellow Horned Poppy—*Glaucium flavum*. Climbing up the cliffs to see the caves we found the Scarlet Pimpernel —*Anagallis arvensis*, *Allium roseum*, *Hyoscyamus niger* and the Squirting Cucumber—*Ecballium elaterium*. On the return journey we diverted again and got really lost round Aghii Deka, where ten Cretans were martyred for their faith centuries ago. We thought this could well happen to us as we ignominiously returned time and time again to the same petrol station to ask the same small boy the way to Iraklion.

There was now an excursion planned for every remaining day and the holiday was getting a bit like work. Lasithi was a wonderful day with dramatic mountains and the roads becoming ever steeper with very ragged edges and a long drop to the bottom. Over hundreds of millions of years flat alluvial plains have been formed high up in the mountains at Lasithi and Omalos, ringed by even higher snow-capped mountains, and providing rich agricultural land. The plain at Lasithi is irrigated by windmills with lots of cherry trees, but we didn't find the expected tulips and fritillaries. On the way back we parked on a double hairpin bend on the edge of the cliff, which is the accepted thing to do in Crete, and picnicked on a carpet of all the orchids we'd already found plus the cream-yellow *Orchis provincialis* ssp. *pauciflora*. This made our day and we barely glanced at the lower stretches of *Gladiolus segetum* and the Carob or Locust Bean trees which supplied the broad bean-like locusts which are rich in carbohydrate and nourished John the Baptist in the wilderness.

The Samaria Gorge is one of the deepest and longest in Europe, 3000 feet deep and 12 miles long, and is a route the defeated Commonwealth forces took in 1941 to the ships waiting at the other end. We went by car to the start of the gorge at Xyloskalon collecting *Tulipa saxatilis*, *Anemone pavonia* and *A. coronaria*, *Paeonia clusii* and the Bird's Nest Orchid—*Neottia nidus-avis*, identified for us by some erudite German botanists who put us to shame, but we retired with honours as they were amazed at our list of finds. The discovery of this day was a hillside of *Daphne sericea* (*collina*). To walk the gorge it was necessary to return the next day in the tourist coach, as there

was an hour's boat trip at the other end. The coach was said to travel round to meet you by a road not shown on the map and one could only wonder at such a journey.

We made the usual dawn start in the coach and began the walk at 8 a.m. after a warning that it took six hours and the last boat sailed from Chora Sfakion at 3.30 p.m. Actually the boat didn't leave until nearly 6 o'clock, which was annoying, as the time could have been spent in the gorge. The walk wasn't too arduous, but you had to watch every step as it was good ankle-breaking country. A guide comes at the rear to shepherd the laggards. The Samaria Gorge is a protected area and you are asked not to pick the flowers; the endemic white *Cyclamen creticum* persisted for mile after mile, *Paeonia clusii* gives way to *Ranunculus asiaticus* as you descend, there are all the usual orchids you get so blasé about, an unusual member of the Campanulaceae—*Petromarula pinnata* grows from the most inaccessible places, and you are never without *Gagea graeca*, which had previously been thought to be rare. *Orchis provincialis* and a magnificent *Orchis quadripunctata* were welcomed again as there were unfounded fears as to the success of their previous photographs. The gorge is filled with pine trees and the coconut-like nests of the caterpillars of the Processional Pine Moth which is destroying the conifers of the Mediterranean. We unsuccessfully tried to find one where the caterpillars were still in residence, but they had all gone. When their nests fall to the ground they emerge in a long nose-to-tail procession and mischievous children guide the leader into a soup plate where they go round and round and can't get out. The gorge is about ten yards wide at its narrowest point, where the river has reappeared above ground, so that you have repeatedly to take off your boots and stockings and wade. This was tedious and I envied the hardiness of two Australian girls who did the next mile or so barefoot. They told me it was Anzac Day and I reminded them that their countrymen probably did the same in 1941.

A wide but unsurfaced road has been bulldozed into the heart of Mount Ida and we drove hopefully into that gaunt landscape to find the colchicums, fritillaries and crocus said to be around the cave, which was the birthplace of Zeus. We must have offended the Father of the Gods, as a mist descended, blotting out the views of the snow-capped peaks, and a freezing wind rose as we descended. Reluctantly we turned round after exploring some of the high pastures and finding Tongue orchids and Pink Butterfly Orchids amongst the anemones and arums. The dominant ground-covering shrub was the thorny burnet

with its small red flowers and lacerating thorns. It is cut in the summer for use as fuel in the bakers' ovens and also to make an effective stockproof hedge. It shares with *Paliuris spina-christi* the reputation of having supplied Christ's crown of thorns. Further down Ida the orange-yellow *Hypericum empetrifolium* was prominent on the almost bare hillside. On the way down from Anogia to Perama we stopped at the local rubbish dump, always a worthwhile place to search for flowers, as agriculturally worthless land is used and it's never disturbed. Zeus must have regretted his surly behaviour on Mount Ida as there were a large number of *Orchis simia*, the Monkey Orchid, including the very rare white form, nestling amongst the discarded bric-a-brac of the locality.

The attempt to reach the eastern end of the island at Via was too ambitious; we stopped too long for coffee at Aghios Nikolaos—scene of the television serials—explored too many hillsides and sites, and so failed to see the indigenous Cretan palm trees.

In the far west of the island beyond Kastelli is the little-visited site of Polyrhennia. Perched delightfully on a hilltop with wonderful views, it has been inhabited by all the races who have lived in Crete since Minoan times, and their old walls and forts litter the hillside. There was something miraculous about the place, as we found it without a single wrong turning. Above the small village the little terraced fields are a fairyland of flowers. The tree spurge *Euphorbia dendroides* covered the steeper banks, and the terraces are aglow with poppies, daisies, scabious, gladioli, vetches, muscari, orchids of course, and very satisfying masses of Venus' looking-glass, *Legousia speculum-veneris*. We hadn't found it or the tree spurge previously, so this was another good day. The little taverna below supplied wine and metta so cheaply I was going to tell the good lady to keep the change, but I needn't have worried as she didn't bring it.

The penultimate day was ordained for shopping and the hairdresser, and I was reminded of my commission to look for an ordnance map for Chris Brickell. There was one in a glass case at the ultimate bookseller's, but it wasn't for sale as it was out of print, and anyway was only for teaching students geography. Fortunately I noted the title, Ethniki Statistiki Ypiresia tis Elados, and retraced my steps armed with this formidable phrase. Every bookseller produced a free cup of Greek coffee, which is Turkish coffee to us, but centuries of savage oppression make that word unspeakable in Greece. Eventually three of the four maps covering the island were obtained and it only remained

to persuade the owner of the truly out of print fourth part to take it out of its glass case and return happily to Wisley with the only set in captivity.

References:

Flowers of Europe by Oleg Polunin.
Flowers of Greece by Huxley & Taylor.
Flowers of the Mediterranean by Huxley & Polunin.
Orchids of Britain and Europe by Williams, Williams & Arlott.

Love at First Sight

by TOM NORMAN

CYPRUS! A case indeed of love at first sight, even though the first glimpse of the beloved was during the sweltering days of August, in the steamy heat of Kyrenia and the arid dust bowl of the Plain of Messaoria, and in hotels unrelieved by the electric fans that are needed for so short a period of the year. That was on a glorious army leave from Palestine in 1946, an escape from the horrors of Mr. Begin's terrorist campaign. Apart from the huge, exciting-looking bulbs of *Urginea maritima* sticking through the stony soil of the bare hillsides, there were no matters botanical to divert my senses from soaking up the sun on the northern beaches (in those days still as Nature made them, with no surround of kiosks and hotels and easy ways down), and the history in such fairy-tale and evocative places as St. Hilarion and Pentadactylos, Salamis and Limassol—where Berengaria of Navarre married our Richard I and was crowned Queen of England.

My next visit was again in the late summer, a family party of six in the Dome Hotel at Kyrenia in 1951, £1 a day per head, full board, at one of the most comfortable family hotels in the Middle East! I wonder if I had an unformed idea of living in Cyprus?—but my wife did not view a rival sweetheart with my own fervour, so we continued on our return journey to Assam. On this occasion, too, the island was nearly as arid as in 1946, though September rains were just beginning to bring out the first butterflies and a few blades of grass; and as well as the ever present sea squills I glimpsed a cedar tree and heard rumours of cedar forests. Now this may sound a small thing, but the cedar, with its patchy distribution and near extinction in its nomino-typical locality of the Lebanon has always intrigued me, so a third visit was scheduled for sometime in the future. This did not take place until our final return from Borneo in 1962. We first of all went on pilgrimage

to the cedars in Lebanon; a sad place, unkempt, neglected and with virtually no regeneration in those days; and then on to Cyprus where we planned a short cedar hunt in the west of the island. And there we found them in the Paphos Forest, a whole valley of thousands of *Cedrus brevifolia* (now considered to be *C. libani* var. *brevifolia*), well cared for by the island's Forestry Service, and much planted also as an amenity tree. I am still not clear whether Cedar Valley, now a tourist attraction set in encircling forests of *Pinus nigra* and *P. halepensis*, is a man-made relict of a formerly extensive climax cedar forest, or whether *C. brevifolia* always has been confined to this very limited area. Once again we were not botanising, merely savouring the changed cool green face of Cyprus in April. We enjoyed, in passing, a number of "firsts": *Anemone hortensis* in the cypress thickets of the Northern (Kyrenia) Mountains, *Crocus cyprius* by the roadside on Mt. Olympus, our first yellow *Orchis* (*Dactylorhiza romana*)—how exciting it was!—in the Paphos Forest, and our first *Serapias* as well as a few *Ophrys* in the south beside the Salt Lake at Larnaca; enough to make us determined that our next visit would be to the south and west, and in spring.

Our fourth visit did not take place until late March and early April 1977, another family party, but with the botanical side kept to the fore by the addition of Jeff Wood from the Kew herbarium. Political events ensured that we kept strictly to our programme of "doing" the south and west, making Paphos our main base. We had a varied programme of objectives: Jeff's, a collection in spirit of Cyprus orchids for Kew; Adam's, as many lizards and snakes as he could see; my wife's, as many painted Churches as the orchids would allow; my sister's, shops and more shops; and my own, primarily *Ophrys kotschyi* and *O. argolica* ssp. *elegans*. I was the only one who failed to achieve his objectives, but it mattered not at all since I was so richly rewarded in other ways.

The Paphos Forests cover most of the rugged mountainous area occupying the centre of the western half of the island, culminating in the Cyprian Olympus at 6403 ft. It is on these central peaks that the three endemic crocuses grow, *Cc. cyprius*, *hartmannianus* and *veneris* (the last-named may occur on Crete too). *C. cyprius* covers an area of some acres around 6000 ft., growing in huge quantities in the company of *Ornithogalum chionofilum* (possibly endemic) and the charming rosy-mauve *Corydalis rutaefolia*, which we had previously met in Turkey. A lengthy search failed to reveal the much rarer *Crocus hartmannianus*, which is reputed to live with *C. cyprius* and to flower

at the same time. One cannot help being a little anxious about pressures from tourists and the defence services on *C. cyprius*' very restricted habitat. A few hundred feet lower, the screes under the gnarled and lichen-covered *Pinus nigra* var. *caramanica* become drier and barer, but close inspection reveals half a dozen interesting species, including the endemic *Alyssum troodii*. In early April the only flowers were those of a tiny and most attractive *Ranunculus*, looking not unlike *Anemone ranunculoides*. It would be an asset to any scree garden, but I suspect that it would find our climate difficult. Further down, at around 4000 ft., the forest changes. *Pinus halepensis* var. *brutia* becomes the dominant tree, with the endemic *Quercus alnifolia* as the under-storey, and in the narrow sheltered valleys a great variety of white- and yellow-flowered shrubs—amongst others the lovely *Arbutus andrachne* with its clusters of white flowers set against the dark leaves and red, peeling bark, *Acer obtusifolium*, *Styrax officinalis* and the golden-yellow bushes of *Rhamnus alaternus*. This is the region I personally find most exciting and, contradictorily, most soothing, where I could wander for days on end. Running out of the mountain-side are tiny streams which have carved such deep and narrow clefts that direct sunlight rarely reaches the bottom. Here grows yet another endemic, *Cyclamen cyprium*, and in the spring one can enjoy the endless variety of its leaf forms, of a subtly different ground colour from those of the other members of the *C. repandum* group. It differs, biologically, too, from its close relations by flowering in the late autumn. With the cyclamen are *Ornithogalum* spp., while the steep walls bear ferns (not a common feature of Cyprus!), *Arabis verna* and an *Origanum*, the whole complex shaded by plane trees, which grow wherever there is a cool, moist root run in a hillside gully. And if you are very lucky, as my sister was in 1977, you may meet face-to-face a moufflon, the dramatically long-horned wild sheep of Cyprus.

Descending a little lower, but still in the pine forests, orchids begin to appear; in early April mainly *Dactylorhiza romana* and the very fine large-flowered form of *Orchis anatolica* separated off as ssp. *troodii*. In this region, too, the forest floor is carpeted with *Gladiolus triphyllus*, not yet in flower so high and so early, and another endemic, *Colchicum troodii*—or perhaps one of several similar species as this is 3000 ft. lower than Troodos. Whatever it may be, it bears a succession of small, white, long-lasting flowers in November—and does not appreciate our English frosts! One is conscious of notably few spurges in Cyprus, but growing with *Gladiolus triphyllus* there is a small *Euphor-*

bia with an underground tuber about the size of a nutmeg. I have never seen it in flower. All too soon the forest finishes and one emerges onto "rough hillsides", sometimes cultivated and sometimes covered by a rather thin but colourful scrub of *Cistus* spp., *Lavandula stoechas* and other bushes of similar low stature, with *Sarcopoterium spinosum* and *Pistacia lentiscus* becoming dominant nearer sea level.

I was neither studying nor collecting Dicots, but, even more than usual in the Mediterranean basin, we were conscious of walking through a natural rock garden whose plants would compete with the very best we already grow. I must mention half a dozen which stopped us in our tracks. There was *Thymus integer*, bearing large flowers with an unusually long corolla tube, and making big mauve tussocks on an eroded hillock of bare red soil. There were three peas: *Onobrychis venosa*, probably endemic, a plant I should dearly like to have on my greenhouse bench to enable me to luxuriate at leisure over the velvety texture of its leaves, divided into large pinnae and marbled with contrasting dark and light green; *Astragalus caprinus* var. *laniger*, another pea of low stature, this one having long, multipinnate, drooping leaves covered with fine down—utterly entrancing; and the large, upright (to 3 feet or more) *A. lusitanicus*, a common Mediterranean plant but a memorable sight when seen with the setting sun shining through a haze of rain drops caught by its downy leaves. *Phagnalon graecum*, a fleabane relation, carrying small globular yellow flowers at the end of 5 in. stalks arising from a clump of delicate pale green leaves, would grace any paved area or flight of old stone steps. For gaudy colour, often against a background of bare earth, *Legousia speculum-veneris* always catches the eye, contrasting with the rather more subdued violet of the short-lived flower of the poppy relation. *Roemeria hybrida*. Where could one display the charms of *Fagonia cretica*, scrambling by means of hooks at the nodes to show off its deep rosy stars amongst neighbouring low-growing plants? To see most of these plants you will have to make the journey to the eastern Mediterranean. I suspect that many of them would object most strongly to our cold and damp, and the peas in particular have the look of plants which search out moisture by means of long tap roots while remaining bone dry at the neck, which would be subject to collar rot in Britain.

Cyprus has a rich orchid flora. Although *Ophrys kotschyi* and *O. angolica* eluded me, we found so much else to occupy our minds that this became a small matter. I was distinctly puzzled by certain biological aspects of *Limodorum abortivum* as it grows in Cyprus. This

orchid has no basal leaves, and the stem leaves are hardly more than scales. All parts of the plant are purplish, with a minimum of chlorophyll, and it has usually been accepted that it must be a partial saprophyte. In the Paphos Forests we found it in quantity, flowering vigorously on open hillsides bare of vegetation other than scattered pines; last year's dead seed capsules in the flowering clumps showed that these had enjoyed at least two good years in succession. A less hospitable and less likely place for a saprophyte would be hard to imagine, so I was interested to read recently the suggestion[1] that *Limodorum* may be parasitic. This idea had not previously occurred to my unimaginative mind as parasitism has not been recorded for the Orchidaceae. If this is indeed so, then various conifers would presumably be the hosts. I wish I could remember whether there were conifers present in certain stations in Istria and Montenegro: my photographic memory does not show them, but insignificant bushes of juniper might not have registered. Research is badly needed. The specific name of the plant refers to the supposition that in dry seasons the flowering spikes abort, yet nowhere could it have been drier than on the south-facing, exposed, bare earth banks in the Paphos Forests, where the plants were as vigorous as I have ever seen this species.

In the extreme north-west, we saw populations of *Ophrys apifera* of such large flower size (and richness of colour) that I was tempted to think that they must be tetraploids. Then there came a day when I took the car down a road, consisting mainly of rock shelves, which was surely intended for nothing less robust than a mule. My passengers had to walk, and finally a horror-stricken local hailed me and indicated in no uncertain terms that I could go no further, so the terrifying journey, with the fear that the bottom of the car might be wrenched out at any moment, had to be repeated over again. Having accomplished this, as I sat in the car, trying to stop shaking while waiting for my passengers, I became aware that the area around me looked fruitful —and my shaking stopped! Within sight of the car I found a splendid *Ophrys apifera f. concolor*, the striking white form of the common bee orchid, and a few yards further away, on a steep scrubby bank separating two cultivated fields, there was a colony of over 100 *concolor* plants in flower, together with a few of the most magnificent "ordinary" *O. apifera* I have ever come across. *Ophrys concolor* forms are usually weaklings, but this colony consisted of splendid plants, which could be explained if the mutation had arisen in tetraploid stock. The fixing of the mutation in such large numbers was probably due to the

fact that *O. apifera*, alone in the genus, is self-pollinating if insect pollination fails: I have seen it stated that this mechanism may not take place in the Eastern Mediterranean, but it certainly occurs in plants I have collected from S.W. Asia Minor. In the same general area there were scattered plants of the more sober *bicolor* form of *Ophrys apifera*, where the lip has no speculum but is divided into two horizontal and contrasting colour zones, and again these were remarkably robust plants. Quite close, too, was perhaps our most exciting find, about half a dozen plants of an *Orchis* in seed. Dissection of the dried corollas made us fairly sure we had found *O. punctulata*, rare in Cyprus, and one of the small group of orchids whose centre of population is Asia Minor, the Levant, Kurdistan and the South Caspian area. Our diagnosis was confirmed by a friend of Jeff's who visited the site at an earlier date in the following year. I was relieved to hear that the colony still existed because it was on a recently burnt hillside just outside a village and I am sure will soon be developed for agricultural purposes. Elsewhere we found large colonies of *Ophrys bornmuelleri* in both forms, very distinct and with no overlap, the only representative of the *O. fuciflora* complex on the island, as well as *O. sphegodes* in confusing variety. It seems to me as much a waste of time to give a name to each of these as it is to give a varietal name for each misplaced spot on the underside of a common blue butterfly, but each to his own taste. Higher in the hills I was interested to find that *Ophrys bornmuelleri* was in full flower while the buds of *O. apifera* were still in rosette. *Neotinea intacta*, in both forms, was common on sheltered banks, and the damper meadows were lighted up by glowing purple patches of *Orchis italica*. Another *Ophrys* growing in a great variety of forms was *scolopax*, typical *scolopax* as well as ssp. *orientalis* and ssp. *attica* all growing together with every possible intermediate form.

In 1977 Cyprus was only just beginning to settle down after the tragic Turkish invasion and partition of the island. There was a definite air of tension, but the orchids did not recognise this and continued to live in the border areas, unlike so many of their human neighbours. Our first contretemps was east of Larnaca. On our first day on the island we saw ahead a swing pole across the road, with a guard post beside it. As we drove up slowly, not knowing quite what to expect, the sentry raised the pole and beckoned us through. Our destination was only a couple of hundred yards further on, and we quickly spread over the hillside like a flock of hungry sheep. Half an

hour later two U.N. jeeps roared up the road. The U.N. militia rapidly shepherded us back to our car, nearly bursting with wrath that tourists had got into the no-man's-land between the Greek and Turkish areas. On another occasion we had a choice of forest roads for our return to Platres from the Plain of Messaoria. We made an unfortunate choice and, as we turned the first corner, young soldiers materialised from all directions and made it clear that that road was not for us! We followed our normal rule of never stopping near anything that looked in the least sensitive connected with defence, but even so nearly came to grief on our last day. We were caught up in the inevitable Easter trouble at Heathrow and were instructed to report 12 hours late at Larnaca airport, so settled ourselves for the extra day beside the Bitter Lake, a place internationally famous for its waterfowl. We had for some hours been enjoying the large mixed flocks of waders when a very official looking landrover, full of uniformed men, drove up and told us that it had been reported that we were studying Larnaca airport and taking notes—the airport was entirely civilian, a mile away, and almost hidden from us. Fortunately our explanations were accepted and we were left in peace to enjoy, in particular, the black-winged stilts. Another and far more frustrating difficulty was due to the fact that 1977 was the first year of the new regulations regarding the export and import of endangered species of flora and fauna. I had obtained my British import licence with no trouble, but this was dependent upon an export licence from Cyprus. When, after writing twice, I eventually got an answer from Nicosia, it was to say that no export licence was required to take orchids out of Cyprus. Impasse!

My primary objective of *Ophrys kotschyi* is rapidly becoming a myth. We found not a trace of it, perhaps because we were on the late side and perhaps also because it may grow more commonly in the Turkish area or in the Graeco-Turkish borderlands. The Kew herbarium had a most odd collection of "*kotschyi*" which Jeff has now reduced to a very few good specimens. Any photographs I have seen fail to give quite enough detail, and any plants I have received have always flowered as rather ordinary members of the *O. scolopax* agg. Nevertheless, Jeff and others assure me that it exists as a common and most striking plant, as good an excuse as can be found for a fifth visit to Cyprus!

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Those Western Sessiles

by EDITH DUSEK

THE NAME *Trillium sessile* seems to be enchanting. Perhaps it is because it fits so lightly on the tongue that it has been applied in the past (and alas! too frequently still is) to nearly every sessile flowered *Trillium* which grows in North America. The word 'sessile' refers to something being without a stem. In the case of trilliums, either the flower or the leaves (sometimes both) may lack the stems which separate various portions of the plants. However, in this case the term refers to the flower being without stem. *Trillium sessile* is but one species out of more than 20 species of sessile flowered trilliums.

The true species is strictly an eastern plant and usually (not always!) is a rather small affair. Advertisements notwithstanding, it is not always available in the trade, even though it is not an uncommon plant in its range. Since it is so frequently small and the general run of gardeners like their plants big enough to notice, it is perhaps not surprising that obliging plant purveyors substitute something with a sessile flower that can be seen without the usual obeisance one gives to a "belly plant". Frequently the imposter seems to be one of the robust forms of *T. cuneatum.* This is a common plant from the southeastern U.S., where it may be found in assorted sizes, colours and blooming times.

At one time west coast trilliums with a similar arrangement of parts were also called *T. sessile* with "californicum", "giganteum", "rubrum" or assorted other names dangling behind. With or without scientific blessing, the word 'sessile' was sometimes dropped in favour of the appendages. Despite these names having been disowned for quite some time by botanists, they continue to crop up with monotonous regularity.

More recently western sessiles have been given the blanket name of *T. chloropetalum,* a name used indiscriminately for all but the quite different looking *T. petiolatum.* Wild flower enthusiasts were of the opinion that various members of the *T. chloropetalum* "lump" displayed an unholy lot of differences to be considered all the same thing.

Eventually members of the scientific fraternity came to the same conclusion.

In his monograph on sessile trilliums, John Freeman divided the lot into four species. These he named *Tt. albidum, angustipetalum, chloropetalum* and *kurabayashii.* As now given, *T. chloropetalum* presents the greatest number of variants, since it comprises two series: those which have yellow pigmentation in the blossoms whether visible or not, and those which have no yellow pigments. The colour ranges include whites through pinks to deep garnet or yellows to greens or bronzes to brownish reds. As now delineated, it is strictly a Californian species. Plants are robust and make lovely garden specimens.

Both *T. kurabayashii* and *T. angustipetalum* are listed only in red forms. The latter is also found only in California. It tends to slimness in all of its parts, but may be sorted out from similar types of *T. chloropetalum* on technical trivia. A yellow form of this has been reported. Recently a search for a reported yellow form of *T. kurabayashii* turned up variants in reds, tans, browns, yellow with a partial flush of red, and clear yellows. To the gardener's eye, these closely resemble similar colour forms of *T. chloropetalum.* Blossom size and petal width display the expected degree of variation, but all make lovely garden plants.

On the face of it. *T. albidum* should be the easiest species of all to identify for it is described as being white (rarely pale pink) and having no yellow pigment in the flower at all. It is said to be distinct from white forms of *T. chloropetalum* because the androecium and gynoecium are pale green in *T. albidum,* dark purple in *T. chloropetalum.* The species ranges from deep into California, up the length of Oregon, and north into Washington as isolated colonies. With such an extended range, one would expect variations. There are, and apparently on a population basis, thus suggesting that more than one species may be involved.

So far I have not had the opportunity to examine plants in California, but when one crosses the line into Oregon, problems of identification crop up immediately. Here we find plants which are strongly yellow in bud. The flowers open light yellow and the colour is held for a week or so before they finally finish an off-white. When grown with white forms of this species, the colour is so readily distinguishable that casual garden visitors refer to them as "those yellow trilliums". I am under the impression that the duration of the deepest colour is at least partly governed by cool temperatures. Flowers are so intensely

scented of roses that one has but to stroll past them to enjoy the aroma. Petals are more or less broadly oval. They are widest about midships and arch gracefully in either direction. There seem to be no traces of other colour in the blossom. Fruit is pale and prominently ridged. Plants are robust and have a pronounced tendency to produce massive clumps in the wild.

Just north of these there are quite similar plants which have white flowers. Petals vary in size depending on the age of the stem which has produced them. Unlike the clumps of *T. ovatum* in which stems become nubile at a tender age, these seem to need a degree of maturity before producing flower. Even so there may be considerable variation in the size of the blossoms in a clump. One in my garden produced flowers ranging in size from 84 mm by 45 mm to 45 mm by 16 mm. The plant had 20 flowers of which 4 were quadramerous. There were also 14 non-blooming stems. The fruit is similar to that of the pale yellow form with prominent remains of the stigma dribbling part way down the side.

White-flowered 'sessiles' bearing the same name are found in rather restricted stands in west central Washington. It appears that few of the local plant buffs have ever seen them. One wonders if the scientists have in the past done more than given them a passing glance, for current descriptions certainly seem not to be tailored to fit them.

It is difficult to get accurate measurements of plant height in the wild, for it depends to a large extent on how much forest litter and competing vegetation is at hand. In the garden, plants of the Washington *T. albidum* are always considerably shorter than are their compatriots from southern Oregon. Flowers have a small but definite purple mark at the base of each stamen and more or less purple on the reverse curve of the stigmatic branches. About 10% of the plants have a slight purple flush at the base of the petals. In contrast to the oval petals of southern plants, these give the appearance of being almost straight sided with no appreciable narrowing at the base. Scent is so light that only under ideal conditions will an inquirer find it by thrusting his nose into the blossom. Perhaps it is just as well, for the lightly spicy pleasant portion of the scent is rather overshadowed by a rank overtone reminiscent of crushed marsh vegetation. The smooth dark mahogany fruits are prominently displayed and quite attractive. Unlike their vigorously clumping southern relations, these plants seldom produce more than one stem in the wild. Two stemmed plants are uncommon and anything more than that extremely rare. Garden

visitors who see these plants are unanimous in declaring that they cannot be the same species as the plants from southern Oregon.

From the Columbia River to somewhere south of Salem there are plants quite similar to those in Washington. Generally they become larger as one goes south, but the overall description of these Oregon plants is the same as it is for Washington plants. Many of the plants not only have the purple flush at the base of the petals, but seem to have it to a more marked degree than do Washington plants. South of Salem, Oregon, we also encountered a number of plants in which one or more sepals was all or partly white. Whether this has any bearing on the co-existence of a few specimens of larger flowered, oval petalled, rose scented plants which closely resembled southern Oregon plants, is unknown. In any event, it seemed that it is in this area that northern and southern types meet.

In my garden there is a plant which came as "a hybrid between *T. ovatum* and *T. chloropetalum*". In the east attempts have been made to produce cross series (stemmed/non-stemmed) hybrids with no success. Scientists say cautiously that, while they do not think such a cross is probable, nothing is impossible if it can be done. It is not at all uncommon for various sessile trilliums to grow intermingled with *T. ovatum*, but none of my observations disclose anything to suggest fraternization. The plant in question appears to be an exceptionally robust form of southern *T. albidum*. The only curious note is that the flowers have the most unfortunate odour of something left too long unburied. I do not know where this plant originated.

It is worth noting that all of the species of sessiles in this group usually have mottled leaves. The degree, duration and depth of mottling varies from plant to plant. It is not particularly unusual to find plants with immaculate leaves in any of these species. Leaf colour seems to have no relationship to the colour of the flower or species, although individual populations may be inclined to more or less colouring.

The peculiar *T. petiolatum* dances to a drummer all its own. It looks like none of the other western trilliums; indeed, it looks like no other trillium anywhere. The botanical description would have it virtually stemless, or at least with most of the stem invisible because it is below the ground. This is only true sometimes. These plants range from eastern Washington and adjacent Idaho southward into Oregon. Plants found near Leavenworth, Washington, commonly have several inches of stem well above the surface of the soil. These plants maintain this excess of stem even under garden conditions

where there is no need to stretch over competition. They are also described botanically as having excessively long petioles, a condition which holds true mainly in flowering plants. Non-flowering plants may have quite insignificant petioles in contrast to the spotted-leaved plants which are usually sessile-leaved, but may have short petioles in juvenile or non-flowering plants. The leaves have quite a characteristic shape which once seen is usually readily distinguished from all others. They are quite rounded and lacking in the "drip-tip" so conspicuous in other trilliums.

In north-western Oregon and adjacent Idaho, we found plants of *T. petiolatum* which were much more variable. Presence or absence of the above ground portion of the stem apparently depended to some extent upon the conditions under which the plants grew. In a rather dry open meadow the plants hugged the ground with the petioles appearing from the soil and at times the bases of the flowers were below the soil level. Plants were so short that, in an area which had been mowed, they suffered no damage beyond the loss of portions of the leaf blades. Curiously, in this dry and rather uncharacteristic habitat flowers tended very frequently to the brown or tan tones and it was here that we found the only yellows.

Plants grew also in lightly pine-wooded areas and we came to look for them in association with snowberry. Here plants almost invariably displayed several inches of stem before the petioles lofted the leaf blades into the air. In these rather dry regions the upward cant of the leaf serves a very useful purpose. Every bit of moisture which finds its way to them is collected and directed to those unique petioles which feed it down the stem to the root of the plant.

After finding plants in such definitely dry areas, it came as a distinct shock to find them thriving on a wet meadow with a gentian (probably *G. calycosa*) where water seeped all around from a meandering stream. In all cases plants were very limited in the areas which they deemed suitable for habitation. We continually found ourselves "running out of the patch" with no obvious reason for so doing. Plants are described as having unspotted leaves, yet in this meadow we found a number of plants in which portions of the leaves were definitely lightly mottled.

Probably the most common flower colour was red, but there were many with tan or greenish flowers of variable tones. Petal length and width varied also, with some being of generous proportions. Because of the leaf carriage, the best way to view the flower was from below when plants were growing on a bank. A nose test disclosed that the

flowers were lightly scented, but the quality of the aroma made it quite unworthy of the effort to seek it.

In some areas we found what appeared to be clumps, but closer inspection made this seem doubtful. Frequently the various stems sported flowers of different colours, making it seem likely that they were the product of one or more fruits germinating in close quarters. On digging a couple of these plants the arrangement of the rhizomes seemed to bear this out.

All of these confusing western sessile trilliums make good garden plants. The larger-flowered ones are quite spectacular. With selection, not only may a number of colour forms be had, but the flowering period can be extended considerably. When the wide array of natural colour forms is taken into account, there seem no limits to what an interested plant breeder might accomplish with them.

Scoliopus bigelovii

by ALF EVANS

OVER THE years *Scoliopus* has received an occasional mention in horticultural literature, in fact it was introduced into European gardens as long ago as 1879, but as yet very few alpine plant growers appear to be aware of its existence. This may be due to the fact that by being closely allied to *Trillium*, seeds may be slow to germinate and, as they are certainly slow to reach flowering size from seed, there is just the chance that this could result in a certain loss of interest on the part of growers and, in consequence, neglect and subsequent death of the young seedlings. On the other hand it is sometimes emphatically stated that the flowers have an unpleasant, fetid smell, not an attractive characteristic, and this may be the real reason why rock gardeners have resisted the challenge to grow this plant in pots in an alpine house. Out of doors in the rock garden this less pleasant feature is not so apparent. Blooming early, the species in cultivation is an interesting although perhaps not decorative addition to a plant collection.

Two species are recorded, both from western North America; *S. bigelovii* from California and the less well known *S. hallii* from Oregon, which rarely ever receives a mention. I cannot trace any reference to *S. hallii* being in cultivation, but I should be interested to hear from anyone who grows or has grown this species. Farrer mentions the genus in *The English Rock Garden*, but I defy anyone to recognise it from the four line description he gives.

Scoliopus means tortuous foot, alluding, perhaps, to the twisting underground roots, while the specific name honours Dr. John M. Bigelow, an American botanist who lived more than 100 years ago.

"Slink Pod" or "Brownies", as this genus is sometimes colloquially called, belongs to the lily family, Liliaceae, although those who are more modern in their plant family classification may prefer to place it within Trilliaceae. It certainly closely resembles *Trillium*, albeit a miniature version, but differs from that genus in having three stamens as opposed to six in *Trillium*. Its natural habitat is given as moist slopes below 1500 feet in deep cool shade in Redwood forests (*Sequoia sempervirens*), in coast ranges.

This species is completely hardy in Great Britain and will flourish out of doors in quite open sites. Perhaps a little shade may be beneficial in some of the warmer counties. The illustration shows *Scoliopus bigelovii* flowering in the open in the Royal Botanic Garden, Edinburgh. A plant was received from a correspondent in North America in 1954 and for more than 20 years it has been without any form of winter protection. It has multiplied since then and was lifted and the crowns separated in 1974 to increase its spread, and this without any apparent falter in its healthy progress (fig. 17).

Scoliopus blooms in March. The first evidence one has of the plant's presence is when green spear-like points pierce the soil. These tips gape open almost as soon as they are clear of the soil and, when still relatively tiny, the flower bud pedicels begin to elongate and soon some flowers are fully open. They are barely two inches above ground level at this stage. They are certainly not gaily coloured, the basic shade of the sepals being green, but this is brightened by the addition of narrow, red to purple stripes. The petals are less conspicuous, being narrow and erect. The flowers keep coming with the result that the flowering period is an extended one, literally lasting for weeks.

As the broad leaves expand they are seen to be mottled with brown spots and finally, when fully grown, may measure six inches or more in length. They virtually lie on the surface of the soil and although scarcely decorative indicate the presence of a fascinating dwarf species.

I mentioned earlier that this species has been in cultivation for years in this country and for long has been recognised as a plant of garden interest. If seed is offered in any list, therefore, I recommend that it be requested and subsequently sown, after which, time permitting and if planted in a fertile soil, it will flourish and increase with the years.

A little more about Troughs

by E. W. DOYLE

DURING my years here* I have built, with the help of my long-suffering husband, steps and walls using stones which have, over the last hundred years, had to be picked off the paddocks as part of the farming operation, this being a very stony part of the Canterbury Plains; so that when I decided to make some troughs these stones were incorporated into their construction also.

My first attempts required some rather fancy wooden boxing as this had to be removed when the cement mix was quite soft so that the sides could be brushed with a wire brush to expose the stones. Now, however, I use cardboard cartons, freely available from the supermarket with the groceries, and when damp from the wet cement these are simplicity itself to strip off. As the cardboard does become rather limp with the moisture it is advisable, unless the box is a very strong one, to prop the outside walls with bricks or blocks of some kind and to fill the inside box with sand or shingle.

All that is required to make a trough 28 ins. long by 20 ins. wide, 12 ins. deep and with walls 3 ins. thick are some small stones not more than 3 ins. thick with one flattish side, a few with two flat sides at right angles for the corners, and 18 shovels of sand and/or shingle. I find the water-worn stones more attractive than pieces of quarried rock and if the troughs are in a shady place moss and lichen will eventually grow on them.

Six shovels of cement make a mix of one in three with the 18 shovels of sand, but if a lighter mix is desired up to 12 of these may be replaced with dry, sieved sphagnum moss. This mix, without stones, may be used to make a trough which, with the corners rounded and some grooves cut in the sides with a chisel, may resemble to some extent a stone sink.

Having acquired a carton of the required size for the outside box, this is placed on a flat surface and the bottom filled to a depth of 3 ins. with the mixture and two 3 in. long pieces of ordinary plastic garden hose pushed in for drainage holes—these may be knocked out when the cement is hard.

The inside box, the right size to leave a 3 in. gap for the walls, is then placed on top of this base, the largest of the stones, which must

* Ashburton, New Zealand.

Fig 17—*Scoliopus bigelovii* See page 103 Photo—Alf Evans

Fig. 18—Troughs See page 105 Photo—E. Doyle

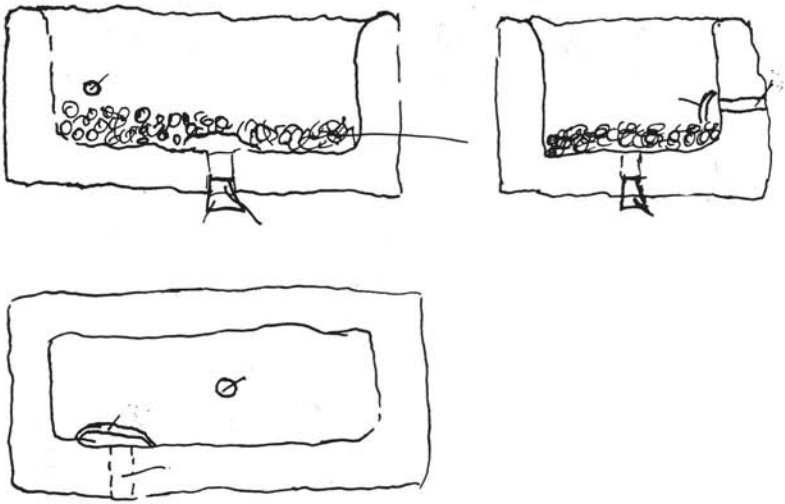

Fig. 19—Drainage and watering in troughs See page 106 J. Klima

Fig. 20—*Hypericum nummularium* See page 110 Enid Brown

Fig. 21—*Diapensia lapponica* See page 111 Polly Stone

Fig. 22—*Gentiana newberryi* See page 114 Photo—The late David Wilkie

Fig. 23—*Lilium nanum* See page 120 Photo—The late David Wilkie

Fig. 24— *Epigaea repens* See page 148 Photo—The late David Wilkie

of course be thin enough to fit between the boxes, are pushed into the base, the flat side being held against the outside box while the cement mix is pushed down behind the stone and tamped to remove any air bubbles. Irregularities on the back of the stones will help them hold on the cement. Leave the tips of these stones showing and place the next row in between them so that the stones are not in regular rows, and continue thus with slightly smaller stones in each row until the top of the box is reached. The most attractive stones, which can vary somewhat in width as they can overlap the inner box a little, should be reserved for the top row and these are pressed in with the flat side uppermost. The stones must be scrubbed clean and used when wet.

The length of time required before the boxing is stripped off is quite crucial but, as this can vary to some extent with the weather, the following periods are a guide only and it is advisable to tear the boxing carefully and test the condition of the mix.

If shingle and/or sand have been used with the stones 24 hours should be sufficient, but if the mix contains a proportion of sphagnum it may be advisable to leave for another 12 hours. A trough made with two parts sphagnum to one of sand/shingle and no stones could be left up to 48 hours. The inside box is best left until the concrete is set but the top may be pulled back and the edge rounded.

I have used this same method, but with wooden boxing, to build long troughs along existing stone walls and these have proved very successful providing, as the troughs do also, a deep cool root run for many alpine treasures. See fig 18.

An Idea for Trough Plantsmen

by JAROSLAV KLIMA

PROPER watering is essential if trough grown plants are to be successfully grown. Some plants prefer to be watered from the base, and it is often difficult to carry out bottom watering properly, especially in large troughs. Apart from the normal drainage hole in the base, this can be overcome by drilling a second hole in the side of the trough. This should be placed slightly above the drainage layer (see sketch) and should be covered by a piece of crock to prevent soil being lost through this hole after watering is finished. While watering it is useful to stop up the drainage hole. This helps to simulate spring scree conditions

when screes are permanently wet and also to enable the grower to soak the soil and stones properly. After this is done the drainage hole is freed. The system is illustrated. See fig. 19.

Robert Fortune, 1812-1880

by D. V. ROSE

OUR GARDENS, particularly in Scotland, owe a considerable debt to those early plant collectors in China who introduced many treasures which have settled happily in our northern climate.

Of these collectors Robert Fortune was the first to be sent to China by the Horticultural Society when various ports on the mainland, hitherto closed to foreigners, were opened in 1842. His four journeys to the Far East proved to be the beginning of a wonderful influx of trees, shrubs and other plants to enrich our gardens.

Owing to the restrictions on foreigners travelling inland at that time many of the plants introduced by Fortune were those he found being cultivated in the gardens of the Chinese mandarins or in the nurseries which supplied them, for China had a long background of horticultural expertise. Among these were many varieties of the Moutan paeony, a plant much favoured by the Chinese. A particular example was the Chusan Daisy, found growing in a cottage garden on the Island of that name and sent to this country by Fortune in 1845. From this developed the varieties of Pompom Chrysanthemums grown today. Later Fortune introduced many more exotic chrysanthemums from Japan which became the parents of a large range of new hybrids.

In this, the centenary year of Fortune's death, it is fitting that we should consider some of those plants now growing in our gardens and maybe take the trouble to search out the four books in which he recorded his journeys. These are "Three Years Wandering in the Northern Provinces of China", published in 1847; "A Journey to the Tea Countries of China", 1852; "A Residence among the Chinese", 1857, and "Yedo and Peking", 1863, which can be found in the reference section of most Central Libraries. Were it not for the impersonal nature of Fortune's writing and his natural Scottish habit of understatement, they might be read as adventure stories, for adventures he had in plenty, from travelling in prohibited areas disguised as a Chinaman, being nearly shipwrecked on various occasions, and

fighting a spectacular one-man running battle with pirates when sailing on a Chinese junk where the crew became completely demoralised.

Fortune was born on Kelloe Estate in Berwickshire in 1812 and served his time in the garden there, and later at Moredun near Edinburgh. From Moredun he went to the Botanic Garden in Edinburgh, where he worked under the famous William McNab, who soon recommended him to the Horticultural Society at Chiswick when the post as Head of the Hothouse Section there became vacant. Thus, when it was decided by the Society to send a Collector to China, Fortune applied and was given the job. Apart from his wide horticultural training he had many other assets: he was unflappable, determined and resourceful, and was able to get on very well with the Chinese. He also showed great skill in the art of transporting plants in the newly invented glazed Wardian cases, and this was no mean feat when these had to travel on voyages lasting over four months, through extremes of temperature and weather. His reward came when he returned to England and was able to see so many of the plants he had despatched, while still in China, growing successfully in the gardens of the Society at Chiswick.

Although Fortune mentions in his books many of the plants he introduced, he seldom does so in detail and it is only in the pages of Curtis's Botanical Magazine of that period that so many of the plants come to life in the beautifully produced illustrations and details are available of where and when they were found. One of his earliest introductions was the wonderfully accommodating *Anemone japonica*, which he found growing on Chinese graves near the ramparts of Shanghai. It is described in the Botanical Magazine as "A native of damp woods on a mountain called Kifune in Japan and introduced to this country by Mr Fortune during his travels in China."

Other shrubs which have become part of our garden background are the Winter Jasmine—*Jasminum nudiflorum*, and the hybrids of *Weigela rosea*, which Fortune found growing on the island of Chusan, described by him as "one of the most beautiful islands in the world", with "azalea-clad mountains". From here he introduced many azaleas used as parents of a number of the hybrids grown today; also *Buddleia lindleyana* and *Dicentra spectablis*. *Rhododendron fortunei* became the parent of a large number of hybrids and this Fortune found for the first time when it was seeding and, on the strength of the local Chinese saying it had very fine flowers, he sent seed to England before seeing the plant in flower himself.

Fortune's retirement was spent in England, although he frequently returned to his native Scotland to visit one of his sons who was farming in East Lothian. He died at Brompton on 13th April 1880 with little formal recognition, apart from the many plants which bear his name. The French showed more appreciation with the award of a medal from the Société d'Acclimation in 1859, in recognition of the value of his introductions. It is interesting that the fine avenue of Chusan Palms, *Trachycarpus fortunei*, growing at the Logan Botanic Garden, have their origin in plants from the South of France.

The Adaptability of Alpines

by Mrs W. T. BELL

LOOKING out over a garden, one-third of which has been devoured in the worst bushfire to occur in this northern part of the Blue Mountains of New South Wales, in the driest period experienced here for almost one hundred years, it seems foolish to write of alpines.

The volcanic soil here, where rhododendrons normally flourish, (now drooping in the dry heat) seems completely devoid of moisture; as dry as sandstone country in any drought. There is no rain in sight.

Although the fire did not pass over the rock garden, the heat was so intense that fires burst out up to a quarter of a mile ahead of the main front—a "firestorm", to quote an accurate press. What plants are surviving in this drought, and week after week of heat? *Lithospermum, Helianthemum, Achillea, Aethionema, Phacelia sericea, Lewisia, Scabiosa lucida, Draba, Androsace carnea, sarmentosa* and *lanuginosa*, a tiny plant of *Genista caespitosa*, two two-inch cassiopes, (watered every second day), *Daphne retusa*, (in shade), a small *Daphne jasminea*, (from seed), *Globularia*, and *Iberis*. The saxifrages feel the drought first, but will stand heat if watered, and *Ramonda*, shrivelling, as the books say, only to revive with rain, will not survive repeated dryness; I am speaking of small seed-raised plants.

Having had to tip out every pot of alpine seed, (not a hope of keeping them damp, since the pots dry within half an hour of watering; my pots are in the open) it will be interesting to see what germinates, if any, when the rain finally comes.

Alpines are adaptable indeed; the rarities are perhaps another matter, but the backbone plants are hardy here.

September in the Val d'Ossoue

by ENID BROWN

SEPTEMBER 1979 found us in the Pyrenees, wondering rather glumly if there would still be worthwhile flowers to find and photograph so late in the season—the first snows had already dusted the mountains. In the event, we were agreeably surprised by the variety of flowers, a number of them Pyrenean endemics, that were still blooming, and a brief account of what we found in the Val d'Ossoue, not far from Gavarnie, may be of some interest.

A road of sorts—the kind that makes you wish you were driving a hire-car, and not your own—goes as far as a small barrage. As soon as we left the car we were met by the delicious clove scent of a large clump of *Dianthus monspessulanus* with its deeply-fringed petals. At this point the valley floor is quite flat, and the river meanders in wide sweeps through stretches of gravel. This area had been most efficiently grazed by a herd of cows now cooling off on a large snow-patch in the distance, and practically all that had survived their attentions were clusters of *Merendera pyrenaica* with its six strap-like petals spread wide in bright pink stars, and three prickly characters with their own effective defence mechanism. There was Pyrenean thistle, *Carduus carlinoides*, with a clustered head of rosy-pink flowers, borne on pale, spiny stalks with much-cut narrow leaves, growing in the dampest places. The second was *Eryngium bourgati*, so stiff and spiky, with densely-packed globular flower-heads set in a collar of sharp bracts, that it was hard to believe that it belonged to the Umbelliferae. Its attraction lies not only in its very distinctive form but in its beautiful iridescent colouring, a blend of steely blue and deep violet, suffusing the whole plant. The third, much less frequent but very striking, was *Carlina acanthifolia* ssp. *cynara*; the stemless, bright yellow flowers, several inches across, set in a huge rosette of elegantly cut leaves.

As the path began to climb a rocky bluff we saw a single specimen of *Globularia nudicaulis*, with glossy dark leaves and soft lilac puff-ball flower. Tall stems carrying rows of seed capsules like shiny green beads told of *Asphodelus albus* long over, although surprisingly a few *Gentiana verna* still lingered in a shady corner. When we entered the upper valley, we saw at once that there had been no grazing here, and our hopes rose. Yellow rock-rose, scabious, red kidney vetch, lady's mantle, clustered bell-flower, tall rampions both purple and pale blue,

wood cranesbill and many other familiar herbaceous plants of the high meadows made a background to other less common species, while rocks and boulders carried a show of sandworts, sempervivums, *Hutchinsia alpina* with a profusion of small white flowers, and the encrusted bluish rosettes of *Saxifraga aizoon*, whose sprays of creamy flowers were just going over. At this altitude *Iris xiphioides* was still in elegant flower, one clump in particular enhanced by the presence of two perfect white blooms. We found *Swertia perennis*, that rather unlikely-looking member of the Gentianaceae, growing in a runnel of water. Its star-shaped inky-blue flowers were held in stiff sprays above elliptical yellow-green leaves, the whole plant some 9 inches tall. The white *Potentilla alchemilloides*, whose fans of narrow leaflets, green above and downy silver below, could indeed be mistaken for those of alpine lady's mantle, grew in tufts on rocks, and there were generous patches of *Erinus alpinus*, *Sideritis hyssopifolia* and *Scutellaria alpina* in the grass. A few flowers of the skullcap were of the more usual violet colour, but here the majority were cream. There were three especially attractive boulder specimens: *Globularia cordifolia* var. *nana* with gnarled stems and tiny leaves set off by quantities of grey-blue flowers —that colour which it is almost impossible to photograph well; *Arenaria purpurascens* whose relatively large flowers of soft pink were enhanced by a dark eye; and *Hypericum nummularium* (fig. 20). The last I thought had great charm and theoretically at least, every virtue as a rock garden plant—neat habit of growth, small rounded leaves in pairs right up the stem, bright green turning to crimson in autumn, and a profusion of large golden-yellow flowers with prominent stamens. We shall see whether the small plant we brought back survives an Edinburgh winter under a pane of glass! A single flower of *Trollius* had forced its way through snow lying deep amongst huge boulders, and on the edge of a sizeable snowfield *Soldanella alpina* was bursting into bloom, stemless and leafless as though well aware how little time remained to complete its flowering cycle.

As we made our way back down the valley, we were delighted to spot one single perfect spray of the handsome Pyrenean saxifrage, *Saxifraga longifolia*; it was relatively modest in size at a mere 12 inches tall and some 5 inches through, but we could only marvel at the incredible hidden root-system holding it anchored to the face of the limestone cliff. A satisfying finish to a worthwhile September stroll!

Recent Acquisitions from the Seed Exchange Part V

by M. A. and P. J. STONE

Diapensia lapponica (see fig. 21)

In these excessively egalitarian times one is not supposed to admit being pleased or proud at one's own achievements, but to play them down. When questioned on commemorative plants by a reporter from one of the "quality" Sunday papers, Valerie Finnis, reluctantly confessed that the Kabschia named after her is a "dreary litttle saifrage". In fact it is one of the finest yellow hybrids, which we remember seeing flowering beautifully outside, in a trough, at Edrom nursery. We should certainly be suffering from false modesty if we didn't confess that we are rather pleased at being able to include this plant in our series.

Although it has a reputation for difficulty, *Diapensia lapponica* has been grown successfully in Scottish gardens. Writing in the September 1965 *Journal* the late D. M. Murray-Lyon includes it in the inhabitants of 'Snobs corner' on his big peat bank. Thus encouraged, we obtained seed from the 1974-5 exchange. As Diapensiaceae is very close to Ericaceae, *Leiophyllum buxifolium* being a link species, we decided to give it the same treatment, *viz.*, sowing on the surface of a 50-50 mixture of dried sieved sphagnum moss and coarse grit, watering in well and leaving uncovered by chippings. Following standard procedure, the Flora carton (good thing this isn't the B.B.C.) was placed out in an open frame exposed to all weathers, except continuous hot sunshine and very heavy rain or hail; a shade net or a plastic sheeting light, respectively, being placed over the frame. Germination was poor and erratic, centred on June; only about 10 seedlings came up, of which half a dozen survived the first couple of months. This may have been due to lack of viability of the seed. A sowing made in March 1980 of seed from the A.R.G.S. exchange, collected in New Hampshire, has germinated like cress. Some will inevitably die during the critical period of infancy but this natural selection does no harm, leaving those most suited to cultivation.

After the usual year's undisturbed growth, the original six seedlings were pricked out individually into 3 in. pots in May 1976. We used

our standard 2 peat, 1 coarse sand compost, but added a little dried sphagnum. This addition may not have been desirable; last year we pricked out two groups of the difficult *Rhododendron nivale* into large pots. One had added sphagnum and the other standard compost; the latter have grown slightly better. By April 1978, the largest *Diapensia* had grown into a little cushion 3 cm (1¼ ins.) across, and was planted out into a trough on the west side of the house. Here its neighbours were a pale blue form of *Gentiana alpina*, collected by friends in the Sierra Nevada, a dwarf form of *Kalmiopsis leachiana*, *Primula* x *vochinensis* (*minima* x *wulfeniana*) and the commercial *Silene acaulis* 'Pedunculata'. The compost in the trough was a mixture of peat, leaf-mould, coarse sand and lime-free chippings, going by look and feel.

In the autumn of 1979, after two more years' growth, we noticed that some of the terminal buds were much fatter than the rest. All through the following winter we watched their development like hawks; by March it was obvious that we were not to be disappointed. The plant in the trough produced 17 beautiful white flowers over a cushion 6 cm × 4 cm, a second slightly smaller plant in a pot having 5 flowers. The latter was placed on the trough to encourage cross pollination; and, sure enough, both were visited by small flies. Seed appears to be setting at time of writing.

Diapensia lapponica is an evergreen shrub forming low cushions or mats of densely tufted glossy foliage. The leaves are about 8-10 mm long by 1-2 mm wide, narrowly obovate or spathulate and rounded at the apex. The solitary flowers are borne terminally on peduncles of 1.5-2 cm. The corolla is campanulate, the tube being about 1 cm long and of a glorious waxy-white which glistens in the sun. The stamens are prominent, being inserted at the mouth of the corolla alternating with the 5 lobes.

In the wild, *Diapensia* prefers well drained situations with little competition, rock crevices, gravel flats, and other stony sites. It is circumpolar in its distribution, the isolated colonies in Scotland being on the southern limit of its range in Europe; whereas in Eastern America it is found as far south as the Adirondack mountains of New York State, where the recent Winter Olympics were held, and the White Mountains of New Hampshire. In Eastern Siberia, Japan and Alaska it is represented by subspecies *obovata*, which differs in the shorter broader leaves, about 3-4 mm by 7-8 mm. Thanks to the kindness of a friend in N. Wales, we were recently sent a plant from Japan. This form is said to be easier than the type; perhaps a cross

between the Japanese and Scottish plants would result in a more generally useful garden plant, with hybrid vigour. There are pink forms in Alaska; one can dream!

We are indeed fortunate in that Fort Augustus has a climate in which *Diapensia lapponica* will flourish in the open. It is a true aristocrat of an arctic-alpine, and there is no use pretending that it would take at all kindly to growing on a southern rock garden alongside the Mediterranean roadside weeds which find such conditions so congenial. A partly shaded frame would probably offer the best chance of success in a less favourable part of the country.

Fritillaria camtschatcensis

Although this fritillary would seem to have nothing in common with the foregoing, there are two tenuous points of similarity: both are arctic-alpines, and both took rather a long time to flower from seed! Like *Fritillaria pallidiflora* (see Part III) *F. camtschatcensis* is said to be easy in a cool moist position, and so was an obvious species for us to try; but if we'd known it would take 6 years to attain flowering size, we might well have hesitated.

Seed from the 1973-4 exchange sown in January '74 germinated in February 1975. Treatment followed the same routine as for *F. pallidiflora*, the young seedlings being left in the seedpan for two growing seasons encouraged by the regular, but dilute, liquid feeds we give to all our "nursery" frames. According to our records they were planted out in June '78 while still in growth. We cannot remember why we planted them so late in the spring; late April-early May is our usual time. Perhaps disenchanted by their seeming lack of progress, we decided to put them out to sink or swim. Two positions in raised beds of leafy peaty soil were chosen, one in 1/3 shade, the other 3/4. After two more years, two plants in the former and one in the latter finally decided to flower. By this time the stems were 30 cm (12 ins. tall with medium green lanceolate leaves about 6-7 cm long, the lower ones borne in whorls of four, the upper ones solitary. Our plants produced pairs of broadly campanulate flowers, pendant on short individual pedicels. The colour was slightly disappointing, the Black Sarana being a dark chocolate with a hint of purple, faintly marked with green down the centre of each 2 cm tepal.

To be fair, no plant gives of its best at its first flowering, and it was probably not helped by the exceptionally high temperatures of May 1980. Perhaps when the groups produce the 4 flowers per stem of which

they are capable, they will be of more garden value. Sombre colours can be very attractive when illuminated by low angle sunlight from the back or side.

Gentiana newberryi Fig. 22.

It is something of a cliché that most gentians grow well in Scotland, but that is one thing certainly borne out by our experience. Always on the lookout for good plants, we read Margaret Williams' ''Rock Garden Plants from Western North America'' in the 1971 Conference report. (Odd to think that back in 1971 we had little notion of an alpine plant; much compost has been mixed since then). Amongst the many beautiful plants described was *G. newberryi*, and a quick reference to Wilkie's ''Gentians'' confirmed its ''capabilities'' as a good garden plant in our climate. We added it to our running list of seed exchange ''desirables'' and received seed in February 1977. Sown straight away and exposed to chilling in a cold frame, germination was quite good the following May. Initial growth was slow, so we only fed in 1977, and delayed pricking out until the next year. Owing to pressure on suitable planting space they were grown on in 3 in. pots until spring 1980, when they were put into a newly-completed section of raised bed. This bed, which contains dwarf rhododendrons and other Ericaceae, was chosen as *G. newberryi* is a turf plant, not one for a scree. Before choosing a position for a plant new to us we always try to find out its habitat in the wild. This is where some travelogues in the *Journal* are deficient; they often don't give details of growing conditions. ''Walking along the path from 'so and so' we came across—'' list follows. First flower opened in late June 1980, as I write.

Our plants have formed small close groups of basal rosettes; the pale green, obovate (widest beyond centre) leaves are variable in size, up to 5 cm long by 1.5 cm wide. The flower stem is about 8 cm long, half its length lying on the ground, before turning upright, bearing pairs of smaller opposite leaves.

The flower is the usual funnel shape, about 3.5 cm long by 2 cm wide, i.e. almost the same size as *Gentiana septemfida* on a much dwarfer plant. In colour it is pale greeny-blue with a brownish-purple band down the outside of each segment; deeper blue inside with greenish dots, especially on the lobes.

Our plants differ slightly from Wilkie's description, especially in their larger leaves and earlier flowering. However, according to Margaret Williams, *G. newberryi* ''occurs at many altitudes in the

Sierra Nevada and Cascade Mountains of Northern California and Oregon'' and is a variable species.

Iris tenuis

Another native of the Pacific North-West, *Iris tenuis* was found in 1881 in the coniferous woods of N.W. Oregon. When writing his classic ''The Genus Iris'' 30 years later W. R. Dykes states that it was not in cultivation then; and from the missing details in the book probably hadn't seen it. Colonel Grey, (Hardy Bulbs) found it difficult to import as the slender rhizomes arrived in a desiccated condition; and suggests seed. Wild collected seed being offered in 1976-7 the opportunity came to try it for ourselves. The seed delayed germination until 1978, two coming up in April, and were potted in June. One turned out to be a common Flag Iris (*I. pseudacorus*) but the other was true. It is recommended to plant tricky iris in spring, so we put it out in May 1979, choosing a part-shaded, moist section of our asiatic primula and meconopsis beds. It grew strongly, the rhizomes dividing several times, and exactly a year later produced flower stems.

From each slender creeping rhizome arise a few rigid pale green leaves up to 30 cm long by 1 cm broad. The stem, of about the same length, generally branches low down into 2, or occasionally 3 branches, each branch being single-flowered. The flower is white with blue-purple veining, the falls carried horizontally and having a yellow signal patch. The standards are narrow and the tube noticably short. The flowers are about 5 cm across.

Both Dykes and Grey place *I. tenuis*, with the other north-west irises, in *Apogon* (beardless) *Californicae* sub-section. We believe it has since been moved to the *Evansia* section alongside *Ii. cristata* and *lacustris*. To the horticulturist's eye this makes sense as the flowers are of the same size and form, notwithstanding the fact that *I. tenuis* lacks the crest on the falls so characteristic of the other *Evansia* iris. Also *I. tenuis* is completely herbaceous, as are the *I. cristata* group, unlike the rest of the n.w. coast iris which here are at best semi-evergreen. This is a disadvantage of such as *I. innominata* with us; they always flower amid the persistent tatty remains of the previous year's leaves, it being too time-consuming to remove the dead leaves one by one from amongst the live ones.

Iris tenuis, while it lacks the flamboyance of its neighbours, possesses in full measure the refined beauty admired by many alpine gardeners.

Kalmiopsis leachiana

This fine dwarf ericaceous shrub has been described as rare in the past, but is now becoming more readily available, being offered regularly by commercial sources. It was also said to be difficult; however, judging by the many fine specimens to be seen in Shows, often lifted from the open ground, *Kalmiopsis leachiana* flourishes under Scottish conditions.

In the wild *Kalmiopsis* is certainly restricted in distribution, being an endemic of two small areas in Oregon state, about 100 miles apart. The introduction of plants from these separate sites has given rise to some confusion in the naming; the situation was clarified by an excellent article in the A.R.G.S. Bulletin (Vol. 25, No. 3) written by Roy Davidson: ''Nomenclature within Kalmiopsis''. For those without access to this source, we will briefly recap.

The original discovery in 1930 by Mrs Leach was in the neighbourhood of the Chetco river in Curry County, s.w. Oregon near the California border. Later discoveries extended its range here to the adjacent catchment of the Illinois river. Around 1960 a second, completely separate, area of distribution was found in the valley of the N. Umpqua river by Marcel le Piniec. The plants from the two sites differ considerably in appearance, and the distinction is worth preserving horticulturally. Roy Davidson suggests the logical names: 'Curry County form' and 'Umpqua River form'. 'M. le Piniec' is merely a clone of the latter, no better and no worse than many other seedlings.

In the garden we have four specimens of *Kalmiopsis* which we acquired as plants; the Curry County form from Glendoick, our personal favourite, and 3 representatives of the 'Umpqua River form': 'M. le Piniec', a small leaved plant from Barry Starling, and a fine clone from the collection of the late General Murray-Lyon. Considering they come from such a small isolated area, there is a surprising degree of variation between the latter three, therefore when wild collected 'Umpqua River' seed was offered in 1977 we decided it was worth trying. Sown in February, germination was very good that May. We followed our ''standard ericaceous procedure'', pricking out the seedlings from their sphagnum in July 1978, into 3 in. pots. There was a considerable variation in leaf shape size and colour: from 1 cm to 3 cm long, some obovate (1 cm across) with rounded ends, others being narrower and elliptic to lanceolate, with more pointed ends. In colour the evergreen foliage varied from a rich medium green to a dark purplish green, the paler under-surfaces showing up the tiny

orange glands like the scales of a lepidote Rhododendron. One particular plant was very distinct with lanceolate leaves only 0.5 cm wide.

We retained a representative selection of foliage types, potting them on to 4½ in. pots during 1979. All flowered the next spring. Once again there was considerable variation both in the depth of colour of the flowers and in their hue, some containing much more blue than others. Any preferences are really a matter of individual taste; we consider the clone 'M. le Piniec' to be a little pallid. Unfortunately none of the plants approached a real red.

The flowers are carried in short leafy terminal racemes, with up to eight flowers per branch. Coupled with the dense much branched habit of the bush, this produces a considerable splash of colour. The individual corollas are rotate (saucer-shaped), about 1.5-2 cm across with a short tube. The prominently excerted stamens have pale purple anthers. In general effect the flower is similar to that of the European *Rhodothamnus chamaecistus*, but the latter produces much better clear pinks contrasting with dark anthers. There should be no confusing the two; *Rhodothamnus* has much smaller conspicuously hairy leaves.

In the wild, the Curry County form straggles horizontally through thick moss in full sun; the Umpqua River form grows on serpentine rock outcrops either in full sun or shaded by Douglas firs. In the garden both grow well in a mixture of peat and coarse sand in a raised position to provide perfect drainage. Shade is not indicated in Scotland. While generally remaining below 30 cm (1 ft.) they can spread to 1 m (3 ft.) across eventually.

Finally, we should like to put in a word for the Curry County form, often condemned as an inferior garden plant. The flowers are of a brighter, truer pink, more cup than saucer shaped, with more prominent tubes. They are carried in longer less leafy racemes, giving the bush a less "humpy" appearance. We do not experience the supposed difficulty in growing it; last winter it was undamaged by a freezing east wind which removed the top from a nearby *Rhododendron impeditum*.

Meconopsis villosa

When we first saw this species flowering on the corner of a woodland bed in the R.B.G. Edinburgh, the name *Meconopsis* on the label provoked a more careful look at the plants, so distinct were they from our preconceived notions of the genus. There are basic points of similarity, of course; like *Meconopsis betonicifolia*, the hairy leaves are

carried both in basal tufts and as cauline leaves on the stems, but their shape is completely different. Almost as wide as long, up to 15 cm (6 inches) each way; they are divided into several lobes with rounded ends. The green stems are 60-75 cm. high (2-2½ ft.), a solitary rich yellow poppy-like flower springing from each of the upper leaf axils on a 10-15 cm (4-6 in.) pedicel. The buds are far more tubular than other meconopsis we have seen: up to 3 cm long. The seed pod is also distinctive, not the usual rugby football shape, more like a cucumber, 4-5 cm long but only 5-6 mm wide. It dehisces by splitting along over half its length, the seed coming out sideways. Like all meconopsis, the style is present, unlike true poppies (Papaver ssp.) which have sessile stigmas.

The only species in cultivation with which *Meconopsis villosa* could be confused are *Meconopsis cambrica*, the Welsh Poppy and *Meconopsis chelidonifolia*. The former has the same habit but lemon yellow flowers with more typical buds and capsules. Its leaves are much less hairy and more fern-like, with pointed segments. *Meconopsis chelidonifolia* is a taller, dark-stemmed plant, with smaller leaves giving it a more airy look. The stems are branched, each branch carrying several flowers; the globular buds becoming obscurely bilobed before opening.

Seed from the 1976-7 exchange was sown immediately in a 5 in. pot and placed in a cold frame. It was one of the earlier germinations of that year, coming up in March. By July they were a reasonable size (5-7 cm) and were carefully separated and lined out in a deep (8 cm) plastic tray. One or two even produced small single untypical flowers that autumn. Next spring they were all planted out in a bed of moist humus-rich soil in slight shade. Rapid growth followed, and they flowered continuously from June until November! Although definitely perennial, one or two plants disappear each winter, and we keep a constant supply of seedlings coming on. As for most hairy plants, good winter drainage is essential, but *Meconopsis villosa* would resent a hungry soil which dries out in summer. Further south more shade, but not dry shade, would probably help to ensure the long flowering period which is one of its best features. In his notes on cultivation in Taylor's "The Genus Meconopsis" E. H. M. Cox states that *Meconopsis villosa* is evergreen and susceptible to winter wet. Here, although it takes a long time to die down, flowering until hard frosts, it is eventually completely herbaceous. Please don't be biased against this species merely because it isn't blue; it does have other points in its favour!

Nomocharis

by R. J. MITCHELL

THE GENUS *Nomocharis* was established in 1889 from material collected by Delavay in Yunnan. *Nomocharis* belongs to the Liliaceae and occupies a position between *Lilium* and *Fritillaria*, but its closest links are with *Lilium*. It is difficult to place many species which occur near the division of the two genera. Indeed, it is possible to show clinal progression through *Lilium* to all species of *Nomocharis* and into *Fritillaria*.

Over the years many species have been subjected to various interpretations and classifications. Bayley Balfour in 1918 described the characters of *Nomocharis*, in relation to *Lilium* and *Fritillaria*, as plants having scaly bulbs and a simple leafy stem, the open showy flowers being stalked and nodding. The perianth of the two dissimilar whorls are deciduous, and the inner whorl, which is glandular at the base, is frequently fringed. The anthers are dorsifixed to the filaments which have a swollen base tapering to a needle-like point. The style is short and trumpet-shaped at the apex with the three-lobed marginal stigma. At that time thirteen species of *Nomocharis* were accepted and these were placed into three sections, viz. *Oxypetala*, *Eunomocharis*, and *Ecristata*.

In the revision of the genus *Nomocharis* by Edgar Evans in 1925, using material which Bayley Balfour was not able to see and the wealth of new material which Forrest, Farrer and Kingdon Ward had introduced by then, he came to the conclusion that the affinities were exceedingly close to *Lilium* and hinted that the Section *Oxypetala* was distinct from the "nomocharoid species" of the other two sections. However, he retained them all as species of *Nomocharis*.

With further introductions of species which could be placed in either *Nomocharis* or *Lilium*, a revision of the genus was precipitated and, in "Lilies of the World" by Woodcock and Stearn in 1949, there was a suggestion that Section *Oxypetala* (there called *Lophophora*) should be transferred to *Lilium*. *Nomocharis henrici* was there accepted as a lily. The state of this section was taken a stage further by J. R. Sealy in *Kew Bulletin* in 1950 when he transferred the species of Section *Oxypetala* together with *N. henrici*, *N. souliei* and *N. georgei* to *Lilium* pending further critical investigation.

The main characters by which J. R. Sealy distinguishes *Nomocharis* from *Lilium* are its open flowers with the tepals spreading widely to give a flat or saucer-shaped flower; the inner whorl being dark coloured at the base with a series of little ridges arranged on either side of a central channel; the outer whorl being flat at the base without channelling or nectary; and the filaments consisting of a swollen fleshy body with a needle-like awn at the tip. He therefore retains eight species of *Nomocharis*. These are *Nomocharis aperta* (fig. 25), *basilissa, farreri* (fig. 26), *mairei* (fig. 27), *meleagrina, pardanthina* (fig. 28) (as var. *leucantha*), *saluenensis* (fig. 29) and *synaptica*. Thus plants known hitherto as *Nomocharis nana* (fig. 23). *euxantha, lophophora, oxypetala, henrici* (fig. 30), *souliei* and *georgei* all became species of *Lilium*.

The Cultivation of Nomocharis

by M. A. and P. J. STONE

WHEN the Editor asked us to write a few notes on the cultivation of *Nomocharis*, we were, of course, flattered to have been asked and accepted immediately. On reflection, we wonder whether we are well-qualified to do so, as in our climate *Nomocharis* grow themselves with little trouble; and consequently we have no knowledge of the constraints on their cultivation in less favourable environments. Once we asked Barry Starling, one of the finest growers of Ericaeae in the A.G.S., why he didn't switch to Mediterranean plants on his hot, dry Essex hill-top. He replied that firstly he didn't like most hot-ground plants, and secondly that one often learnt more about the requirements of a plant by growing it under difficult conditions.

We are fortunate to live in the Scottish Highlands, at the south end of Loch Ness. Our annual rainfall is a not excessive 40-50 ins. (1000-1300 mm) and the winters are long and cool. The growing season is several weeks shorter than further south; but, to a certain extent, this is compensated for by increased day-length. In a recent TV programme, the enormous size of vegetables being put on display at a show in Alaska was put down to the extra hours of daylight available for photosynthesis. Our garden is something of a sun-trap and temperatures approach 80°F (27°C) at least once per year. However, humidity is usually high; at the height of the 1976 drought it never fell below 75%. The humidity in winter has no effect on *Nomocharis*, which are dormant then.

Fig. 25—Nomocharis aperta
See page 120 Photo—R. B .G., Edinburgh

Fig. 26—Nomocharis farreri
See Page 120 Photo—A. Evans

Fig. 27—Nomocharis mairei
See page 120 Photo—A. Evans

Fig. 28—Nomocharis pardanthina var. leucantha
See page 120 Photo—A. Evans

Fig. 29—Nomocharis saluenensis
See page 120 Photo—A. Evans

Fig. 30—Lilium henrici
See page 120 Photo—A. Evans

Financed by Inverness and Edinburgh Groups

First, catch your hare. *Nomocharis* bulbs will not withstand drying out and consequently are not offered by bulb merchants. They can be purchased growing in pots from nurserymen, but the supply does seem to be restricted of late. Seed is usually offered in the exchanges of the various societies; and our original stocks came from this source. It is sometimes said that, as *Nomocharis* tend to interbreed in cultivation, seedlings will not be "pure" species. A plant from a nursery will almost certainly be a seedling anyway; as *Nomocharis* bulbs do not multiply by rice-grain offsets as do their close relatives the fritillarias, nor do the bulbs lend themselves to scaling as for lilies. All *Nomocharis* are beautiful; enjoy them for what they are, as one does *Lewisia cotyledon* or the Section *Ornatae* gentians, without worrying too much about their connection with the original wild species. If we do obtain more wild collected seed, after the first generation one would be back to square one unless the flowers are hand-pollinated and bagged.

We sow our seed during November in plastic seed-trays, preferring the deeper 3 in. (7.5 cm) ones. We use our normal compost, two peat, one gritty sand, filling the trays 2/3 full, then adding a layer of 50:50 dried sieved sphagnum and the gritty sand. This upper layer is probably not essential; we use it because the sphagnum grows far less liverworts than does peat. The seed is sown on the surface and then covered with a ¾ in. (2 cm) layer of chippings. The trays are placed in a cold frame for the winter and allowed to freeze and thaw naturally. Our lightweight plastic lights cannot have much effect on the temperature in the frames; their function is to prevent the pots from becoming waterlogged by the heavy winter rains. They are removed on fine, frost-free days, and also occasionally in wet ones to allow some watering of the pots by rainfall. In the seed section we sometimes follow Farrer and allow snow into the frame; but have no real evidence that it increases the germination rate. The following April, dark green hoops can be seen pushing their way through the chippings, the free ends of the single cotyledon soon straightening, often carrying the seed-coat aloft. Don't bother to remove these, they fall off of their own accord. The seedlings are not disturbed for their first growing season, but are given an occasional dilute liquid feed. Some may produce another single broader, more typical, leaf later in the summer before dying down for the winter. For the months of June to September our frame lights are removed completely and stored in the house loft, except for a couple kept to put over our ericaceous seed-pans during very heavy rain or hail. The *Nomocharis*, like all our other seedlings,

are completely in the open for the summer, only covered by a light shade netting on very hot days. We use no artificial heat whatsoever, and have no problems with damping-off.

Either one or two years after germination, depending on the available frame-space, they are pricked out, just as growth is starting, into 3 in. pots using our standard compost of 2 peat, 1 gritty sand, plus a slow release fertilizer. Providing the seed-trays are fed regularly with a dilute liquid feed, the year's delay seems to make little difference. The only real drawback is the increased root growth which makes separation more difficult. The fleshy roots are easily damaged and, as they form part of the plant's energy store, great care should be taken to keep them intact. We find allowing the tray to become *fairly* dry helps. For their third growing season many will still only have a single leaf, be it a much larger one; others produce a short stem with lily-like stem leaves. The earliest we have had flowers is during the fourth spring, i.e. after three complete growing seasons. Like most bulbs, *Nomocharis* like to be well fed. After one year in a 3 in. pot they will require re-potting. We tend not to do so, but to plant them out instead. This presents no problems of disturbance when carried out from a pot.

We can only describe in detail the method which we use and which has worked for us; other regimes are used with equal success by other growers. We find that *Nomocharis* are not as intolerant of disturbance, with great care, as some authors have suggested; but it may be that they can withstand handling here because of our favourable climate. To avoid any disturbance some growers recommend sowing thinly in a large pot, growing on for several years *in situ* and then planting out the whole lot together. If you are less than confident of your manual dexterity, or if you live in a marginal climate, hot and dry for *Nomocharis*, then perhaps this method is for you. Yet another method is to prick out at the cotyledon stage, before they have much root, into wooden boxes or "flats" and grow on until large enough to plant out.

Nomocharis prefer a cool, moisture retentive, soil with a reasonable humus content. They grow well here in a made-up soil of peat, leaf-mould and gritty sand. They would probably do just as well in a good well-drained loam; but such a soil does not exist in our garden. They do not like a heavy clay soil which becomes water-logged in winter, causing the bulbs to rot. On such a soil they should grow in a shallow raised bed of lighter soil surrounding the bulbs while the roots have access to ample moisture from the heavier soil below. On the other hand, a fast-draining gravel or sandy soil will dry out too much in

summer and humus, peat, leaf-mould, etc., must be added.

In Scotland, they can be grown in full sun if the soil conditions are suitable; further south we have heard that partial shade during the hottest part of the day (early afternoon) is desirable. They can be left in peace for many years as they do not multiply rapidly to form congested clumps as, for example, do Snowdrops.

As we have said before, they appreciate feeding, so a top-dressing in spring before they appear is a good idea. We also scatter some slow-release fertilizer among the bulbs once or twice during the growing season. If you do wish to move your *Nomocharis*, we have performed this task with success just as growth is starting. Plants then have a great will to live and perform their allotted task of flowering and seeding to produce the next generation. The bulbs may be quite a long way down, over 6 ins. (15 cm) and should be lifted very carefully with a good ball of soil. They should be carefully watered until well established.

As to pests and diseases, a few are worth mentioning. Slugs of course will attack them. If the stem, together with all the leaves is eaten off at the base, the bulb is severely checked or killed. Aphis are a problem in that they transmit lily virus, to which *Nomocharis* are susceptible. Recent research has shown that ladybirds, far from helping by eating the aphids, actually increase the spread of plant viruses by frightening the aphids from one plant to another. We spray regularly with dimethoate to control aphis. Metasystox, a stronger systemic insecticide, has been known to damage alpines; we have never risked using it. Any plant which shows mottled or distorted flowers or foliage should be dug out immediately, complete with bulb and burnt. We have heard of gardens where almost the entire stock of *Nomocharis* has been eliminated by lily virus. They had to start again from seed; the virus apparently not passing to the next generation of seedlings. You have been warned! The only other disease we have met on *Nomocharis* is *Botrytis*, which appears as brown blotches on the foliage. This fungus infection can be controlled, but not eliminated, by fungicides like Benlate or thiophanate methyl. The spores attack wet leaves so the infection is prevalent during damp summers.

Do not let this talk of troubles deter you from attempting to grow this marvellous genus. We count our *Nomocharis* amongst the most treasured inhabitants of our garden. Few plants give so much beauty for so little attention.

The Caucasus in June

by VICTORIA MATTHEWS

FOR SOME YEARS we had wanted to visit the Caucasus mountains, my husband because he has botanised in high places in many parts of the world and wanted to explore and compare this highest of European ranges, and I because for eight years had worked on the Turkish Flora, and Soviet Armenia and Georgia were just over the eastern Turkish border. I wanted to see some of the plants which occur both in Turkey and Caucasia, as well as some which would be new to me. So we wrote to Intourist, the Soviet tourist organization through which all travellers must go, whether journeying alone or in groups. The reply stated that it would be perfectly possible for us to visit the Caucasus, but the price quoted was excessive. Intourist then suggested that the cost could be considerably reduced by getting together a party of at least sixteen. We decided that we would try to do this, but were worried that we would be unable to find sixteen like-minded people. Our fears proved to be groundless, and on 9 June 1979 we set off with a group of twenty-six, leaving behind in Britain a waiting-list of hopeful but disappointed people. Over half the group lived in Scotland, one person came from Wales and the rest from England, with the exception of two enthusiasts from the United States.

We left Heathrow on a Moscow-bound Aeroflot Ilyushin 62, and on arrival were met by Elena, who was to be our official guide for the next fortnight. We stayed overnight at the Hotel Intourist, situated very close to Red Square and with magnificent views over the Kremlin.

The next morning we left Moscow on a flight to Erevan, the capital of Soviet Armenia. As we approached the airport we could see the peaks of Great and Little Ararat just inside the Turkish border, snow-capped and shining in the sun. Our hotel, the 'Armenia', situated right in the centre of Erevan, afforded good views of Ararat from its top floor windows, but only before six o'clock in the morning! The sunrise turned the summit snows a beautiful pale apricot-pink, then cloud and mist hid the mountains for the rest of the day.

We were joined on the following morning by Dr Nora Gabrielian from the Armenian Botanical Institute, who accompanied us on all our field excursions in Armenia. After breakfast we set out in our bus in a north-westerly direction towards the mountain known as Aragats

which rises to 4095 m. A stop on the way in a dryish area yielded a large number of species. Some, such as *Bupleurum rotundifolium* and *Carduus nutans*, were familiar to us, but most were completely new. A beautiful silvery-leaved *Onosma* (*O. sericeum*) with yellow flowers was fairly common and there were big green clumps of *Euphorbia seguierana*. Bright orange patches of *Helichrysum arenarium* ssp. *rubicundum* attracted our attention, as did *Cousinia armena* with yellow ligules and purple stamens. An interesting find was the prostrate *Polygala hohenackerana* with pale blue flowers and winged fruit.

Nora rushed around with great energy, shouting Latin names and finding as many species as possible. In addition to the handsome thistle *Onopordum armenum*, found also in N.W. Iran and extreme E. Turkey, which set the cameras clicking, we saw *Rhamnus pallasii*, *Pimpinella aureum*, *Delphinium quercetorum*, *Scabiosa virgata*, *Astragalus stevenianus* and *Thymus kotschyanus*.

We returned to the bus and climbed higher into a landscape which was less dry and more obviously cultivated. From the bus we noticed bright blue-mauve patches of *Campanula stevenii* and *Vicia canescens*. A second stop was made by a damp meadow where we wandered happily among *Gladiolus imbricatus*, *Muscari caucasicum*, *M. sosnowskyi* and *Ornithogalum tempskyanum*. Around the edge of the meadow grew *Quercus macranthera* and in its shade scrambled the beautiful *Lathyrus roseus* with clusters of reddish-pink flowers; we looked in vain for seed. Greenish-brown spikes of *Orchis coriophora* ssp. *fragrans* were common, often growing with *Ranunculus illyricus* and *Chrysanthemum balsamita*. We were amazed by the huge pale yellow heads of *Trifolium trichocephalum*, up to 5 cm in diameter. Other plants seen in the meadow included *Veronica boronetskii*, *Allium leonidi*, *Arenaria graminifolia*, *Cerinthe minor*, *Hypericum hyssopifolia*, *Spiraea crenata*, *Chaerophyllum crinitum*, *Ornithogalum shelkovnikovii* and two species of *Sedum*, *S. subulosum* and *S. caucasicum*. An exciting discovery was *Physochlaina orientalis* in the Solanaceae which Nora thought was a new record for the area.

As we drove away to continue our journey to Aragats, we saw our first clumps of the Oriental Poppy, each of its huge scarlet petals with a black basal blotch. The taxonomy of the Oriental Poppies has been in a state of confusion and flux; however, if one follows Goldblatt in *Ann. Miss. Bot. Gard.* 61: 264-296 (1974), the plants we saw would belong to *Papaver pseudo-orientale* rather than to the closely related *P. bracteatum* (which has a number of bracts below the flower, rather

deep red flowers and in Caucasia is confined to the north) or to *P. orientale* whose petals generally lack a basal blotch.

On the approach to Aragats we passed pieces of aeroplane strewn around the landscape, but our guide reassured us that the 'crashed' aircraft had been used for a recent film. We disembarked from the bus at about 2500 m and found ourselves in an area of short alpine turf with snow patches and little streams among scattered boulders. Right by the bus at the edge of the road grew *Erodium absinthoides* ssp. *armenum*, and *Sibbaldia parviflora* looking very similar to our own *S. procumbens*. Nora Gabrielian ran ahead pointing out and naming plants for us; one of the first species we saw, especially along the stream sides, was *Puschkinia scilloides* (fig. 31) in pale blue drifts. In some places it grew with *Scilla sibirica* ssp. *armena*, contrasting prettily with the bright blue of the latter. On slabs of grey rock we found tiny cushions of *Draba bruniifolia* and the prostrate *Veronica kurdica*, and nestling beneath the rocks was yellow-flowered *Scrophularia chrysantha*. *Primula algida* (fig. 32), a relation of *P. scotica* and looking rather similar, grew in the moister hollows; it was originally described from the Caucasus and occurs from eastern Turkey, through N. Iran into C. Asia. We found *Gagea glacialis* and a few late flowers of *Merendera trigyna*, as well as leaves of *Colchicum bifolium*. Nora pointed out the endemic *Ranunculus aragazii*, and also *R. polyanthemos*, *Ajuga orientalis*, *Chamaesciadium acaule*, *Taraxacum stevenii* and a dwarf *Pedicularis* with cream flowers which was probably *P. caucasica*.

By this time it was 2 o'clock and lunch was uppermost in our minds. We had been told that a picnic would be provided and our thoughts were of paper bags containing sandwiches, perhaps a hard-boiled egg and an apple. Nothing could have been further from the truth. Our bus drove down the mountain and an hour later drew up on the edge of a wood. In a clearing two huge white linen cloths had been spread on the ground and a feast laid out—various kinds of cold meat, cheese, flat Armenian bread, tomatoes and cucumbers, bunches of herbs and enormous bowls of cherries. For those who did not want alcohol there was fruit juice or water, and for those who did, a large bottle of wine each. Some two hours later, when we thought the meal had come to an end, a smell of cooking reached our nostrils and great plates of kebabs and slices of charcoal-grilled meat appeared. Post-prandial botanizing reached an all-time low with a number of people stretched out and asleep beneath the trees. However, despite the general lethargy, some fine mats of *Scutellaria orientalis* were found as well as the dark

maroon *Verbascum phoenicum, Scleranthus perennis, Lallemantia pedata, Scrophularia rupestris* and *Nepeta nuda*, also *Lathyrus rosea* associated with *Quercus macranthera* which we had seen earlier.

The following morning was spent at Erevan Botanical Garden where Nora showed us an area devoted to the native Caucasian flora. We saw fine plants of *Philadelphus caucasicus, Dictamnus caucasicus* and the large *Heracleum antasiaticum*, similar to *H. mantegazzianum*, also Caucasian and now widely naturalized in Britain, but not so tall and with less deeply divided leaves. Bushes of *Halimodendron halodendron* with pinkish-mauve pea flowers attracted our attention—this plant is found from Turkey, across the Soviet Union to eastern Asia. Nora pointed out trees of *Sorbus takhtajanii*, a species which she had discovered and named in honour of Professor A. Takhtajan, the Leningrad botanist and Academician whom we later met briefly on our visit to the herbarium. In addition to beds of tulips, fritillaries and irises, alas in fruit only, we saw large specimens of *Eremostachys laciniata, Betonica orientalis* and *Consolida orientalis*. A pond near the rock garden, full of *Nymphoides peltata* with its fringed yellow flowers, was loud with croaking frogs, and in the rock garden itself we saw *Campanula tridentata, Polygonum* spp., *Sempervivum caucasicum* and *Asphodeline taurica*.

We left the Botanic Garden and set off by bus for Garni, some 30 km east of Erevan. On the way, just past Matzavan we stopped to explore a dry, stony hillside. With her extraordinary energy unaffected by the picnic of the previous day, Nora leapt ahead brandishing her ice axe (essential for digging up plants in hard stony ground) and shouting plant names while we endeavoured to follow her over the rough ground. Here we saw *Crambe orientale* with its great clouds of white flowers and a large number of Compositae including *Achillea micrantha, A. orientale, Cnicus benedictus, Tragopogon coloratus, Pyrethrum myriophyllum, Gundelia tournefortii* and *Artemisia fragrans*. Leguminosae were represented by *Onobrychis atropatana* with woolly silvery pods, spiny cushions of *Astragalus strictifolius* and a number of species of *Medicago* and *Trigonella*. We saw clumps of *Salvia limbata* and *S. ceratophylla* as well as *Stachys inflata* which has grey leaves and pink flowers. Some of the Umbels had interesting and spectacular fruits, e.g. *Astrodaucus orientalis, Caucalis platycarpos, Malabaila dasyantha* (confined to Armenia and E. Turkey) and *Zosima absinthifolia*. Returning to the bus, right by the road on a waste tip we found *Androsace maxima* and *Scabiosa rotata* and the weedy *Turgenia latifolia*.

At Garni are the ruins of a huge fortress, rebuilt in AD 77 on the site of an 8th century BC construction by the Armenian King Tiridates I. Within the fortress walls, a Hellenistic temple was built in the 1st century AD and has been successfully restored. The site is dramatic, a high rock promontory surrounded by deep river gorges. On one side of the temple we saw trees of *Ailanthus altissima*, a native of China which has been introduced. Carpets of *Trifolium resupinatum* and *T. ambiguum* grew in front of the temple; *T. resupinatum* occurs in Britain as a casual. *Consolida orientalis* grew in great purple patches together with *Asperula setosa* and a prostrate form of *Cnicus benedictus* with pale yellow sessile flower heads. On a piece of flat ground near the entrance to the fortress were nests of the harvester ant, *Messor barbara*. The entrance to each nest was surrounded by a circle of bare earth, which in turn was surrounded by *Nepeta meyeri* and *Scrophularia nachitschevanica*. These species are often associated with the ant nests because the ants collect the seeds.

Our visit to Garni was followed by another picnic similar to the last, but most of us had learnt from experience and not quite so much food and drink was consumed. We picnicked under trees at one end of a hay-meadow where grew huge bushes of wild roses and patches of a beautiful pink *Onobrychis*, as well as *Lotus caucasicus* and *Coronilla varia*. The rest of the afternoon was spent at the monastery of Gerhadi. The main church here was built in the 13th century and is still in use, but the site has been occupied by Christians since the 4th century. Much of the decoration on the cathedral walls and on some of the early stone crosses up on the rock face above the church looked very Celtic with its interwoven bands and animals. On the monastery walls we found clumps of *Campanula choziatovskyi* and *Osnoma tenuiflorum* (syn: *O. rupestre*) with pale yellow drooping flowers. Just below the monastery bright orange-red splashes of colour proved to be *Papaver fugax*, which bears its flowers in panicles.

The following day we left Erevan by coach for Tbilisi armed with instructions from Nora for finding *Lilium szovitsianum* near Lake Sevan. Eventually we stopped on the lakeside in a place which we hoped was correct and rushed up a roadside steep grassy bank, crossed a railway line, and found ourselves in a damp meadow of long grass dotted with bushes. The first plants which we saw were orchids, *Orchis mascula*, *Dactylorhiza maculata* ssp. *lancibracteata* and *D. caucasica* var. *cataonica*. In places the grass was blue with *Veronica gentianoides* and *Campanula stevenii*, and *Echium rubrum* with its stiff spikes of red flowers

Fig. 31—*Puschkinia scilloides* See page 126 Photo—B. Burbidge

Fig. 32—*Primula algida* See page 126 Photo—B. Burbidge

Fig. 33—*Lilium szovitsianum* var. *armenum* See page 129
Photo—B. Burbidge

Fig. 34—*Fritillaria latifolia* See page 133
Photo—B. Burbidge

Fig. 35—*Trollius ranunculinus* See page 133 Photo—B. Burbidge

Fig. 36—*Daphne glomerata* See page 133 Photo—B. Burbidge

Fig. 37—*Campanula tridentata* See page 140 Photo—B. Burbidge

Fig. 38—The Grand Caucasus from the ridges above Lake Rista
See page 140 Photo—B. Burbidge

contrasted vividly with a tall yellow *Pedicularis*. But where was the lily? Suddenly, from behind a bush a shout rang out which halted even the most energetic in their tracks and brought them stampeding back, cameras at the ready. Our lily had been found; it was *L. szovitsianum* var. *armenum* (fig. 33), almost 1 m in height and bearing mid-yellow strongly-scented flowers whose perianth segments were speckled inside with brownish-purple. A photographic queue dutifully formed, while those who couldn't wait went off in search of other plants. Soon more plants were discovered, some in bud and some in flower. It was noted that the lilies never grew in open grassland, but always associated with bushes. *L. szovitsianum* var. *armenum* differs from var. *szovitsianum* in its narrower perianth segments which have acute rather than obtuse apices. In Soviet Armenia it is mainly confined to the environs of Lake Sevan and is also found in N.E. Turkey. *L. szovitsianum* is in cultivation in Britain—it enjoys semi-shade and is often quite long-lived.

Another exciting find was *Iris aphylla*, only 20-30 cm tall with deep purple flowers, and we also saw *Dactylorhiza amblyoloba*, *Orchis coriophora*, *Veronica pectinata*, *Campanula glomerata* ssp. *oblongifolia*, *Primula veris* ssp. *macrocalyx*, *Arenaria dianthoides*, clumps of *Papaver pseudo-orientale* and the pink-flowered *Linum hypericifolium*.

Lunch was taken at a restaurant on the shores of Lake Sevan, and afterwards we explored the surrounding area of waste ground. Here we found *Papaver fugax* again and three catmints—*Nepeta racemosa*, *N. betonicifolia* and *N. grandiflora*. Clumps of the pretty *Marrubium astracanicum* with grey leaves and magenta flowers grew among the nepetas and there were large patches of a *Silene* with yellowish-white flowers.

We continued on over the Sevan pass into Georgia, and persuaded the coach-driver to stop on the far side where the road zig-zagged down steeply. By the road grew *Symphytum caucasicum* with bright blue flowers, and the Prophet Flower, *Arnebia pulchra* (syn. *A. echioides*), whose spotted yellow flowers enliven our rock gardens. We were delighted to find *Lilium szovitsianum* and *Iris aphylla* again, and also *Tanacetum coccineum* (syn. *Pyrethrum roseum*) with its beautiful deep pink ligules. A bright yellow crucifer, so far unidentified, grew in rocky crevices at the roadside and there were dense blue patches of a *Veronia* species as well as the purple obelisks of *Ajuga orientalis*.

Nearing Tbilisi we crossed a dry area of country with huge areas of *Artemisia fragrans*, and saw the prostrate humps of *Capparis spinosa*,

each white flower with a central boss of pink stamens. The white-flowered *Peganum harmala* grew along the roadside; it belongs to the Zygophyllaceae and its seeds yield the pigment 'Turkey red'.

As we drove into Tbilisi we saw *Koelreuteria pinnata* used as a street tree. Tbilisi is the capital of Soviet Georgia and has a population of about a million. The old part of the city is most attractive with narrow side streets and houses with carved wooden pillars and balconies. The Kura river runs through the centre of the town and we stopped on the bank to photograph the classic view of Tbilisi, the Metekhi church and old houses standing high on the edge of the precipitous cliff which forms the far bank.

Our hotel was modern and situated in a newer part of the city. As we arrived, rain began to fall and continued almost until lunch-time the next day. This proved to be the wettest day of the whole fortnight, so we really were lucky; the Caucasus, like any mountain range, frequently have long periods of rain. During the morning we visited the Metekhi church from which we obtained good views of the hills on which Tbilisi is built, and of 'Mother Georgia', a gigantic statute of a woman holding a sword in one hand and a bowl of fruit in the other and representing, as our guide told us, the spirit of Georgia, ready to fight her enemies and welcome her friends. In the grounds of the church, *Zygophyllum fabago* in flower and fruit was abundant. A trip up a funicular railway to a high point gave panoramic glimpses of the city, unfortunately rather curtailed by poor visibility.

The afternoon was devoted to visiting the Botanic Garden and the Botanical Institute. The garden was originally owned by the Georgian Royal Family and occupies an impressive site on the outskirts of Tbilisi on the slopes of the Tsavkisis Khevi ravine which runs through the garden. We were especially interested to see those areas where the native Caucasian plants were being grown. Wild plants which we saw in the uncultivated parts of the garden included *Allium rotundum*, *Clematis vitalba*, *Verbascum phoeniceum* and *Tribulus terrestris*, a weedy plant with spiny fruits which grows all over S.E. Europe and S.W. Asia.

The seventh day of the trip was devoted to an excursion along the Georgian Military Highway as far as the Krestovy Pass, situated at 2379 m, about half way between Tbilisi and Ordzhonikidze to the north, which is the capital of the North Ossetian Autonomous Republic.

We stopped first at the village of Mtzkhet, said to be one of the oldest inhabited towns in the world. We were taken to see the cathedral of Sveti Tzkhoveli, where the kings of Georgia were crowned up to the

beginning of the 19th century. The cathedral was surrounded by a defensive battlemented wall, and although we looked hopefully for exciting plants within the wall, we found only weedy species, e.g. *Malva sylvestris, Chelidonium majus.* Leaving the cathedral, we walked through the village to see the only private garden of the trip, a curious tangled maze of narrow paths with ornaments and grottos in abundance. Here grew lilies, pelargoniums and ferns, houseleeks, roses and vines, and some very fine *Clematis jackmanii.* The original owner had died and the garden had been taken over by a caretaker staff, and one left with the feeling that they were not sure why they had been given this task.

Lunch had been booked for us at the village of Pasanauri, so we were shepherded to our bus which speeded to the north. But plant-hunters will be plant-hunters, and suddenly a cry of 'hellebores' went up. Everyone got so excited that, after a mile or so, an unscheduled stop was made, ostensibly to look at a roadside church. Our guide said we could have 10 minutes to see the church and appeared rather hurt when the entire party streamed off in the opposite direction on a hellebore-hunt. The hellebores were soon located, growing below bushes in a sloping grassy area which turned out to be an old burial ground. The whole place was heavily grazed, but the sheep avoided the poisonous hellebores, which were identified as *H. orientalis.* The greenish flowers were pretty well over, but the seed scarcely ripe, although some members hopefully collected seed. The grassy turf was covered with not only our own Self-heal (*Prunella vulgaris*) with purple flowers, but also another *Prunella* differing in its cream flowers and generally hairiness, which suggested *P. laciniata.* However, the leaves were more like those of *P. vulgaris.* It is probable that both species were present, but the cream-flowered plants collected belonged to the hybrid *P.* x *intermedia.*

On again, passing the spectacular fortress church of Anauri, standing at the junction of two rivers. It is here that the mountains begin. We would have liked another stop, but lunch was calling—the Russians are very keen on adherence to schedules. Pasanauri is a small village situated where the Black Aragvi river meets the White Aragvi, the bi-coloured waters remaining separate for some distance. The Intourist restaurant was pleasant and we ate outside on a long table set beneath a creeper-covered pergola. The hills around the village are reputedly alive with bears, but when one of our party cried 'there's a bear coming', no-one took much notice. Then, around the corner came a bear

cub, led on a string by its owner. A number of bears are tamed each year, some for the popular circus, and some because their mothers have been shot and in any case the people like tame bears. Most people returned home with photographs of the cub drinking from a milk bottle with a teat, though a few animal lovers were offended by the spectacle.

After lunch we set off for the Krestovy Pass. The road began to climb in a series of tight bends, giving magnificent views back down the main valley and up some of the side valleys. Ahead, the snow-covered peaks of the Great Caucasus stood out against a cloud-flecked blue sky. We ascended above the tree-line into a world of short, sheep-grazed grass with rocky outcrops and rushing streams. We noticed that the hillsides in front of us were covered in great yellow patches of what looked like gorse. Yet gorse is not found in Caucasia except around the Black Sea where it has been introduced. When we realized that it was *Rhododendron luteum* the bus was filled with those joyful shouts and excited squeaking typical of botanists who at last have found a plant they had hoped to find. Permission was given for a half hour stop which, like most of our stops, extended by 100% to the consternation of our guide.

There was certainly plenty of the *Rhododendron* where we stopped, huge chest-high patches with an overpowering fragrance. Cameras clicked as close-ups, long shots and distant yellow-tinged landscapes were recorded. For years this plant has been called *Azalea pontica* (not to be confused with the pink-purple *Rhododendron ponticum* which has been naturalized in Britain), but the genus *Azalea* is now generally accepted as being included within *Rhododendron.*

Among the rhododendrons grew two geraniums, *G. sylvaticum* with lilac-blue flowers and common throughout temperate Eurasia, and *G. ibericum* with deeper violet-blue flowers which we cultivate in our gardens. We also found the purple spikes of *Orchis mascula*, and *O. ustulata* was discovered in bud. When we returned to the bus, we found some local people wearing local Georgian fur hats, who gave some members of our party cheese in exchange for chewing gum.

Back to the bus, and on up the road. The weather began to close in, so that by the time we arrived at the pass the sky was overcast and the distances obscured by swirling mist. We had been told that snowdrops and fritillaries grew at this height, and leapt from the bus, setting off to east and west of the road. *Galanthus woronowii* was found only on the west side and was missed by those who only went to the

eastern side; it is a large-flowered snowdrop and it is possible that it is conspecific with *G. ikariae*. We found two species of *Primula*, *P. algida* which we had seen previously on Aragats, and *P. auriculata* which grew in water-logged hollows together with *Gagea glacialis*. Also growing with its feet in the water was *Caltha polypetala* which, although regarded as a distinct species by the Russians, on this side of the Iron Curtain is considered to be synonymous with our own marsh marigold, *C. palustris*. We found some clumps of *Trollius ranunculinus* (fig. 34) (syn. *T. patulus*) growing about 10 cm tall with bright yellow flowers set off by surrounding deeply-toothed green leaves, and the leaves of *Veratrum lobelianum* sprouted on the drier ground. For some of us, the most exciting find was *Fritillaria latifolia* (fig. 35) with its drooping brownish-purple chequered bells borne singly on a stem with grey-green leaves. It is related to *F. meleagris* but does not grow so tall and, apart from the duller colour, the flowers are fatter. As well as growing in the Caucasus, it is found in N.E. Turkey. There are forms with yellow flowers, but we didn't see them. After our trip it should be slightly less rare in cultivation, as a few small non-flowering bulbs were dug up and brought home; we were too early for seed. To the west side of the road it grew in great drifts and some previous visitors had picked large bunches which they had discarded —providing admirable herbarium material for those of us armed with plant presses.

After about an hour, the bus driver became anxious to return to a lower level, below the mist which by now was becoming thick, so we set off back the way we had come. There was, however, one essential stop on the way down, at a bend in the road where enormous patches of the white-flowered *Daphne glomerata* (fig. 36) grew. This Daphne does not do well in cultivation and is therefore uncommon in gardens, so we were delighted to see it growing so well in the wild.

The following day we left Tbilisi to go to Telavi, some 165 km in a north-easterly direction. Telavi is the capital of the East Georgian province of Kakhetia and is situated in the valley of the Alazani river, the main area of wine production in Georgia. The drive was fairly uneventful: at intervals along the road we saw clumps of *Alcea rugosa* looking like a pale yellow hollyhock, and *Sophora alopecuroides* (syn. *Goebelia alopecuroides*) with its fat cream flower spikes. Drier areas were covered in *Artemisia* and spiny *Astragalus*, with frequent mounds of *Capparis spinosa* whose flower buds are used as capers. A short roadside stop yielded yellow-flowered bushes of *Paliurus spina-christi*

and an *Allium* with crimson flowers in two-inch spherical heads, as well as an enormous picturesque flock of sheep and goats complete with shepherds.

The road to Telavi ran through a number of attractive villages, many of which had herds of pigs snuffling and rooting in the main street, so that our bus frequently was forced to slow down to avoid an accident. Some of the houses had decorative ironwork on their roof ridges and an amusing feature was the drainpipes. It is usual, in many parts of the Soviet Union as in some parts of Europe, for the down-pipes from roof gutters to bend outwards and stop some 5-7 feet from the ground—a possible hazard to passers-by in wet weather! These Georgian down-pipes were decorated with metal ears and teeth, the end of the pipe forming a mouth, and resembled the head of a dragon or other mythical beast. Neither of our guides was able to throw any light on the meaning or origin of this custom.

A second stop was made by a small roadside river, but we found mainly familiar weedy species such as *Lepidium draba, Cichorium intybus, Echium vulgare, Scabiosa columbaria* and *Calystegia sylvatica*, the last growing so luxuriantly that it looked almost garden-worthy!

Before reaching Telavi we were taken to Tsinandali, the house where the early 19th century poet Prince Chavchavadze lived with his family, and which is set in grounds designed in the English style, i.e. a park planted with fine specimen trees. We saw magnificent lime trees and also that N. American import, *Magnolia grandiflora*, whose huge cream flowers are sweetly scented. We undertook a compulsory tour of the house which was built of the local grey-pink sandstone and had a wide carved wooden verandah on the first floor. Afterwards, in the grounds below some conifers we found what at first was thought to be *Epipactis pontica* or *E. condensata*, but after examination in the herbarium back in Edinburgh proved to be a form of *E. helleborine*, an extremely variable species.

We arrived at our hotel in Telavi in time for a late lunch. A wedding celebration was in progress with Georgian dancing andso me guests wearing colourful native costumes and firing guns into the air. It came as something of a surprise to learn that the hotel was opened in 1978, as the building was extremely badly finished and some people suffered from inefficient or non-existent plumbing.

Lunch over, we visited the 16th century Ikalto monastery and the 11th century Alaverdi cathedral. At Ikalto, little remains of the monastery apart from some ruined walls, but the churches are of later

date and in better condition. A graceful blue *Campanula* grew on the walls and in the shade of some trees we found *Aristolochia iberica.* We discovered that one old wall was covered in ferns and huge snails which certain people found photogenic, while others preferred the piles of old wine jars and pots thrown into an angle of the church walls. The cathedral of Alaverdi is very much larger, and the grounds are surrounded by a high patterned stone and brick wall. It is an impressive building, built on a cruciform plan and with tall white walls. Behind the cathedral grew huge patches of motherwort, *Leonurus cardiaca,* and *Teucrium hyrcanicum* was also found with its crowded rich crimson spikes.

The ninth day was to be one of the highlights of the trip—a visit to the Lagodekh nature reserve east of Telavi, on the eastern side of the Alazani valley. It has extensive forests and over 1500 species, including the very local *Gentiana lagodechiana, Galanthus lagodechianus* and *Fritillaria lagodechiana.* We had been told the previous day that it would not be possible for us to make this visit, despite having written permission from Moscow, and a number of feeble excuses were produced such as "you will find it too hot", "it is crawling with dangerous snakes" and even "the bears will get you". After long discussion and much stubbornness on our part, telephone calls were made and we were informed that, after all, Lagodekh would be possible. For once, we made an early start (a difficult feat in the Soviet Union) and set off with both breakfast and lunch in the boot of the bus.

We stopped for breakfast at Gremi, which was the capital of Kakhetia in the 16th century, but now, apart from two churches which stand high on a fortified hilltop, is nothing but a few crumbling walls. Our bus drove through the river and deposited us below the churches on a flat grassy area where we consumed bread, boiled eggs and cucumbers. Some quick botanizing revealed two species of *Allium,* a crimson-flowered one with tiny round heads, so far unidentified, and a yellow-flowered one of the *pulchellum* type which is probably *A. pseudoflavum.* Both grew in long grass beneath bushes of *Paliurus spina-christi* on a dry hillside above the river. A blue *Eryngium* also grew in the long dry grass and we found a *Sedum* with pinkish-white flowers growing on the rocks. Down by the river were the tall spikes of a magnificent *Verbascum* with enormous bright yellow flowers, probably *V. phlomoides.*

Into the bus again and we set off for Lagodekh. When we arrived at the gates of the reserve we were told it was not possible for us to

go in. The arguments, moves and counter-moves were too tedious to detail; the end result was that we departed, tails between our legs, for another, apparently similar area of countryside further up the valley. We were justifiably annoyed, yet had we been admitted, we would have had a 6-hour walk to the high pastures where the interesting alpines grew, although we were in ignorance of this at the time. Non-communication had reared its head, as it does frequently and not only in the Soviet Union.

We drove over the border into Soviet Azerbaidjan but our attempts to drive into the mountains were foiled by the road which had partly disintegrated on the near side of a bridge. Our driver wisely decided not to cross. We retraced our steps back to the town of Kvareli, where we again turned towards the mountains, only to get lost. Police help was sought and we found ourselves escorted by police jeep up a narrow road which at times degenerated into a mere cinder-pile. Eventually we reached the end of the track, in a wide river valley with forested sides. Lunch was spread out and eaten and the local large herd of pigs duly photographed.

We realised that to walk up into the mountains from our present position would prove impossible; nevertheless we decided to go as far up-river as we could in the time available. On the shingle banks by the river we found the brilliant pink *Silene compacta*, as well as *Epilobium latifolia* and *Scrophularia lateriflora*. A red *Cynoglossum* and a tall violet-blue *Campanula* still remain unidentified. Higher up, the valley narrowed and on the rocky sides we found *Sedum stoloniferum* and masses of *Saxifraga cymbalaria* with its starry bright yellow flowers. This saxifrage is an annual and grows in damp shady places and I am surprised that it is not grown more frequently in gardens. I have grown the closely related and very similar *S. sibthorpii* (found in Greece and S.W. Turkey) in an Edinburgh basement plot for some years; it begins to flower in April or May and produces copious self-sown seed for the next year. Should it spread too far it is very easily removed.

Growing high on a bank under trees we found the crucifer *Pachyphragma macrophyllum* in fruit. This species, the only one in the genus, has big simple leaves and white flowers, and was thought to be confined to the Caucausus until it was recently found in Turkey. A wooded area yielded the Medlar (*Mespilus germanica*), *Tilia caucasica*, *Castanea sativa*, *Cornus mas*, *Fagus orientalis* and *Alnus glutinosa* var. *barbata*, and bushes of *Philadelphus coronarius* overhung the river. In places, the floor of the wood was covered in *Hedera colchica*, and the creeping

grass *Oplismenus* (probably *O. burmanni*). Other plants found included *Aristolochia iberica, Platanthera chlorantha, Symphytum asperum* and *Impatiens noli-tangere.* Eventually we found that we were stuck at the bottom of the narrowing river valley and, as time was running out, we retraced out steps back to the bus. A fleeting stop was made on the return to Kvareli, to photograph some particularly fine specimens of *Pterocarya fraxinifolia.*

The next day we left Telavi, again by coach, to return to Tbilisi where we would catch the train to Sukhumi on the Black Sea coast. Probably the most memorable stop on the bus journey was on a straight stretch of road lined with *Spartium junceum* interspersed with *Cotinus coggygria,* where we caught a tortoise in the act of laying her eggs in a hole she had dug for the purpose. We had an argument with our driver who wanted to take the eggs (we did not discover for what purpose), but in the end persuaded him to put them back. All through the argument the tortoise continued to produce, and was eventually left in peace.

In the early evening we boarded the Sukhumi train for an overnight journey in 4-berth compartments. Probably the less said about the train the better; luckily the night was very hot, so it was unnecessary to make use of the bedding provided. Early morning saw us out in the corridor, staring at the new lush sub-tropical scenery with its citrus-groves and tea-fields. Sukhumi is a coastal resort, popular for holidays, and is the capital of the Abkhazian Autonomous Republic. Due to part of the Hotel Abkhazia having collapsed, our reserved accommodation was unavailable and most of the party had to be re-arranged three to a room.

By the afternoon we had recovered from the train journey and the irritations of our new bathless accommodation (on which Intourist gave us a refund) and set out for a tour of the Sukhumi Botanic Garden. This is a small garden dating from 1840 and administered by the Georgian Academy of Sciences since 1938. A member of the scientific staff showed us round the garden where we saw an impressive bamboo grove and a pond full of beautiful Lotus (*Nelumbo nucifera*) and croaking frogs, as well as other sub-tropical species, both native and introduced. Then we were taken into the offices to meet the Director and some more of the staff, and treated to a feast of cakes, fresh fruit and brandy. Toasts were drunk to 'friendship through science' and the Director asked where we wanted to go the following day. We told him that we would like to go as high as possible into the mountains,

and he suggested the area above Lake Ritsa and kindly said that we could take two botanists from the Botanic Garden with us.

Then after the ladies in the party had been presented with gerberas, we were conducted round the nearby Dendrarium with its magnificent collection of trees. We were impressed by some of the palms and the conifers, and also saw both *Hedera colchica* and *Trachelospermum jasminoides*, the Star Jasmine used as a ground cover—the latter has fragrant white flowers and is native to eastern Asia.

The hot evening was spent wandering round the town, drinking kvass, eating ice cream and trying to dodge the mosquitoes. It was interesting to note the variety of species used as street trees; these included *Cedrus deodara, Magnolia grandiflora, Ligustrum japonicum, Albizzia julibrissin, Catalpa* and various palms.

The next morning we set off for the mountains, picking up our two botanists before leaving the town. Before heading inland, we followed the coast road to the north, through Novy Afon to Pitsunda, where we were taken to see a grove of *Pinus pityusa*—the last remnants of an endangered species. We collected seed from fallen cones, but on return to Britain were informed that *Pinus pityusa* is synonymous with *P. brutia*! The endemic *Ruscus pontica* was pointed out to us; again, western botanists have sunk it into *R. aculeata.*

Leaving Pitsunda we turned inland up the Bzyb valley and passed some fields of *Feijoa sellowiana* being grown as a crop. As we gained height we passed through forest containing such trees as *Staphylea colchica, Abies nordmanniana, Picea orientalis, Quercus iberica, Fagus orientalis, Carpinus orientalis, Buxus colchica* and *Cotinus coggygria,* and there were occasional patches of pine forest composed of *Pinus kochiana.* Under the trees we noticed *Hedera colchica* and *Smilax excelsa.* We passed by Goluboye Ozero or 'Blue Lake', on the rock walls of which grew rosettes of *Campanula mirabilis,* unfortunately not in flower. This is an endemic species confined to the Bzyb gorge. Above the Blue Lake the valley became narrower and we had wonderful views of the snow-covered mountains of the Brybsky and Gagrsky ranges to the right and left of the road.

We then headed up the Yupshara gorge with its limestone cliffs and climbed on until we reached Lake Ritsa which lay at 950 m. Here our bus was stopped by some officials who told our driver that we could go no further. Our botanists intervened and after a five minute discussion we were allowed to proceed. Had the botanists not accompanied us there is no doubt that Lake Ritsa would have been our

highest point and we would have missed the exciting finds of the high pastures. The road became narrower and more winding, and passing through more woods we saw large expanses of the handsome fern *Matteuccia struthiopteris* interspersed with *Hesperis matronalis* and *Aruncus vulgaris*. Then suddenly we came to the end of the gorge and ascended onto a flattish area from which mountains rose in front of us. The bus stopped and our guide told us that we could have four hours and must keep together as the mountains were dangerous. Needless to say, we immediately spread out in all directions, though mostly in an upward direction and at varying speeds. Fairly near to the bus, growing by water, we found drifts of the blue *Brunnera macrophylla* which is confined to the W. and N. Caucasus and extreme N.E. Turkey.

Climbing up through a wooded area we were delighted to find *Paris incompleta*, merging as *Paris* usually does, with the surrounding vegetation. We also found the root-parasite *Lathraea squamaria* and a species of *Corydalis* whose flowers were over, but seed was collected. A little higher, beyond the trees, we found one plant of the blue *Anemone caucasica*—others were sought in vain. The *Anemone* hunt produced a few small specimens of *Fritillaria latifolia*, seen previously on the Krestovy Pass, a good omen for the higher levels.

A steep grassy slope on the left-hand side of the track kept us busy for the next hour or so, for there we found *Lilium kesselringianum* with pale butter-yellow flowers, dotted purplish-brown inside and with yellow anthers. It is not now in cultivation in this country but we did not collect any bulbs: the area was in fact a nature reserve and therefore digging up plants was forbidden. In any case the lily is not common in the Caucasus so re-introduction by seed would be preferable.

The lily grew among *Rhododendron luteum* and often on such steep ground that the photographers tottered and swayed dangerously. On the same slope grew the handsome blue and white *Aquilegia olympica* and the deep purplish-pink *Stachys macrantha* (syn. *Betonica grandiflora*). We found a prostrate single pink rose growing over mats of *Thymus*, and a beautiful pale pink *Centaurea* with single heads on long stems, as well as the grey-leaved yellow-flowered *Anthemis marschalliana* (or a near relative) and drifts of *Polygonum bistorta* ssp. *carneum* with its dense deep pink spikes waving gently in the wind. *Heracleum antasiaticum* grew here also, especially towards the bottom of the slope which was damper, as did both white and deep pink forms of *Dactylorhiza caucasica*.

We followed the track further through a dampish area with a luxuriant cover of *Symphytum asperum, Inula orientalis, Senecio platyphylloides, Asperula taurica* and a tall *Euphorbia* with brownish-red flowers. Here we saw non-flowering plants of *Heracleum mantegazzianum* which differs from *H. antasiaticum* in (among other characters) having more deeply divided leaves.

Higher still the vegetation changed to short grass, and on the bank of a stream *Rhyncocorys stricta* was discovered with its bright yellow elephant-head flowers with big ears, a trunk and two brown eyes. Snow was lying in patches and had only recently melted from some of the ground and here we found the hoped-for *Fritillaria latifolia* together with *Trollius ranunculinus* and *Petasites albus.* By a damp rock grew a few plants of *Primula elatior* ssp. *pseudoelatior* with pale yellow flowers, and *Saxifraga rotundifolia.*

At the highest level which was reached, some 7-800 m above where we left the bus, the snow patches covered about half the ground area, which was typically alpine grassland with boulders and rock outcrops. *Fritillaria latifolia* grew in such profusion that the ground was covered with a purplish haze and *Pulsatilla aurea* showed its deep yellow flowers. *Campanula tridentata* (fig. 37) grew on the rocks, with huge blue and white flowers. and the deep crimson subspecies of *Primula elatior* was discovered (ssp. *meyeri*, previously known as *P. amoena*). *Traunsteinera globosa* ssp. *sphaerica* was in flower and scattered plants of *Gentiana oschtenica* was an exciting discovery (it is really only a pale yellow-flowered form of *G. verna*). Descent by a slightly different route produced the pinkish-white *Anemone narcissiflora,* bushes of *Rhododendron caucasicum* with trusses of white flowers faintly flushed with pink, and the orchids *Gymnadenia conopsea, Coeloglossum viride* and *Platanthera chlorantha,* as well as *Sibbaldia parviflora.*

Returning to our bus we set off on the return journey. A very quick pause above Lake Ritsa to photograph the view (fig. 38) (the driver was reluctant to stop because the road was very narrow and winding) produced *Chiastophyllum oppositifolium* growing on a damp shady rock by a waterfall. A second stop below the lake gave a chance to collect seed of *Heracleum antasiaticum* and we also found *Arabis caucasica* with ripe seed which some members of the party subsequently germinated. *Campanula longistyla* grew abundantly on a rocky cliff and a few plants of the endemic pink and white *Scutellaria helenae* were found under some bushes (this has now been sunk into the more widespread *S. pontica*).

Arrival at our hotel was followed by dinner and an evening which ended with packing ready for our flight back to Moscow the following day. In Moscow we found ourselves back in the Hotel Intourist and were taken for a pre-dinner trip on the famous Metro. The next morning we spent in the Kremlin, where we visited the museum with its impressive collections. In the afternoon we went to Moscow Botanic Garden, which covers an enormous area. We were glad that our bus drove right into the garden, saving us a very long walk. We were met by a member of the staff who first showed us some of the greenhouses where *Rhododendron ponticum* was one of the many plants needing protection from the Moscow winter! Then we went (again by bus) to another part of the garden where native Caucasian plants were displayed and where we were able to identify some of the plants we had found in the wild. Among the many species we saw were *Campanula lactiflora* (now sometimes placed in the genus *Gadella*), *Dictamnus caucasicus*, *Lilium ledebourii* which is endemic to Soviet Azerbaidjan and has cream or white flowers, and two *Geraniums*, *G. psilostemon* which has magenta flowers and which is endemic to Soviet Armenia, and *G. platypetalum* with violet-blue flowers. Both geraniums are useful herbaceous border plants in Britain.

The next day we boarded a 'plane to Heathrow, carefully carrying our collections of plants both living and pressed. Arrival at London was later than expected due to an unscheduled stop in Warsaw (where we found that vodka was ridiculously cheap!). Our overall impression of the trip was that, in general, it had been successful, but we would have liked to have spent more time actually looking at plants. I think it is important for potential visitors to the Soviet Union to realise that tours of any kind are very much governed by the bureaucracy of Intourist, and departure from scheduled plans is almost impossible. This can be extremely frustrating for those of us from the West who are used to a more free-and-easy attitude. It is also important not to expect high standards of accommodation and efficiency in the more remote areas; after all, one would be surprised to find de-luxe hotels in rural Iran, Turkey or India.

Looking back, it is the magnificent scenery and the helpful people who most readily spring to mind, as well as all the exciting and beautiful plants which we found. I would like to go back again sometime, preferably in late April or May, to see some of the spring bulbs, or in autumn to gather seed, but in the meantime there is a great list of places to explore botanically, and return to the Caucasus must wait.

Show Reports

MORECAMBE—29th March 1980

THE FIRST joint S.R.G.C. and A.G.S. Show to be held in Morecambe provided a wealth of interest in the early spring sunshine of 29th March 1980. In alternation with the joint Newcastle Show the Morecambe show was held under A.G.S. rules, so that the best plant in the Show, Mr G. Rollinson's four-inch dome of *Dionysia lamingtonii*, was awarded the Farrer Medal. Although discovered by Lord Lamington on the Zagros Mountains of Iran in 1912, this species was not rediscovered until 1973 when Professor T. F. Hewer brought back viable seed. Its slow growing, dense grey cushion is the epitome of alpine adaptation and was here evenly covered with deep, clear yellow flowers barely 5 mm across and held 15 mm above the cushion by the long narrow corolla tube which is a characteristic of the genus *Dionysia*.

The Lowndes Bowl, awarded to the best plant in Section C, also went to a *Dionysia*, this time *Dionysia revoluta* ssp. *revoluta* JCA 2905 shown by Vic Aspland (Tipton). This species favours limestone crevices in the wild like the earlier plant, but forms a more open tuft of woody stems with several yellow flowers to the stem. The small, revolute leaves show a prominent central nerve through the white farina of the underside. This exhibit helped Vic Aspland towards achieving the highest aggregate of 1st prize points in Section C.

One other *Dionysia* attracted particular attention. *Dionysia involucrata*, shown by Mr B. Burrow (Sale), is new to the show bench and a larger species than the two already mentioned. The soft cushion was made up of a few rosettes of pale green leaves some 15 mm in length patterned by raised veins and with the truncated apex made up of five rounded teeth. The flower scape, 30 mm high, was topped by a cluster of leaf-like bracts, as large as the leaves but more deeply lobed, and three well developed buds about to open into comparatively large lilac flowers with tubes as long as the scape.

The newly presented Hollett Trophy for the exhibitor gaining most 1st prize points in the open sections was won by Eric Watson (Newcastle) whose plants included a lovely *Douglasia montana* and the exquisite *Fritillaria gibbosa* JCA 1792. Differing forms of this fritillary have appeared occasionally on the show bench over the last fifteen years or so and we were lucky to see two forms at Morecambe. Both exhibits were some 15 cm high (though plants twice this size have been recorded), but where the flat-faced flowers on Eric Watson's plants

were the palest grey-pink, the plants shown in the Edinburgh Botanic Garden's non-competitive exhibit were a deep rich pink, almost red.

This exhibit of choice plants was awarded an A.G.S. Special Gold Award and attracted intense interest. It included *Fritillaria alburyana* with its lovely pale pink hanging bells, one stem showing two flowers. Let us hope that this means that this difficult bulb is settling down in cultivation. A well flowered plant of *Primula* x *vochinensis* and the intriguing Australian fly-catching orchid *Pterostylis nutans* were also included.

The highest aggregate of 1st prize points in Section B was won by Wilf Kirby (Preston) whose exhibits included the unusual *Aubrieta* 'Eileen Longster,' with almost succulent glossy foliage on short vertical stems. With *Aciphylla gracilis*, Mr Kirby also won his own cup, presented for award to the best foliage plant in the Show.

Mr D. Ferns (Wilmslow) brought along a large-flowered dwarf form of the Pink Butterfly Orchid, *Orchis papilionacea* var. *grandiflora*, which grows in association with *Ranunculus cupreus* in Crete. Its large pink flowers combining speckling and striping are most spectacular. Another delightful pink-flushed flower exhibited, *Anemone tschernjaei*, is enhanced by the contrasting purple-black anthers and leathery three-lobed leaves. Shown here by Frank Stallard (Neston), it was originally introduced by Paul Furse from the Hindu Kush. It is still scarce in cultivation though reported to be a sturdy grower.

David Riley (Kendal) was awarded the A.G.S. medal for six plants in 6½ in. pots, his group including a lovely deep purple form of *Cyclamen pseudibericum*. In the new and rare class he also showed us *Veronica caespitosa* from the MacPhail and Watson expedition to Turkey (M & W 5849). This 7 cm wide low mat of densely hairy leaves bore widely funnelled four-petalled flowers about 1 cm across of a good pale blue. The stamens and stigmas were held well forward, the flowers upward facing and just above the foliage.

Although the small and the new have received most mention here, the Show was remarkable for several large pans of *Soldanella alpina* in slightly differing forms, Saxifrages—*S. porophylla* and *S. oppositifolia*, a lovely *Cyclamen libanoticum* and many of the European primula hybrids—plants we all know and love. And as a background to all this an exhibit of photographs of alpine plants in their natural habitats, staged by John Leedal of Lancaster, to remind us of one's days in the mountains.

D. F. MOWLE

NEWCASTLE UPON TYNE—12th April 1980

As SOON as a plantsman has decided that he has a potential prize-winner he realises more than ever that he is at the mercy of the seasons. The rarity that has been coaxed through the winter suddenly spurts into life too early for any Show, while the precious bud-covered cushion sits around stubbornly refusing to move until it is between Shows. So it appeared this year, with an exceptionally early warm spell that awoke the Dionysias in January and February, and then a long cool lull that seemed to hold so many plants in suspended animation. With this build-up to the Show season, and the increasing travel costs for competitors, it must have been a worrying time for Show Secretaries. However, plantsmen can work wonders and both they and the plants ensured that the joint SRGC/AGS Show was a success once again.

Of course the premier award, the Forrest Medal, always excites most interest and generates a lot of good-natured pre-judging discussion during staging. This year there were several obvious contenders for the award, but in the end there can have been little doubt that David Mowle's magnificent *Pygmaea pulvinaris* was the clear winner. This is no easy plant to keep healthy over the years, let alone flower, so the 10 inch hard green dome studded with a mass of flowers was quite a tribute to David's skill and dedication.

In the Open Section the AGS medal for Class 1 was taken once again by Eric Watson with an impressive stand that included a pan of the ethereal *Paraquilegia grandiflora.* This plant with well over 30 flowers was awarded a Certificate of Merit. The other AGS medal (Class 25) was won by Alan Stubbs with 6 pans that included two of the *Cyclamen* (*pseudibericum* and *repandum*) that he grows so well, and a pan of *Androsace muscoidea.* This last species appeared in several classes throughout the Show and it was remarkable how variable it was in tightness of mat and size of flower. It would be intriguing to know how much of this is genetic and how much is due to the skill of the grower. If it is genetic then it suggests that there are great possibilities for careful breeding and selection.

The R. B. Cooke Plate is awarded annually for the highest aggregate of first prize points in Section I. This year it went to J. R. Myers, who seemed to specialise in producing excellent pans of Primulaceae such as *Primula marginata* forms, *Dionysia aretioides* and *Androsace vandellii.* This family tends to be the mainstay of the Newcastle Show and with the exception of *Dionysia* (where have they all gone?) the members were much in evidence in all manner of classes. Especially

noticeable were two breathtaking pans of *Androsace vandellii* that took firsts for Duncan Lowe. Both were fully five inches across and so smothered with flowers that not a leaf could be seen. One of these shared first position in that difficult class "one pan rock plant in flower" with Norman Woodward's floriferous *Daphne blagayana*. *Primula* itself was well represented, Frank Tindall being particularly successful with this genus. In the class for Asiatic Primula Frank won with a good plant of the difficult *P. aureata*, a species that seems to be making more regular appearances on the show bench. Its rarity seems to be due to a combination of slow propagation and slight lack of hardiness.

Among the other Primulaceae on show *Androsace mucronifolia* was one of the more interesting. Plants masquerading under this name have been available for years, but George Smith and Duncan Lowe tell us that they are mostly *A. sempervivoides*. The true species became available recently through the collecting of Herr Schacht of Munich and this may well have been the first time the species has been on the show bench. It is much smaller than *A. sempervivoides* and has pink flowers with a yellow eye that reddens with age. It can be rather loose and straggly, but Duncan Lowe's winner of Class 33 had over 80 flowers on a tight 4 in. mat, so it showed what skilled cultivation can do.

Saxifraga is a genus that varies greatly in numbers at Newcastle from year to year. Last year *S. oppositifolia* was in great form while this year there were some good plants of *S. retusa* and an interesting display of Himalayan species. *S. retusa* took a Certificate of Merit for S. Jackson. One species that I found irresistible was Duncan Lowe's *Saxifraga flagellaris* ssp. *sikkimensis* (Class 15). It had red stolons and a good density of 1 inch clearest yellow flowers; a real charmer and one that is a useful addition to the range of early saxifrages.

At this point I have to confess that I am no expert on bulbs, but to an inexpert eye it appeared that *Fritillaria* was much better represented than in some previous years. Class 38 for 3 pans of *Fritillaria* was closely contested and the winner, David Mowle, fielded *F. graeca* ssp. *thessala*, *F. schleimannii* and *F. drenovskii*. There is something about the clean, waxy appearance of *Fritillaria* that makes even the "unshowy" green flowered species have a special appeal.

Ericaceae on show included Mrs Sheila Maule's *Epigaea gaultherioides* (Class 5) with what seemed like extra large flowers, John Richards' prostrate and flower covered *Rhododendron imperator* (Class 6) and

Rob Brown's superb *Harrimanella* (*Cassiope*) *hypnoides*. Rob has had the plant for 10 years now and it goes on from strength to strength. In case anyone is interested in trying to grow it, Rob's recipe for success is full sun and buckets of water every time he passes it! Having shrivelled three specimens myself, I can only conclude that he must pass it very frequently.

Moving on to Section B, the outstanding performance was undoubtedly by Wilf Kirby from Preston. In the last two years Wilf has taken so many firsts that he has become the despair of first Section C and now Section B competitors. He continued with five firsts, three seconds and the Gordon Harrison Cup. Among his entries that caught the eye were a beautiful plant of *Primula modesta yuparensis alba* (Class 51), the mathematically symmetrical *Saxifraga* 'Chrystalie' (one pan in Class 65) and *Raoulia* x *loganii*. The silver foliage of the *Raoulia* was nicely set off by the judicious use of black grit that Wilf confessed he bought at the local aquarium shop. In an effort to keep Section B in the family, Wilf's son, D. Kirby, took Class 66 with *Synthyris lanuginosa*. This species, which is not often shown, has silver foliage and lots of small pale blue flowers. However, it is not an easy plant; too little water and the buds desiccate, too much and they rot.

Coming now to Section C, the fiercest competition was undoubtedly in the classes involving shrubs and Primulaceae, although the number of entries in "one pan rock plant in flower" threatened the capacity of the tables as well. The Cyril Barnes Trophy made C. P. Banham's first visit from Ormskirk well worth the long journey. His winning entries included *Primula petiolaris*, *Androsace chamaejasme*, *Androsace vandellii* (Class 72), *Helichrysum virgineum* (Class 81) and in Class 74 a plant labelled *Primula* x *steinii* that looked like a large version of *P.* x *bileckii*. The best plant exhibited by a local group member in Section C went to Dexter McArthur for his *Androsace muscoidea*.

Class 75 was obviously closely fought with Anne Pickering's *Primula bracteosa* just pipping a good *P. bhutanica*. *P. bracteosa* is not a difficult Petiolarid to grow but it has a tendency to produce rather few flowers over a long time. Anne's plant had a mass of perfect, large flowers that filled the centre of the rosettes.

Perhaps one of the most interesting results was in the closely contested Class 71, where the judges gave the first to a really good form of our common native, *Anemone nemorosa*. To me it demonstrated perfectly that show plants need not be the rarest or most difficult. Selection of good forms and skilled cultivation work wonders.

Finally, it must be said that a successful Show depends not only on the competitors and their plants but also on the non-competitive exhibits, the trade stalls, and the army of local group members who organise the hall, ticket sales, publicity, book sales and especially the food and drink. This year we had two trade stalls, Hartside Nursery and Jim Jermyn from Edrom coming for his first year. They did a brisk trade and are an undoubted attraction to the public. John Main provided a superb non-competitive exhibit that won a Certificate of Merit for *Primula allionii*. The organisation was faultless and the ladies behind the refreshments did their usual excellent job. The Show was a great success.

ALAN DAVISON

PERTH—19th April 1980

FOLLOWING a reasonably good winter and with three weeks of sunny weather preceding the Show, a record number of plants appeared on the show tables. There were many individual classes where the number of competing plants was quite exceptional, thus setting the Judges, Messrs Alf Evans, R. S. Masterton and J. R. Aitken, a difficult task; the standard was high and some plants that could be expected in a normal year to be winners were left unplaced.

The Alexander Caird Cup for the Six-pan Class was won by Dr Peter Semple from Glasgow, his entry being *Andromeda polifolia* 'Macrophylla', which received a Certificate of Merit, *Primula* 'Linda Pope', *Dionysia aretioides, Androsace carnea* x *pyrenaica, Primula* 'Mrs J. H. Wilson' and *Armeria caespitosa.* Second in this class were Mr and Mrs Henry Taylor, their six including *Ranunculus acetosellifolius, R. asiaticus* and a plant requiring perfect timing for a specific date, *Sanguinaria canadensis* 'Flore Plena'.

The Dundas Quaich awarded for the Three-pan Class went to Mr J. B. Duff who staged *Kalmiopsis leachiana, Primula aureata* and *Ranunculus parnassifolius.* The *Kalmiopsis* was awarded the George Forrest Memorial Medal for the most meritorious plant in the Show, also the Major-General D. M. Murray-Lyon Trophy for the best plant exhibited by a member residing in the Tayside Region.

Bringing all his excellent plants from Glasgow, Mr Malcolm Adair deservedly but narrowly gained the L. C. Middleton Challenge Trophy for the most points in Section I obtained from First Prizes.

Mr and Mrs V. Chambers repeated their last year's success by retaining possession of the E. H. M. Cox Trophy for the best *Rhododendron* in the Show with *Rh.* 'Curlew'. They had paired this plant

with *Rh.* 'Ptarmigan' to win first place for two pans Dwarf Rhododendrons. The best Single pan Rhododendron was *Rh.* 'Snipe', another Glendoick Nursery introduction exhibited by Mr J. B. Duff.

A great variety of plants were on Show. Some of the plants which caught my eye as I scanned the benches are as follows, together with the name of the exhibitor in brackets.

Pleione forrestii, Trillium ovatum ssp. *hibbersonii, Shortia uniflora, Dionysia viscidula, Fritillaria michaelovskyi, F. davisii* (Mr H. Esslemont): the large pan of pleiones received a Certificate of Merit.

Androsace mucronifolia and *Saxifraga stolitzkae* (Mr E. Watson). We should like to express our thanks to Mr Watson from Newcastle for bringing these rare plants to Perth, where they are not likely to have appeared before. Both plants were awarded Certificates of Merit.

Fritillaria pinardii, Primula 'Beatrice Woorster' and *Sagina boydii* (Mrs E. Ivey).

Fritillaria bithynica, Dionysia aretioides and *Cassiope hypnoides* (Mrs S. Maule).

Soldanella hungarica, Epigaea repens, (fig. 24,) *Diapensia lapponica* in flower, *Gentiana brachyphylla* and *Calypso bulbosa* (Mr and Mrs M. Stone).

Phyllodoce caerulea, Shortia galacifolia, Salix myrsinites and *Picea abies* 'Gregoryana' (Mr and Mrs R. J. Bezzant).

Helichrysum orientale, Soldanella montana villosa (Dr J. L. S. Cobb).

Gentiana bavarica, Erythronium americanum (Alasdair Sutherland, Inverness).

Cassiope fastigiata, C. wardii, Orchis morio and *Tropaeolum hookeriana* (Mrs J. Stead).

Anemonella thalictroides (Miss J. Halley).

Some very good dwarf conifers were on show, including *Chamaecyparis obtusa* 'Nana Lutea' and *Ch. obtusa* 'Nana' (Mr R. R. Brown from Corbridge), also *Ch. pisifera* 'Nana Aureovariegata', *Ch. obtusa* 'Nana' and *Ch. thyoides* (Mr S. Benham, Isle of Arran).

There were four entries in the class for a Container of various living rock garden plants arranged for effect, and the order of placings was Mr R. R. Brown, Mrs Jean Wyllie, Mrs Lyn Almond and Mr S. Benham. I feel that this class is a valuable component of the Show, attracting much attention from visitors who get this opportunity to admire the varied skills of the competitors in preparing attractive layouts and using choice selections of miniature plants.

There was again, as there has been for the last few years, very keen

competition in Section II. This year the Bronze Medal for most points was awarded to Mr David Martin, Scotlandwell, in his second year of showing; good work, which augurs well for the future. Participation in Section II can vary greatly from year to year as the loss caused by the promotion of the Bronze Medal winner to Section I is not always fully compensated for by members starting to compete. Hopefully the present indications are that for the next two years, at least, there will be adequate competition.

Ancillary support for the Show which was much appreciated by the management consisted of Flower Paintings by (a) Mr Lawrence Greenwood and (b) Mrs C. Rockwood, displays of choice garden plants by (c) Mr A. Duncan, Branklyn Garden, and (d) Royal Botanic Garden, Edinburgh, and a Trade Display by Orchardbank Nursery, Perth. As usual, the children of Caledonian School decorated the hall with floral posters.

Thanks are due to Miss Rhoda Fothergill, Show Secretary, and to all who helped in running the Show; particularly to the ladies who prepared and served the delightful teas; to those who undertook the laborious task of transporting the heavy table tops and trestles to and from the hall; to Mr Bob Brien for the financial help which accrued from his sale of plants; to the Judges and to the members who contributed the ancillary displays.

JOHN B. DUFF

GLASGOW—10th May 1980

BEFORE writing this report it was interesting to read that of last year, which commenced "After the atrocious weather". This year had been so good, and still is, that one wondered how many entries there would be of the April to May flowering plants.

Despite the glorious weather and the absence of several regular exhibitors, enjoying the Cornish Gardens Trip, entries in Section I were up on 1979. The same could not be said of Section II, where entries were well down on previous years.

The Dr William Buchanan Rose Bowl for 6 pans was again won by Dr Peter Semple, who also took the Henry Archibald Rose Bowl for 3 pans. His plants included fine pans of *Gentiana verna angulosa*, *Primula forrestii* and *Cypripedium calceolus*.

The William C. Buchanan Challenge Cup—3 pans rare, new or difficult—was awarded to Mrs Joan Stead for *Gnaphalium nitidulum*, *Jankaea heldreichii* and *Lamium armenum*, a recent M & W introduction and a most intriguing and beautiful plant.

The Edward Darling Salver for 3 pans dwarf rhododendrons, again one might almost say as usual, went to Mr Malcolm Adair for three splendid specimens of *Rh.* 'Chikor', *calostrotum* 'Gigha form', and 'Curlew'. Mr Adair, jointly with Mrs E. Ivey, also received the Crawford Cup for the most firsts in Section I. This was a close run thing for a number of competitors, requiring much cross-checking of the results.

Certificates of Merit were awarded to a magnificent pan of *Calceolaria darwinii* from Mr and Mrs H. Taylor, to the Taylors' pink form of *Ranunculus parnassifolius*, and of special interest to a display in Class 91 of 10 pans of European Ranunculaceae, mostly in flower and again from the Taylors. This non-competitive and extremely informative exhibit is the kind of which one would wish to see more.

The Forrest Medal was awarded to Mr Malcolm Adair for a large, beautifully flowered plant of *Cassiope selaginoides.*

The James A. Wilson Trophy and the Bronze Medal for the most points in Section II was won by Mr Angus Small, closely followed by Dr M. McCallum.

Dr McCallum was also successful in taking the Sir John Stirling Maxwell Trophy for the best individual truss or spray in the Rhododendron Section. The entries in this section were down, though for once not due to the weather but to transport problems, circumstances which also led to the absence of the display from Brodick Castle. The other trophies in this section, namely the Urie Trophy and the Rhododendron Challenge Trophy, were both won by Mr and Mrs Neil Rutherford.

Of the many plants of interest shown, the following took the personal eye: *Calceolaria* 'Walter Shrimpton' from Mr Easton; Saxifrages *greisbachii* and *stribryni* growing on lumps of tufa from Mrs Joan Stead; *Primula calderiana* from Mr and Mrs Bremner; *Primula reidii* var. *williamsii* from Mrs Cochrane; and the white form from Mr R. Barr; *Cyclamen creticum, Corydalis cashmeriana,* and in Class 91 *Oxalis* 'Ione Hecker', a small plant with enormous flowers from Dr Stead; the miniature alpine gardens in the well supported Classes 60 and 61; and the paintings of the Misses Shona and Karen Taylor.

The Trade was well represented by Mr J. Ponton of Legerwood, Hartside Nursery of Cumbria, and Dr J. Taggart of Cove.

Thanks are due to the exhibitors without whom there would have been no Show, to the judges for their application in allocating the prize tickets, and to the innumerable members who laboured unceasingly

from the setting up of the Show to the final clearing of the hall at the end of the Show.

CHARLES M. SIMPSON

ABERDEEN—17th May 1980

RARELY can a Show have been held in Aberdeen after such a mild winter and near tropical sunshine for a fortnight beforehand. This unfortunately had the effect of advancing the flowering of many plants which would normally have been in full bloom in May, with the concomitant result that the show benches were less well filled than the previous year and the general quality was reduced. This was particularly noticeable in Section II where members obviously had difficulty in bringing forward plants in good condition. Many exhibitors made the point that they were not prepared, in the near drought conditions of almost no rain for six weeks, to risk precious plants by lifting from the garden.

As an example of the difficult conditions, Class 1, the Six Pan class, which usually attracts the really experienced growers, had only one entry. Nevertheless, Mr Crosland's entry was of prize-winning quality irrespective of the conditions, consisting of *Androsace muscoidea, Scilla reverchonii, Lewisia tweedyi, Saxifraga diapensioides* 'Lutea' (a fine-leaved grey cushion with pale lemon flowers) and *Pleione pogonioides* and *P. limprichtii.* The second of these two pleiones was an eye-catching pan and was rightly awarded the Forrest Medal for the best plant in the Show.

There was more competition in Class 2, the three pan class, where Mr McKelvie took first place with a vigorous pan of *Pinguicula grandiflora,* the neat *Romanzoffia unalaschensis* with its white flowers nestling in the cordate leaves, and *Aquilegia akitensis.* All three plants had been lifted direct from the peat garden for the Show. Mr McKelvie with this prize and several others regained the Walker of Portlethen Cup for the most points in Section I.

Class 3 for Scottish natives is difficult to fill in May but an excellent deep red form of *Antennaria dioica* from Braemar won the first prize followed by a neat little *Saxifraga stellaris.* In Class 4 for two plants raised from seed, Mr Esslemont took first place with *Fritillaria roderickii,* sown in 1968. This was an elegant plant six inches tall with bright glossy-green leaves and deep chocolate-maroon flowers tipped with white. His second plant was a splendid pan of *Primula aureata,* in which Mr Esslemont has become an expert, and is ripening and

germinating seed in great profusion. Dr Hardy exhibited an interesting *Primula* BMW 102 originally labelled *P. rotundifolia* but now provisionally named as *P. barnardoana*. This neat little plant had bright yellow petals with a deeper yellow eye and was obviously an attractive alpine house plant. Another unusual primula in this class was *P. grandis*, a species which belies its name by producing the squinniest flowers of any known primula.

Class 6 for rare or difficult plants usually produces something interesting and this time Mr Crosland won with *Gentiana verna oschtenica*, an unusual form with large butter-yellow flowers. Mr Holmes was second with a *Saussurea* BMW 77, a grey-leaved plant completely smothered in a pure white woolly felt. Mr Esslemont exhibited an excellent compact plant of the difficult grey-leaved *Raoulia* x *loganii*.

In the class for grey foliage, Mrs Craig won with a *Helichrysum* with elegant silver-grey foliage, and Mr Harley Milne showed a superb plant of *Origanum dictamnus*. Cushion plants are a real test of exhibitors' skill and Mr Esslemont demonstrated it to the full to win with an immaculate green dome of *Dionysia curviflora*, followed by Dr Hardy with a neat well-grown specimen of *Raoulia eximia*. A difficult plant to flower well is *Anchusa caespitosa*, but Mrs Sleigh exhibited an excellently grown specimen full of bloom to win the class for Boraginaceae.

Cotula atrata is not a common plant at Shows, but Mr Holmes won Class 12 with a remarkable pan, the elegant foliage being surmounted by dark Catherine-wheel flowers. The earliness of the season was shown by the paucity of ericaceous plants. Cassiopes and Rhododendrons, often the mainstay of Aberdeen Shows, were either lacking or in poor quality. Mrs Craig won the two pan conifer class with well-grown specimens of *Abies balsamea hudsonia* and *Picea albertiana* 'Conica', while Mrs Simpson won the one pan conifer class with a wide flat dome of *Chamaecyparis pisifera* 'Nana'. A plant which should be more widely grown is *Corydalis wilsonii*, even although it is not long-lived. Mr McKelvie showed a good form of it with bright yellow flowers surmounting the blue foliage to win Class 22. Bulb classes were naturally sparse but Mr Esslemont won Class 23 with a neat pan of the dainty *Leucojum nicaeense* with white nodding star-like bells. Mrs Blair was second with a well-grown pot of *Narcissus triandrus*. Although most tulips were past, Mrs Craig won Class 24 with a really remarkable pot of *Tulipa bakeri*, which is endemic to Crete. The plants exhibited had pale purple petals with a deep yellow centre. Successful cultivation demands a good baking in summer.

In the class for orchids Mr Crosland won with an elegant pot of the unusual but perhaps not fully hardy *Cypripedium formosanum.* Mrs Williamson won Class 28 with a superb pan of an elegant pale lilac form of *Phlox caespitosa,* the neatest and dwarfest of all phloxes. *Douglasia vitaliana* is a difficult plant to flower well, but Mr Aitken won Class 29 with a splendid plant covered in clear yellow blossoms. Mr Holmes exhibited a large vigorous plant of *Cortusa matthioli* which does so well in the woodland conditions of Deeside.

Primulas were in good condition at the Show and Mrs Williamson won Class 30 with two *Primulas reidii* and *sieboldii* hybrids. In the single primula class Dr Hardy showed a magnificent pan of *Primula aureata* which was a perfect dome covered by the elegant yellow flowers. The standard of the primulas shown is indicated by the failure of an extremely well-grown and flowered plant of *P. forrestii* to win an award. There was an excellent collection of European and American primulas in Class 33, won by Mr. McKelvie with *P. rusbyi,* a species which produces its cherry-red flowers throughout the summer. Mr Crosland was second with its close relative, *P. ellisiae,* and Mr Holmes third with *P. deorum.*

An excellent large-flowered *Androsace cylindrica* won Class 34 for Dr Hardy, while Mr Holmes won the class for Ranunculaceae with the unusual *Semiaquilegia adoxioides,* a 12 inch plant with delicate drooping lavender flowers. The family Scrophulariaceae is often poorly represented, but Mr Sinclair presented an elegant plant of *Penstemon* 'Pink Dragon' to win from Dr Hardy with *Calceolaria* 'Walter Shrimpton' and Mrs Craig with *Hebe armstrongii.* Dr Hardy won a closely contested class for Saxifrages, showing *S. pubescens iratiana* with delicate rosettes and white jewels on two-inch stems.

Lewisias were well represented and in excellent condition. In the two pan class the first three entries between them showed five separate species. Mr Roderick Milne won with *L. rediviva* and *L. cotyledon* (pink form), while Mr McKelvie showed *L. nevadensis* and *L. cotyledon* (yellow form), and Mr Aitken showed *L. longipetala* and *L. oppositifolia.* Mr McKelvie won the single pan class with a well-flowered seedling of *L. rediviva* with large flowers two inches across.

Mr Roderick Milne was first in both of the succulent classes, showing splendid plants of *Sedum middendorfianum* and *S. spathulifolium* 'Capa Blanca' and of *Jovibarba allionii* and *Sempervivum tectorum.* In Class 45 Mr Harley Milne won with a well-flowered *Asperula nitida puberula,* a neat green cushion of pink stars. Mr Esslemont was second with *Oxalis laciniata,* the form recently collected by Mrs Tweedy.

In Section II, while the standard was not as high as in previous years, the prizewinners showed some interesting plants. Mr Bull had a splendid *Primula* 'Dusky Yellow' to win Class 46 and Mrs McKelvie won the Scottish native class with a deep pink *Silene acaulis*. In the two pan Class 49, Mrs Hardy won the special prize with a superb clear pink form of *Lewisia cotyledon* and a neat *Cassiope* in excellent condition. Mrs Tocher won the silver foliage class with a striking *Helichrysum*, while Mrs Buyers won the cushion class with a neat dark green cushion of *Selaginella* and then went on to win the Rhododendron class with 'Chikor'.

Mrs Parrish won the dwarf shrub class with *Cytisus* x *beanii* and Dr Smith the conifer class with *Picea mariana* 'Nana'. Professor Robertson won Class 55 with an interesting inter-generic hybrid between *Rhodohypoxis baurii* x *Hypoxis parvula* from Griqualand East in South Africa. It bore a close resemblance to *Rhodohypoxis*. Mrs Hardy won the orchid class with *Pleione* 'Oriental Splendour'. In the Ranunculaceae class Mrs Kent exhibited a neat floriferous plant of *Aquilegia buergeriana* to win the Aberdeen Quaich for the best plant in Section II. Perhaps due to the early season quite a few Aquilegias were shown, all in good condition. Mr Bull won the Lewisia class with a well-flowered pan of 'Pinkie'.

Mrs Buyers won the Bronze Medal for the most points in Section II for her excellent collection of plants. Miss Wendy Martin made a clean sweep of Section V for Junior members and is obviously a competitor to look out for in future. She won Class 82 with a superb pan of the none too easy dwarf shrub *Jasminum parkeri*. Mr Aitken was awarded a Certificate of Merit for a display of Lewisias and hybrids, as was Mr Lawson of 'Jack Drake' for a display of Rock Garden Plants. Mrs McMurtrie also received a Certificate of Merit for a display of water colours of flowers. Gold Medals were awarded to the Cruickshank Botanic Garden for a display of alpine plants and to Aberdeen Leisure and Recreation Department for a similar display.

Thanks are due to the many people who assisted with the Show, in particular the Show Secretaries, Mr Crosland and Mrs Sylvia Simpson. The stewards are to be thanked and also Mrs Buyers for the excellent and profitable Baking Stall, Mrs McKelvie for the Teas and Dr Hardy for the Seed Stall, plus their many helpers. Thanks are also extended to the ladies who provided lunch for the judges and Show officials. Finally, our thanks go to the judges—Mrs S. Maule, Mrs J. Stead and Dr D. M. Stead.

A. D. McKelvie

EDINBURGH and MIDLOTHIAN—24th May 1980

THE SHOW was held in St. Ninian's Church of Scotland Hall in Corstorphine, Edinburgh, on 24th May 1980. This was a new venue and a new date for the Edinburgh Show and it certainly confounded the critics. Entries staged were up on previous years—260—the number of public admissions was increased and a whole range of plants not hitherto seen in Edinburgh for many years were on display. All credit to Jimmy Aitken, Show Secretary, and Mrs Betty Craig, Assistant Show Secretary, and members of the Show Committee.

The George Forrest Medal for the most meritorious plant in the Show was awarded to R. A. Hodgson from Stokesley for a large well-flowered pan of *Androsace strigillosa.* The long 20 cm flower stalks carried the large loose umbels, pinkish white with a deep purplish red reverse. This plant, a native of the Central Himalayas, was about 7 or 8 years old and had been raised from seed collected by the late Len Beer—a fine tribute to that wonderful man.

The judges must have had a very difficult task and finally awarded Certificates of Merit to Mrs S. Maule for *Jankaea heldreichii* and to Mr Eric Watson for *Phlox nana* var. *ensifolia*—both beautifully grown, well-flowered and worthy medal winners at a less competitive Show.

The standard of plants on show was very high but honours went to Mr and Mrs H. Taylor whose entries won them the Henry Archibald Rose Bowl for three pans rock plants of different genera. Their winning entries included *Pinguicula grandiflora, Lewisia* 'Pinkie' (*pygmaea* x *cotyledon*), a beautiful pan of *Phlox divaricata* 'Chatahoochee'. Also in this class were *Penstemon pulchellum* (Mr D. Herkes), *Boykinia jamesii* (Mr J. Christie), *Claytonia nivalis* (Drs J. and C. Gosden) and *Omphalogramma minus* (Mr J. D. Crosland).

The Elsie Harvey Memorial Trophy for three pans rock plants, new, rare or difficult also went to Mr and Mrs H. Taylor for *Phlox triovulata, Calceolaria darwinii* and *Asperula nitida puberula*—all grown in their Alpine House.

Two pans of *Corydalis cashmeriana,* (that delightful plant with its electric blue plumes of flowers and the ferny grace of its foliage is as exasperating as it is beautiful), were on view. Both were completely different in character, an almost prostrate form shown by Mr Eric Watson and a more upright form shown by Mr Harold Esslemont.

The A. O. Curle Memorial Trophy for 3 pans rock plants grown from seed also found its way to Invergowrie, the home of Mr and Mrs

H. Taylor. *Pinguicula leptoceras, Oxytropis uralensis* and *Dianthus pavonius* being their winning trio.

Two pans of primula exhibited by Mr and Mrs H. Taylor brought them the K. C. Corsar Challenge Trophy—*Primula luteola* and *P. reidii* var. *williamsii* with wonderful fragrant pale blue bells—the latter a beautiful plant winning the R. E. Cooper Bhutan Drinking Cup for the best primula species in the Show.

Sempervivums were numerous in the 3 pan class which attracted seven entries. *S. arachnoideum, S. hirtum* and *S. montanum* bringing 1st prize to Mr B. Russ (Ormskirk). *Sempervivum arachnoideum* was very much in evidence in different forms.

At this time of year Lewisias were very popular and colourful. *L. leana, L. rediviva,* and *L. cotyledon* 'Carroll Watson', that lovely yellow hybrid, brought success to Dr D. Hardy (Aberdeen).

Ferns are gaining in popularity and several fine specimens were shown. *Polystichum congestum grandiceps, Adiantum pedatum aleuticum* (Mr B. Russ) and *Ceterach officinale, Woodsia ilvensis,* that lovely N. American tufted fern, exhibited by our President, Mrs Joan Stead, were winners in the two pan class. *Asplenium trichomanes incisum molle* (Mr B. Russ), *Blechnum penna marina* (Mr J. Christie), and *Adiantum pedatum* (Dr D. Stead) were winners in the one pan class which attracted seven entries.

In the class for native Scottish plants, *Dactylorhiza mascula* x *incarnata,* an orchid that has been in her garden for many years and self sown, was shown by Mrs J. Stead, and a fine specimen of *Dryas octopetala*—our club motif, was runner-up (Mr and Mrs H. Taylor).

A well-flowered pan of *Trientalis borealis* was also shown in this class—a native of N. America, I thought—was it wrongly named or was it *T. europaea*?

Jankaea heldreichii, that gemfrom Mt. Olympus, had eight flower stems with 2 to 3 pale violet, campanulate flowers to each stem, and brought honours to Mrs Maule in the new, rare or difficult class. *Potentilla coriandrifolia,* a very rare plant collected in the Barun Valley, E. Nepal (G.F.S. 1976) shown by Mr E. Watson was a close runner-up. Mr Watson states that this is the sole survivor (as far as is known) of this particular species in cultivation.

A very tight, dark green perfectly formed cushion of *Sagina boydii,* almost filling a 13 cm pot, was another prize winner for Mr and Mrs H. Taylor, runners-up being Mr R. A. Hodgson with a fine pan of *Draba mollissima* and a very fine form of *Arenaria tetraquetra* 'Granatensis' shown by Mr J. Christie.

Lamium armenum M & W collected 1977 (Mrs S. Maule), *Calceolaria darwinii* (Mr and Mrs H. Taylor) and the rarely seen New Zealand sweet smelling Penwiper plant from the Southern Alps—*Notothlaspi rosulatum* (Mr J. Crosland) were awarded honours in the above order in the class for one pan plants grown from seed.

Picea pungens 'Globosa' shown by both Mr and Mrs Bezzant and Mrs B. Ivey were beautiful plants, but honours went to a very large old specimen of *Chamaecyparis obtusa* 'Nana' shown by Mr R. Brown (Hexham).

Being a later Show and an early season very few bulbs were on view, but Mrs B. Ivey was worthy winner of the Henry Tod Carnethy Quaich awarded for the best bulb, corm or tuber with the beautiful but difficult *Calochortus uniflorus.*

Lachenalia contaminata—a most unusual Australian plant with a mottled stem, was exhibited by Dr Stead and caused considerable interest.

Orchids were very popular. *Chiloglottis gunnii* (Mrs J. Stead), *Dactylorhiza majalis* (Mr D. Livingstone) and *Pleione limprichtii* (Dr and Mrs Truman) were the winning exhibits.

Ranunculus parnassifolius was well grown and in full flower and two excellent pans were shown by Mr Hodgson and Mrs S. Maule. Campanulas too were in full flower, honours going to *C. aucheri* (Drs J. and C. Gosden), *C. saxifraga* (Mr M. Adair) and *C. alpestris* (*allionii*) (Mr and Mrs Taylor).

Very few Rhododendrons were on show but those present were of good quality. *Rh. yakusimanum* was popular and gained red stickers for Drs J. and C. Gosden in the one pan Rhododendron and one pan dwarf species. The larger of their two exhibits won the Midlothian Vase for the best Rhododendron on show. The standard was high and Dr and Mrs Simson Hall had to be content with second place with their well-flowered *Rh. kiusianum. Rh. nakaharai,* raised from seed by them, did not even attract a sticker.

The class for dwarf shrubs was well supported and judging must have been difficult due to the size and variety of the exhibits, but the winners were *Daphne cneorum eximia* (Mr A. McKelvie), *Penstemon procerus brachyanthus* (Mrs B. Ivey) and *Ceanothus thyrsiflorus repens* (Mr and Mrs Bezzant); all were well flowered and in peak condition.

A truly magnificent specimen of *Calceolaria darwinii*—a spreading mat with well over 100 large flowers filling a 25 cm pot, was winner for Mr S. B. Taylor (Warwick) in a class of 13 entries in the class for any

other plant. *Neopaxia australasica, Aciphylla congesta* and *Asperula nitida puberula* were next in line.

It is always encouraging to see new names exhibiting in Section II. The class for a rock plant native to Scotland was won by Mrs D. Durham (Edinburgh) with *Antennaria dioica,* closely followed by Mrs P. Murray with *Minuartia verna.* Mrs P. Murray also gained a first with *Lewisia cotyledon* grown from seed.

Mrs C. Heatlie showed a well-grown cushion of *Draba mollissima* and she also gained the Midlothian Bowl for the best plant in Section II with a well-flowered *Lewisia cotyledon.*

Other plants in this section that caught the judges' eye were *Lewisia columbiana* Mrs Golder (Dalry), *Arenaria purpurascens* (Mrs E. Armistead) and *Linaria globosa rosea* (Mrs Chisholm).

The Reid Bowl was awarded to Mr and Mrs H. Taylor as the competitors obtaining the largest pointage in Section I. They had a wonderful collection of plants on display and we look forward to the International Conference Show Alpines '81 to see more of their plants.

The Boonslie Cup for a miniature garden in a container with the longest side or diameter not exceeding 18 ins. planted with rock plants to provide flower and for foliage interest throughout all seasons went to Mr R. B. Brown (Hexham). His garden contained approximately 50 plants and one wonders at the variety that can be obtained in such a small area and give so much pleasure throughout the year. Mr B. Russ ousted the ladies with his arrangement of cut flowers and foliage of rock plants, taking the Kilbryde Cup.

In the non-competitive section Certificates of Merit were awarded to Mrs N. Armstead of Devon for an exhibit of water colour paintings and to Mrs Hunter of Edinburgh for water colour paintings of *Primula glutinosa* and *Saxifraga oppositifolia* growing at 8000 ft. in the Ortler Mountains.

Mr and Mrs H. Taylor revealed one of the secrets of their successes by a demonstration of a cheap method of propagating cuttings using a clear plastic egg box.

No Edinburgh Show would be complete without our friends from the trade and we welcomed Mrs Ponton from Ponton's Nursery at Legerwood; Mr and Mrs Huntly from Hartside Nursery at Alston; Mr J. Jermyn from Edrom Nursery, near Coldingham, and newcomers to the Edinburgh Show Mr and Mrs Tait of Marchburn Nursery, Leewood, by Lanark—all reported brisk business and they gave good service to members and public with the plants they sold.

The Edinburgh Group also held their own plant stall.

With a change of venue to more extensive premises it was possible to serve afternoon teas and an excellent tea was served by Mrs Hart and her band of helpers. Our thanks are due to all who donated plants and home baking and helped to make the afternoon such a success.

J. HARLEY A. MILNE

The Joint Rock Garden Plant Committee

EDINBURGH—22nd September 1979

AWARDS FOR EXHIBITS

CERTIFICATE OF CULTURAL COMMENDATION

To Mrs Jill Sleigh, 18 Garscube Road, Edinburgh, for a well-grown plant of *Campanula cashmiriana.*

To J. D. Crosland, Esq., Treetops, Torphins, Aberdeenshire, for a well grown plant of *Cyclamen mirabile.*

ABERDEEN—17th May 1980

AWARDS FOR EXHIBITS

CERTIFICATE OF CULTURAL COMMENDATION

To J. D. Crosland, Esq., Treetops, Torphins, Aberdeenshire, for a well grown plant of *Pleione limprichtii.*

Letters to the Editor

The Editor.

Dear Sir,

In the September 1979 *Journal* A. D. McKelvie says that many seeds need a period of cold in order to break dormancy. He suggests sowing on to moist compost in pots followed by wrapping pots in polythene bags and putting them in a 'fridge. He adds that seeds can be placed in moist sand in small containers but is then difficult to sow. I now offer a method which I have used. First, obtain a supply of the plastic boxes in which typewriter ribbons are supplied. I fill them with moist compost, sow the seed, then cover with the lid. The boxes should now be left in a mild atmosphere for about 24 hours to allow

the seed to absorb moisture before placing in the 'fridge. These boxes are 2½ ins. diameter and 1 in. high, so when stacked take up much less space than pots in the 'fridge. At the end of the period of chilling (not freezing) the boxes are turned upside down so that the contents are now in the lid which is separated from the box. A 2½ in. pot partially filled with compost is tilted towards the open lid and the contents of the latter transferred to the pot.

In some cases where seeds have a very hard waterproof case, it might be helpful to rub the seeds lightly with the tip of a finger over a sheet of sandpaper before soaking them.

Yours faithfully,
ANGUS C. SMALL, Giffnock

27/5/80

Dear Sir,

The arrival of a nurseryman's catalogue announcing his regular plant collecting trips in Europe, and asking for subscribers, has made me think again of the ethics of plant collecting. We have all collected wild flowers, especially on foreign holidays, and indeed the expedition may have been arranged solely for that purpose. Conscience is soothed by taking sparingly, and then only what may survive in the garden or alpine house at home. Anyhow, we guiltily say, the host country has no care for its flora and sprays weedkiller round its archaeological sites so that the beautiful flowers will not detract attention from the ancient stones.

Fortunately this attitude is changing. On holiday we try to behave as responsibly as in our own countryside, and an increasing number of countries protect their flora and forbid collection. Mount Olympus in Greece and the Samaria Gorge in Crete are so protected, and we piously say we would never have done such a thing anyway.

The ethics of commercial plant collecting are different, or are they? If the traveller journeys to the vast remote wastes of the Himalayas an informed collection is surely justified, and there are problems the botanist still has to work out and needs his raw material.

What about the more accessible areas of Europe where there is no official ban on collecting? The nurseryman asks you to subscribe to his collecting trip, and as you turn the pages of his catalogue you realise where his great variety of orchids have come from. What has happened to that heavenly spot where we picnicked with our wine and bread and cheese surrounded by a carpet of orchids in great variety,

cyclamen and *Lloydia graeca* everywhere, and the delight of finding the biarums and arisarums? Out comes the shovel and pickaxe to fill the Land Rover and next year's catalogue and repay the subscribers. Future picnickers will see only the bare ravaged rocks and miss a glimpse of paradise.

Reluctantly we deny ourselves the pleasure of buying anything from this collection and have learned a lesson. Always be very wary of the provenance of these rarities, check that they really are the result of the nurseryman's skilful propagation, and not from some once glorious Greek hillside, now barren and desecrated.

Yours faithfully,
LEONARD CAMA

Book Reviews

Mountain Flower Holidays in Europe, by Dr. Lionel Bacon and other contributors. Woking: The Alpine Garden Society, 1979. Pp. 293. £8.00 (£8.85 by post from the Society). ISBN 0 900048 31 X.

Dr. Bacon and fellow members of the Alpine Garden Society set out in this book to help plant seekers who wish to travel in Europe and see their favourite alpine flowers in their natural habitat. They have been most successful in this aim and the book is a mine of information which many aspirant plant hunters will refer to again and again.

After two introductory chapters which give a general survey of the common flora to be found in the various environments in the mountains, advice on travelling to them and some observations on collecting, the book then deals with each country in turn, starting with Switzerland as the hub of the mountain systems of Europe. Each chapter describes the principal mountain areas to be found in one European country and is provided with well drawn maps so that it is easy to link up the area being discussed with the larger scale map one would use on excursions. The treatment is uniform for most chapters, in that first of all the country is described in general with information on how to get there, followed by descriptions of each region in turn, with usually a more detailed account of one or two centres in each together with recommended walks. In these descriptions the special features of the flora are well covered so that walks could be planned with the object of seeing particular plants. Chapters are provided on Switzerland, Italy, France, the Pyrenees, Spain, Portugal, Austria, Jugoslavia, Greece, Bulgaria, Romania, the High Tatra, and Scandinavia. Some countries clearly get fuller treatment than others but all are at least adequately covered, most more than adequately. The authors' obvious enthusiasm for Spain and the Pyrenees comes over very clearly in those chapters, but the same feeling is not conveyed to the reader in the chapter on France. It would be a pity if this put potential visitors off going to France; our first mountain flower holiday was to Haute Savoie which although coming over in the book as a not particularly recommended area, was thoroughly enjoyed and we would not have missed it for anything. Completing each chapter is a list of references to that country in the bulletin of the Alpine Garden Society (even if you are not a member, back numbers may often be purchased from our Hon. Publications Manager, Dr. Stead) and other suggestions for further reading. So in spite of what has been implied above about authors having their favourite countries, ample clues are given in the book for users to track down information on any corner of Europe.

An index of plant names is included which, apart from providing a useful crib on the latest state of plant nomenclature *pace Flora Europaea*, enables holidays

to be planned around particular species. The energetic can follow *Eritrichium nanum* from Mont Cenis in the Graian Alps, via Saas-Fee in the Valais, the Pordoi in the Dolomites, Triglav in the Julian Alps to Piatra Craiului in Romania, to quote one example taken at random. Complementing the text are a set of colour plates and a set of black and white plates. Each set is approximately equally divided between plants with scenery and true close-ups, but all are good and give a useful impression of habitat and the sort of country which is encountered. Each picture is cross indexed with the text, making it a simple matter to find out more about it. All the pictures are contributed by AGS members, and as all serious photographers keep a note of the date a picture is taken, it would be a good idea to wring this information out of contributors so that it can be incorporated in the event of a second edition. It is always helpful to know when a plant is at its best in the wild, bearing in mind that this time can vary from year to year according to the onset of spring. Throughout the text there are line drawings by Dr. Bacon of the plants to be seen, each with a very useful scale line to enable the plant size to be estimated, and he has also drawn delightful vignettes for chapter headings. Mr. Gilbert Barrett has provided his characteristically charming sketches of scenes and plants for his own contributions to the text.

The book is concluded by a short chapter on photographing flowers complete with further reading references, an appendix listing tourist offices in London, and a very useful appendix on maps listed by country. After such an enjoyable feast, it must seem pernickety to complain of the use of the term "skilift" when "chair-lift" is meant. However, this can be really misleading to the tyro plant seeker if he is unaware of the difference. Maps and Guides will show many skilifts, sciovia, schleppliften, teleski or whatever the local term may be, but there is no possibility of these working under summer conditions, consequently an area which was fondly thought to be well provided may in fact have no lifts at all for the summer visitor. The authors do, however, correctly stress that even where chairlifts and cable cars are known to be present it is still necessary to confirm that these will be working during one's stay, for to adapt a well-known phrase from our own Ordnance Survey maps "The representation on this map of a chairlift, cable car or funicular is no evidence of the existence of a functioning service". This in any case is a minor quibble when one considers the enjoyment and usefulness of the whole book. Dr. Bacon and his co-authors (among whom are two active and well-known 'home members' of the SRGC) are to be congratulated on a *tour de force*. This volume fills a long felt need and will be much thumbed on January and February evenings when holidays are planned. The book is well produced to a convenient size with a clear type face. At first sight it seems a little expensive, but then what is cheap that is worth having these days? And this is certainly worth having. One's only regret when purchasing it is to see revealed how much travelling there is still to be done but with never enough time to accomplish it.

R.J.B.

Ingwersen's Manual of Alpine Plants. W. Ingwersen. W. Ingwersen & Dunns-print. 445 pp. £8.00.

Major books on alpine plants appear infrequently and this Manual, written by one of our best known nurserymen to commemorate the Golden Jubilee in 1978 of the nursery founded by his father, has been awaited with considerable interest.

It is the most extensive book on alpines since Sampson Clay's 'Present Day Rock Garden' and with around 4000 species described or listed it is about twice as large in that respect as Anna Griffith's 'Guide to Alpines' and Mansfield's 'Alpines in Colour and Cultivation'. The author intends the Manual to be used in conjunction with his firm's catalogues, in which descriptions will accordingly be reduced. It will clearly do more than achieve this modest but advantageous objective and will doubtless become a handy reference volume on many shelves.

It is well bound and clearly laid out. After each generic name the family is given, then the meaning of the generic name. A brief general description follows, with main cultural requirements. Each species is then briefly described and there are entries for each synonym, cross indexed to the preferred name, a very useful feature.

There are, however, some shortcomings. To reduce the cost there are no illustrations. Clearly it would have been out of the question to illustrate everything, but a selection of pictures of the rarely seen species would have been very welcome and, one would have thought, not impossible at the price. Then, although his nursery sells bulbs, shrubs, conifers and heathers, Mr. Ingwersen has elected to exclude these quite major classes of plants. True, he slips in (with repeated apologies!) some of his favourite shrubs and bulbs, but these inclusions do little to atone for the omission of large numbers of species commonly used in alpine gardens.

The book did appear in the Jubilee year, but one feels that if meeting this deadline had not been necessary there might have been time for a more critical proof reading. This would assuredly have reduced errors, doubtful comments and omissions, though some of the latter are dealt with in six pages of addenda. To quote a few which were noted by your reviewer: *Selago* (of the type dealt with) belongs to Scrophulariaceae, not Selaginellaceae; in this connection a reference to *Selago* in a previous paragraph is confusing. *Oxalis pes-caprae* does not come from Bermuda, but from South Africa, as does *O. obtusa*. *Stypandra caespitosa* is from Tasmania, not Greece. Most gardeners would regard *Bolax gummifera* and *B. glebaria* as distinct plants, whereas Mr. Ingwersen implies identity. The omission of *Sisyrinchium brachypus* could perhaps be regarded as a kindness to gardeners, but one would guess that it is still in the Gravetye catalogue!

In fairness it must be said that in his Introduction the author anticipated flaws of this kind and they will no doubt be dealt with in any future edition which may be produced. Before that time arrives the present edition will be well consulted though beginners could maybe find more practical guidance in earlier illustrated texts.

D.M.S.

Alpines for Your Garden by Alan Bloom. Floraprint 1980. 128 pp. 230 illustrations in colour and a few diagrams. £6.50*

This is a well bound, fairly large format ($7\frac{1}{2} \times 11\frac{1}{4}$ ins.) book in the Floraprint "For your garden" series, which has already covered Conifers and Perennials. Alan Bloom may be better known for his work with Perennials, but he is no stranger to Alpines, having written "Alpine Plants of Distinction" some 12 years ago.

After a 17 page introduction, concise and to the point, on the various ways in which to grow alpines, there are almost 100 pages of plant pictures and descriptions, followed by a few pages on shrubs and some lists of plants for special purposes.

Illustrations are mainly by the author, but include a few by Valerie Finnis, and not only is the quality good, as one would expect, but the general level of reproduction by the printers is first class. Two errors in captions were noted: on p. 95 the R.H. picture should read *Scabiosa*, not *Saxifraga*, and on p. 99, top R.H., *arachnoideum* is surely wrong.

It must be remembered that Mr Bloom gardens in one of the drier sunnier parts of the country and his choice of plants inevitably reflects this. Those less well favoured climatically may not achieve all the results shown in his illustrations, but on the other hand will be able to grow many more of the *Primulas*, *Rhododendrons* and other moist atmosphere plants which do not receive much attention. In wet areas they may indeed grow *Euryops acraeus* far better than in the dry situation the author recommends.

A pleasing minor feature of the book is the attention given to plant associations, good illustrations being given of effective and undesirable examples.

All in all, this must be one of the best illustrated introductory texts which has appeared for some time and one can imagine many readers both being tempted to indulge in alpine gardening and being sensibly guided on their way. It is not cheap for its size but the quality, number and size of the illustrations take some of the sting out of the price.

D.M.S.

**Available from Publications Manager—see back cover.*

The American Rock Garden Society

Probably most members are aware of the existence in the U.S.A. of a Society comparable with our own. Some members may have wished to join this Society, but have been deterred by the apparent difficulty of transmitting their subscription. We understand that this difficulty is not insuperable. In practice it would probably be best to consult one's Bank, which could supply advice and the appropriate forms.

The annual subscription is 8 dollars, and the Secretary, who will send further particulars, is

Donald M. Peach,
Rt 1. Box 282,
Mena,
Arkansas 71953, U.S.A.

In addition to its *Quarterly Bulletin*, the American Society has a Seed Exchange scheme in operation.

HOLIDAYS FOR FLOWER LOVERS

A 1981 REVIEW

Some of the holidays outlined below combine an interest in sites and flowers while others are primarily for gardeners and botanists. All are suitably accompanied. Full details, with final dates, prices and names of tour leaders, will be available in October. Please do write or telephone and you will receive the information directly it is available.

JORDAN & SYRIA—17 March to 1 April
Although the itinerary of this tour is planned round archaeological sites and crusader castles, it should be emphasised that the wild flowers in spring can present an outstanding spectacle, and that plenty of time is allowed to enjoy and photograph them. Places visited include Amman, Jerash, Petra (where three nights are spent), Madaba, Karak, Damascus, Palmyra, Aleppo, Qala't Sema'n, the Krak des Chevaliers and Bosra.

GREECE—The Peloponnese—25 March to 9 April
An equal stress is laid on sites and flowers on this holiday, which covers the countryside of the Morea from Athens as far as Pylos in the south-west corner, and the mountains in between. *A tour of NORTHERN GREECE is also planned, highlighting Olympus and Parnassus, from 29 April to 13 May.*

RURAL TURKEY—15 to 31 May
This original holiday is of equal interest to those who enjoy visiting new places and sites and to flower and country-lovers. The first two days are spent in Istanbul at a hotel on the Bosphorus, then on to Lake Abant, Ankara, Bogaskoy and Akseray, from which we explore the Peristrema Valley. Here, in a long, narrow gorge, are to be seen painted rock-cut churches of about the same period of those at Goreme and where, in the opinion of many, the art is of an even higher quality. This wild, scenic country should provide a fine variety of botanical specimens and splendid photographs. The tour ends at Bursa, with its fine mosques and attractive market plus, as a bonus, rare plants on nearby Ulu Dag. *A tour of SOUTH-EAST TURKEY is planned for later in the year.*

ZIMBABWE—July/August
A three week holiday of special interest to mountain flower enthusiasts includes a week in the Eastern Highlands of Inyanga and Vumba, a stay in the Bumi Hills near Kariba, and two days at the truly remarkable Zimbabwe ruins at Fort Victoria. We also visit the Victoria Falls, Bulawayo with its fine museum and Salisbury. A recent tour of exploration has shown that hotels are good (some excellent) and the countryside superb.

HOLIDAYS FOR ALPINE GARDENERS—May and June/July
These cover the Spanish Pyrenees, the Swiss Alps and the Dolomites in Italy and, further afield, South Africa in September and treks in Nepal and Kashmir.

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BOOK BARGAINS

Please advise the Publications Manager of your gardening book interests. He may be able to help.

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Petiolarid Primulas: Dr J. Richards. 60p post paid. Get up to date with this section of the genus.

Buying books this way benefits the Club as well as you and prices are lower still for books collected at Shows, Discussion Weekends, etc.