



THE ROCK GARDEN

THE JOURNAL OF THE SCOTTISH ROCK GARDEN CLUB
Volume XXVII Part 2 Number 107 June 2001

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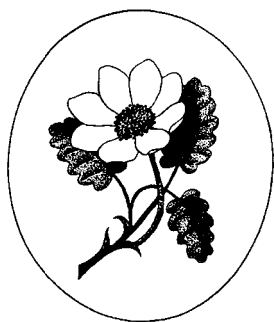
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Published by The Scottish Rock Garden Club
Printed by Oriel Printing Company Limited, Hull
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ISSN 0265-5500

Cover photograph: *Iris gatesii* photographed in 1934 - Marash (E K Balls)

THE ROCK GARDEN

is published twice yearly by The Scottish Rock Garden Club
on 31 January and 30 June

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The Editor welcomes articles, photographs and illustrations on any aspects of alpine and rock garden plants and their cultivation. Articles, if submitted in manuscript, should be double spaced but it is hoped that authors will submit material on disk, either on Microsoft Word or some compatible software.

The deadlines for contributions are 1 November for the January issue and 1 April for the June issue.

These dates also apply for material for the Yearbook & Show Schedules.

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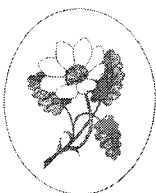
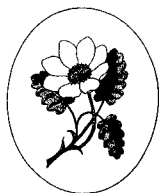
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EDITORIAL

DO YOU REMEMBER the Queen's Coronation? I was only small, about 5, but I do remember it because we all went round for the day to Uncle Charlie - not really an uncle you understand, just a friend of my parents - who had a television. And we sat there all day watching this tiny little grey picture - and so did everyone else - it was wonderful. There she was. It was real. And then years later, along came colour television - when we first got one it seemed amazing. Suddenly the television ceased to be a foggy window and became something through which you could see the world as it was. But the effect wears off - you get to take it for granted. So it is with camera and film technology.

Nowadays we take colour photography for granted just as we do colour television. And cameras . . . when you first use a 35mm single-lens reflex camera and see what will actually appear on the film it feels so natural compared with what went before. Modern cameras have made good plant photography something that is within reach of most of us. But technology does not stand still. Rolls of film gave way to 35mm film in cassettes and now to the new generation of APS film which is hidden in its cassette, nothing to pull out and loop over, the camera does all the winding and rewinding for you. And now digital cameras have started to come of age - and it's time we looked at what they can do for us as plant photographers.

I have to admit that Cyril was approached by me about writing an article, because in my turn I'd been asked about digital cameras by three members in just one week over Christmas and thought that it was obviously of real interest. The result is a review of the state of the art of digital photography as it affects us, in relation to plant photography, which is based on great experience and that I think is invaluable. Cyril and I have both been intrigued to find out just how well his digital pictures reproduce, it's one of the things that people want to know, so it's interesting to have a chance to judge for yourself. But if digital photography is perhaps on the verge of taking over from traditional colour photography just as video has wiped out amateur film-making, it is also true that we lose things as technology progresses.

The photographs in the article on E K Balls shows us some of the history of rock gardening - building a rock garden with a crane; what it was like in the mountains in the 1930s - but the photographs also point to the nature of the process - E K Balls with his bellows camera in Turkey taking quarter-plate pictures - and they remind us that the art of black-and-white photography is so

different to that of most photographers today. I know when I take a photograph that one of the key things is whether the colour is correct. We are used to concentrating on the colour. With black-and-white things are different - light and shade rather than colour. The photographs of *Narcissus watieri*, *Cyclamen persicum* and the cover photograph of *Iris gatesii*, highlight the form and the modelling, making them tangible. That they are reproduced from his own set of glass lantern slides just adds to the pleasure - they are a direct link with E K Balls. Margaret Jordan's article looking at his early plant-hunting trips is fascinating and brings someone whose name is well known into a proper focus.

One of the subjects that have come up this term in the evening class I teach - it's a class on the modern English novel - and one of the books we looked at from the turn of the 1950s/1960s was Iris Murdoch's *A Severed Head*. I was trying to explain about taboo and about Carl Jung's psychoanalytic approach to make sense of what was going on. Jung talked about the "collective unconscious", and alongside that the concept of "synchronicity" where people have the same ideas at the same time as a result of this shared unconscious - a bit like coincidence if you want to see it that way. Margaret Jordan, in writing about E K Balls mentions his finding *Primula auriculata* and *Daphne glomerata* when he was travelling in Persia and Turkey in 1932 and 1933. Quite independently Mike Almond has written about both of these which he found and photographed in the Republic of Georgia and which we decided to use to illustrate his article without any consciousness of Margaret's reference to them. It only makes the Caucasus seem that much more intriguing.

In the same way the article by Evelyn Stevens and Chris Brickell on *Meconopsis* which was first published in *The New Plantsman*, and which I'm delighted to publish here (*Meconopsis* is after all one of the genera that make Scottish gardens something to envy), is echoed by Mike Stone who writes about his white *Meconopsis grandis*. Obviously the "collective unconscious" in this case is operating through the *Meconopsis* Group whose work is now quite clearly providing concrete results. Big blue poppies are a highly recognisable part of Scottish gardens today. For many people one big blue poppy is much like another but in recent years it has become increasingly obvious that there are quite a range of such plants in cultivation and that there is a need to sort them out. After my trip round Scotland last October I brought back a number of these *Meconopsis* and, as I've been reading these pieces, I have been surveying the plants as they have emerged and found them illuminated further by the follow-up observations from Evelyn about distinguishing characteristics. Mike Stone, as ever, writes with style and conviction and it would be an injustice to him to point out his major themes - although I have already pointed out that he comments on *Meconopsis grandis* - one of the obvious joys of reading, and I'm sure writing, the Stone Column is the element of surprise.

I'm afraid to say that Maureen and Brian Wilson write about a fungal disease - I always worry personally that even reading such a thing is tempting

fate - I know that they are proposing a possible solution and that it relates to Dactylorhiza - but it still worries me.

If technology changes it is also striking how maps change; and they change because they reflect politics. In the last 50 years the euro-centred empires have disintegrated - French Equatorial Africa; Portugese Congo and the Spanish Sahara have gone the way of Nyasaland and the Gold Coast - the physical places exist but the names on the map have been washed away by the tide of history. New names take their place, or old names reappear. Who would have thought Bosnia and Montenegro would have resurfaced - they were just dead countries in a stamp album - or St Petersburg. Most of the map was pink: New Zealand and South Africa were pink (odd about pink: it was the colour of the British Empire; and of "pinkos" in McCarthy's America; and today it's the colour of gay economics with "the pink pound" - obvious linguistic drift somewhere) and I still have these memories of relatives, mostly with the surname Ross, my grandfather's brother and his family, cousins of my mother's cousins and so on, from both these countries coming over on visits. Somehow both these countries have been associated with that period for me, a sort of dusty old-fashioned feel, because of those visits in the 1950s when I was a boy. And they were a world away - weeks by boat - and I'm pretty sure the South African relatives came by boat. Now it is us in Britain perhaps who inhabit a country that is old-fashioned and dusty and it is us who want to visit them. Three pieces to sharpen your appetite for such a visit: Alastair McKelvie reviews a gardener's book on New Zealand native plants (based on his wide experience of the New Zealand flora as he points out), Brian Halliwell brings his extensive knowledge to bear on a book about the flora of the Cape, and Mike Brett writes about the plants of the Drakensburg in South Africa and Lesotho - and what did that used to be called?

I met Mike when he and his wife Hazel were my hosts, when I was talking to a group in Kent, and Mike showed me slides and talked about his trips to southern Africa. I was so taken with what he was saying, and the slides he was showing me, that I asked him if he'd write this piece for *The Rock Garden*, and I find that the same love of plants, and joy in the experience, he expressed then comes through in the writing and in some of the photographs which have certainly added the Drakensburg to my long list of places to visit one day. As Mike knows, I love the slide of *Cotyledon orbiculata*, and those of the Amphitheatre and Witsiehoek are as evocative as those quarter plate glass slides of E K Balls from the 1930s. It is the clarity of that evocation, of other places and other times, that sets a good photograph apart.

[Oh yes - it was Basutoland - and talking of collective unconscious Mike Stone has a slide of *Gladiolus flanaganii* (fig. 88) which Mike Brett writes about on p. 117.] Thanks to everyone - including our printers.



E K Balls with camera (W Balfour Gourlay)

EKB

- the life and plant-hunting of E K Balls

Margaret Jordan

writes about his early life and
travels in Persia, Turkey and Morocco

IN SEPTEMBER 1983, I was amazed and delighted to discover that E K Balls, then 91, lived about a mile from our house in Cottingham, East Yorkshire. The news came from Brian and Judy Burrow, to whom EK had written offering information on primulas he had collected. This was to contribute to the AGS Guide *Primulas of Europe and America* (1984) which acknowledges his help.

As soon as I met him and found that he clearly enjoyed talking about his pre-war collecting days, and the later time in California, I became keen to read about his expeditions. But, unlike Reginald Farrer and Frank Kingdon Ward for instance, he wrote nothing on his journeys which was published in book-form, although in letters to Kenneth Beckett in 1970-71, which I have seen, he considered producing his own account of the Turkey trip in 1934 and of the 1938 Mexico expedition, and worked on manuscripts for these which he sent to Kenneth for an opinion and for help in finding a publisher. This project was abandoned, sadly. However, in the thirties, he had published many interesting articles describing his travels in Iran (then Persia), Turkey, Morocco, Greece, Mexico and South America, mostly in the *Gardeners' Chronicle*. It would be very good if they could be reissued, with their illustrations, in book form.

In 1981 he public-spiritedly sent most of his papers to Kew, having first offered them in 1970; I have the correspondence discussing arrangements. There was a delay because his home was then in California and the papers were split between that house and his daughter's in East Yorkshire. Kew was grateful to receive diaries kept in the field, field notes and determinations, negatives, volumes of photographs, articles and lectures, letters and press cuttings, all arranged by country. The carriage cost £24. Kew promised to make the papers available freely to students and research workers. Only two files of American material went to Kew, since it seems his herbarium specimens from California stayed in that state, where he worked from 1949 to 1960 at the Rancho Santa Ana Botanic Garden as a horticulturalist. His one book, which sold well, was written here in 1962 – *The Early Uses of California Plants* – 500,000 copies had been sold by 1978, probably mostly to tourists. EK and his wife took US citizenship in the 1940s.

He gave me his remaining collection of black and white 3¼" square (quarter-plate) glass slides, which he had used when lecturing all over Britain and later the USA. About 185 of these slides survived his travels, out of about 650 (of which I have the lists) taken before 1940. There is also an album showing family pictures, and also rock gardens he built between 1926 and 1932; and I also have many watercolours, in an album, painted in Mexico and California by his wife Natalie. Their home, Carmel in California, had many art galleries and her work was often shown.

EK was pleased to see his slides projected again after so long; I was

lucky enough to acquire a projector that would take them. At our house, on July 13th, 1984, he spoke to a group of about 14 among whom were Bob and Jean Potterton who brought some plants of *Cyclamen intaminatum*. He was wonderfully fluent for a man of nearly 92. When I began to write about his life and work EK read the first few pages, and corrected some errors.

The name E K Balls and his collector's numbers occur many times in the AGS *Bulletin*, usually not indexed under his name however. There are also references in the Cyclamen Society's journal, since EK is perhaps best known nowadays for the collection in Turkey of *Cyclamen intaminatum*, variously known as *cilicium* var. *alpestris*, var. *alpinum*, EKB 628 and EKB 669a. EK and I were both delighted to see it flowering happily, whatever its name, under a *Rubus* bush in my garden in the autumn of 1983. Many more plants still grown were collected by him, though it has been almost impossible to discover whether today's specimens derive from the actual plants, bulbs and seeds he sent home between 1932 and 1939, or from those of later collectors such as Paul Furse, Jim Archibald, John Watson, who followed him in Persia, Turkey, Morocco, Mexico and S. America. However, Kew and Edinburgh do still grow some of the plants he sent them nearly 50 years ago — Edinburgh listed 39, Kew 16.

Brian Matthew told me that he referred constantly to EK's herbarium specimens of Iris and Crocus when preparing his monographs on those genera; and EK was pleased to hear this. Edinburgh Herbarium also has many of his sheets.

From 1932 to 1939 EK made over 7,500 collections; his later years of collecting in California, 1947-60, added some thousands more. In Bulletin no. 12 of the New Zealand Iris Society for September 1953 he mentioned that his collector's numbers were "now nearing to no. 10,000". It may be of interest to list the numbers recorded for each pre-war year and each country.

1932	Persia	-	1 - 145
1933	Turkey	-	146 - 599
1934	Turkey	-	600 - 2045
1935	Turkey	-	2046 - 2416
1936	Morocco	-	2417 - 3164
1937	Greece	-	3165 - 4040
1938	Mexico	-	4057 - 5667
1939	South America	-	5670 - 7506

Almost the only account I have found in book form of EK's plant collecting is in the splendid *Quest for Plants* (1959) by Alice Coats — sadly now out of

print. This has a section on each of the countries he visited, but has not space to give much detail. EK was sent a copy of the book to review for the *Gardeners' Chronicle*; his review was printed on April 24th, 1970. EK found it extremely interesting but commented in a private letter to Ken Beckett that the account of his own Persian journey was "somewhat garbled", perhaps through relying on Giuseppe's article in the *AGS Bulletin* of March 1933. Illustrations of some of his plants are in Clay's *Present Day Rock Garden* (1937), where 13 of the photographs are by EK. He told me that Clay asked him to make sure he gave him only pictures which had not been published anywhere else.

Edward Kent Balls was born in Moreton, Essex on August 9th, 1892, and brought up in Southampton, where he went to Taunton's Trade School, leaving in 1908. He recalled, from childhood, cowslip fields, and yellow flag iris along the banks of the River Itchen. Both his parents were interested in gardening and natural history, and he himself preferred wandering in the country - the New Forest was accessible - to the more usual sports of boys. But he did not yet think of becoming a professional plantsman; till 1911 he was an apprentice in his uncle's drapery business in Epping, and then worked at a men's outfitters in Crouch End, North London until 1914. He said that these years taught him to get on with people of every kind, and to control his temper - valuable gifts for a plant hunter. He had attended Quaker Meetings with his mother from an early age, and joined the Society of Friends at 16. When war was declared he volunteered for work on the hospital ship *Carisbrooke Castle* with the British Red Cross. In November 1914 he joined the Friends' War Victims' Relief Society, trained at Jordans in Buckinghamshire and in 1915 went to France building wooden houses to shelter villagers in the ruined Marne area. From December 1915, he worked for the Serbian Relief Fund helping refugees and soldiers in Marseilles, Corsica and England, until in 1917 he went on active service with the S.R.F. to Salonika in Macedonia. There he took charge of food and medical supplies and distribution. In August 1918 in Taranto, Italy, he survived severe malaria (which fortunately did not recur) complicated with influenza; he told me how he heard the day and night nurses conferring at the foot of his bed, saying to each other "This one won't last the night"; but his tough constitution carried him on for another 66 years.

He returned to Macedonia and worked in Skopje and Nish, until in March 1921 he returned to England. In August he sailed from Tilbury with food for victims of the Russian famine, and went via Hamburg to Reval (Tallin) in Estonia and then by train to Leningrad and Moscow. From November he worked mostly at Buzuluk; the famine was terrible, as J C

Greenwood tells in *Quaker Encounters: Friends and Relief* (1975) (1).

In 1924 EK married Natalia Nikolaevna Timonova at Buzuluk Police Station, and in 1925 he, his wife and step-daughter came home to England.

EK needed to find a job, and worked briefly on a Hampshire chicken farm, for longer in an Essex garage, and then by good fortune went to visit Clarence Elliott at his home in Stevenage, and was taken on, for two pounds a week, at the Six Hills Alpine Nursery, Stevenage. Clarence Elliott, plant-hunter, nurseryman and writer, author of *Rock Garden Plants* (1935) and of hundreds of articles in *Gardeners' Chronicle*, *Illustrated London News* and *Sunday Times*, had himself collected plants in Corsica, in the Falkland Islands, with Reginald Farrer in the European Alps, and twice in South America with William Balfour Gourlay, later to be EK's companion. EK now studied and came to love alpine plants, and was also employed in building rock gardens. One was for Clarence Elliott's old school at Giggleswick in North Yorkshire, making use of the Tems Beck. There was a rock and water garden in 1927 for the Rt. Hon. Lewis Palmer at Possingworth, Sussex, and in 1928 an open-air reptiliary in Regent's Park Zoo. A very large one, taking eight months of 1931 to build (opposite), was at Exbury for Lionel de Rothschild, who was most anxious to fill it with his Himalayan rhododendrons, and tended to put in plants as soon as each section was finished, somewhat hampering the next stage of the work. This garden, sadly, became overgrown during the war, but in 1979 Lionel's son Edmund de Rothschild began to clear and replant it, and it is now restored. EK thought, when he saw photographs in the Exbury brochure, that it had been somewhat changed in structure, and stone disposed of, since his day.

EK also told me he thought that Clarence, even after the first evening's talk, already had a notion he might do well as a plant hunter, having experience of travel in hard conditions, resourcefulness, stamina and some gift for picking up languages (French, Serbian, Russian, later Turkish, and Spanish).

1932 - PERSIA & DR. GUISEPPI

From the beginning of EK's time at Six Hills, Frank Barker, foreman for Clarence Elliott and later managing director, and author of *The Cream of Alpines* (1958), taught him a great deal and was a good friend. (It was Frank Barker who raised *Gentiana stevenagensis*.) Graham Stuart Thomas was also a friend, and briefly a colleague at the nursery, as he recalls in his book *Three Gardens* (1983). Early in 1932 Dr. Paul Giuseppi came to Clarence Elliott for advice on a companion to go with him to Persia; EK was suggested and accepted.



Lionel De Rothschild's rock garden at Exbury, 1931

He had only two months for preparations, including the collecting of sponsors, and set out in April with Giuseppe's car and chauffeur; Giuseppe joined them at Brindisi. Dr. Giuseppe, an enthusiastic plant-hunter and keen showman, was AGS Treasurer from 1930 to 1945, then President until his death in 1947. He was somewhat jealous of his plant-hunter's glory, for his articles "Some Alpine Plants of Persia"(2) and "Some Iranian Dionysias"(3) do not mention that he had a companion at all. Giuseppe never wrote field notes, as his wife told Paul Furse in a letter of January 16th, 1969; he collected in order to grow and exhibit choice plants himself. This is why all the collector's numbers for Persia are EK's. However, it was Giuseppe who started EK on his plant-hunting career, and taught him the essentials of collecting. EK's account of the trip took 15 articles in the *Gardeners' Chronicle* from January to July, 1934. In my account I have used his own versions of place and plant names which are often different nowadays.

According to Alice Coats, the only previous important collectors in Persia had been Tournefort (there is a *Crocus tournefortii*) in 1700 and Michaux (*Dionysia michauxii*, *Michauxia campanuloides*) in 1782. Dr. Giuseppe, as always, planned the expedition very carefully (4), having only six weeks to spare, and dashed about Persia so as to climb his chosen peaks and collect his chosen plants. Before May 23rd, when Giuseppe left, EK had decided to stay longer – 4½ months in all – because he felt that only by doing so, and waiting for seed to ripen in the locations already visited, could he fulfil his sponsors' trust. They worked together for about three weeks. EK managed to make his funds last the whole summer, partly through the kindness and hospitality of a great variety of people — British Consuls in several cities, an English bank manager, village headmen, Kurdish shepherd nomads (reputed to be brigands but most friendly to him), a party of Persian friends whose camp he joined. He also travelled economically and uncomfortably on lorries and buses crammed with people and livestock, after Giuseppe's splendid car had gone home with its master and chauffeur.

Perhaps the most ardently desired genus of Persia was *Dionysia*, never before introduced to cultivation. Giuseppe and EK found six species. At that time twenty were known; by 1988 there were 42. EK with infinite pains and patience collected seed of five, but it was only of *D. curviflora* that plants survived in cultivation.

The first *Dionysia* found, *D. revoluta*, on Sapsd-i-Putsum, was a disappointment. "Hanging in mangy tufts from the underside of the rocks, this plant reminded me of some sick Heath" — and there was no hope of seed. The second was *D. michauxii*, EKB30, on Kuh Bamu: "The cushion is formed of countless tiny rosettes pressed one against the other so closely as to form a hard boss as solid as that of *Saxifraga diapensioides*." This grew by thousands - EK went back twice and collected just a few ripe seeds. The third

found was *D. straussii* (now called *D. diapensifolia*) on Kuh-Ajub, EKB32. "The plants are tufts rather than mats . . . rather brittle . . . soft sulphur yellow . . . the whole plant, dead or alive, is strongly scented of primula."

On Schir Kuh, "Lion Mountain", was the fourth, the lovely *D. ianthina* (now *curviflora* and **not** *janthina*), "pink with a lighter centre and yellow eye . . . varying from pure white to deep bright pink . . . glowed down upon us." Fifth was *D. bryoides* on Kuh-Ajub; "from these remains I could see that the flower is either pink or purple"; "the rosette is the smallest that I saw in any *Dionysia* and is of a dark glossy-green." Giuseppi collected seed which germinated, but the plants did not persist: EK found that "the seeds everywhere were far from ripe." Giuseppi had a technique, which he did not disclose to EK, of crumbling and sieving the dead cushions for seed which had fallen deep among the stems. The sixth was *D. raptodes* on Kuh-i-Jupar; "the wads of the *Dionysia* were all half buried in dried mud, and finding the seed capsule was not always easy. Still, some of the seeds were ripe." It has a yellow flower but is not in cultivation.

EK managed to send back a few seeds of *Rosa persica* (*R. berberidifolia*, *Hultheimia berberidifolia*) described in the RHS *Dictionary of Gardening* (1951) as very rare; also found and described by Paul Furse — "looks like a prickly *Cistus* with yellow flowers, each petal blotched crimson at the base." (5) It is mentioned by Sir Frederick Stern in *A Chalk Garden*; he had at Highdown the only flowering plant of it in England, according to Bertram Park in *Collins Guide to Roses* (1956). In Persia it was cut for fuel — especially for bakers' ovens.

Two fine primulas which EK found in quantities were *Primula auriculata* (a herbalist he met told him it made a good eye salve for trachoma) and *P. capitellata*; in some places they grew together and hybridised, both being in the section *Farinosae*. "*P. auriculata* is a much stouter plant than *P. capitellata*; the leaves are dark green and leathery in texture, with blunt ends and no trace of flour on them. The farina is all on the flower stems and calyces, and there is a light ring of flour grains round the eye of each bloom. A very faint, sweet scent completes the plant, although the root is as strongly scented as any *P. farinosa*." This was on Mount Elwend in wet turf. A few other of the 145 plants collected by EK in Persia, which are in cultivation today, are *Allium akaka*, *Fritillaria olivieri*, and *Geranium tuberosum*.

Alone in Persia, EK spent a month exploring Mount Elwend, lodging in a tea-house at Abasavad. After the first week the Kurds arrived with their flocks and dogs, disturbing his peace and solitude. The dogs were extremely hostile but their masters very kind, offering sour milk with lumps of snow floating in it, fresh thin flaps of bread, eggs, butter, hard, rancid, white cheese and tea. EK found here that wild pigs dug up *Tulipa violacea* and *Corydalis*

verticillaris; the corydalis, with pink and white flowers, won Frank Barker an Award of Merit.

In mid-June EK was obliged to spend a week in Hamadan and Kermanshah over trouble with permits, until on June 26th he travelled down to Shiraz in an unpredictable succession of lorries. We tend to regard this time as the Golden Age of plant collecting; certainly the hunters had the joy of pioneering, but the hardships and the entanglement of red tape were immense. EK, however, seemed to have had great adaptability; in a hotel in Kirman which he describes as no worse than “unsatisfactory”, his bed was in a courtyard which at night served as the auditorium of a cinema. Before he could go to bed he had to sit through an ancient film whose captions were in Persian, French, Russian, American and German; and in spite of the fact that his bedroom was also the cinema he was made to pay for his seat “at the pictures”.

He came home in September; his list of slides used for Persian lectures has 77 items, including maps and views as well as flowers, and his collector’s numbers run from 1 to 145. He himself felt somewhat dissatisfied with his results, but his sponsors did not, and urged him to go out to the Middle East again. He decided to make plant-hunting, lecturing and writing his profession. Among his regular sponsors were Sir Frederick Stern of Highdown, G P Baker whose firm had textile interests in Turkey and who provided helpful introductions, Lionel de Rothschild, A K Bulley of Ness, E B Anderson (as he mentions on p. 58-9 of *Seven Gardens*), Collingwood Ingram, Sir William Lawrence, Col. E Grey, Dr. Lemperg of Ratzendorf in Austria, to whom EK sometimes sent living plants which could stand the shorter journey by post to Austria but might not survive to England (6), and W R Stevens in New Zealand.

1933 - TURKEY & BALFOUR GOURLAY

Clarence Elliott had introduced EK to Dr. William Balfour Gourlay (1879-1966) of Cambridge, who was to be his friend and companion in Turkey in 1933 and 1934, Greece 1937, Mexico 1938 and South America in 1939; a most helpful and much loved colleague. He was related to the Balfours of Dawyck, near Edinburgh, and brought up by them there, both his parents having died in his infancy. In gratitude he added Balfour to his own name of Gourlay. He served as a military doctor in India, and in 1922 was sent with a British force to Northern Russia in an attempt to reinstate the Czar. He was awarded the M.C. He afterwards practised medicine little, having private means, but his medical knowledge was often useful in the remote areas where he travelled. He gave plants to the R.B.G. Edinburgh, from 1909 onwards, and also had very close ties with the Cambridge Botanic Garden. “Uncle Bill”, as he was known in Cambridge, where he lived for 40 years, travelled



E K Balls collecting on Zara-Suchelin, Turkey 1933 (W Balfour Gourlay)

William Balfour Gourlay collecting on Kara Kapan, Turkey, 1933 (E K Balls)



widely in search of plants: Argentina and Chile in 1908, Egypt, the European Alps where he ascended the Matterhorn. He published "Notes on two recent botanical trips to Chile" in the *Transactions of the Royal Caledonian Horticultural Society*, 1930; these trips were made with Clarence Elliott in 1927-8 and 1929-30. He was especially interested in trees and shrubs.

In 1933 EK and Gourlay reached Istanbul in February, and had to travel to Ankara for permission to botanise (near Ankara they found *Crocus ancyrensis*). They spent 3 weeks in south-east Turkey, at Tarsus and for a short time in the Taurus mountains, but were then obliged to return to Ankara for revised permits allowing them to collect in the North East, near Trabzon (then Trebizond), which is on the shores of the Black Sea. They had hired a car, and had with them a young Turk called Fikri as chauffeur, interpreter and general factotum. EK himself did not learn to drive until 1947-48 in California when he was 55.

During this expedition they collected 453 species; they made herbarium specimens of all these, and collected seeds, bulbs, or living plants of as many as possible. One fine plant from the Taurus region was *Iris persica* var. *tauri* — translucent brown and green, the falls having a strong white spot above a black blotch. They also collected *Corydalis solida* var. *densiflora*, pink with maroon markings and grey foliage. The authorities forbade photography of the country, and allowed botanising only in the *towns* of Adana, Tarsus and Mersin. After another visit to government offices in Ankara they were told that they must leave the Taurus region but might go to the Trabzon area without restraint and they spent May to September there.

The climate changes suddenly at the top of the Pontine range of hills; to the North constant rain and mist, to the South very dry, with many xerophytes such as Acantholimon. There was a somewhat primitive inn (but at least it was "too high for vermin") at Kara Kapan, "Black Trap", where the party of six had to sleep in one room with the landlord and another man — but its shelter was welcome, and near here they found *Daphne glomerata*, making sweetly scented patches of full rich cream all over the turfy hillsides. *Campanula tridentata* was very fine here — royal purple bells with a white disc in the base. But snow on June 6th drove them down, after a glimpse of *Draba polytricha* in crevices and screes. On a later visit, in August, there was sun all day, and they found pink *Asperula pontica*; *Campanula betulaefolia* grew in the rock walls below the Monastery of Miriomania, with white two-inch bells and glossy leaves. On the dry side of the hills the flowers are narrower with more pink in the buds and even in the open bell.

On June 7th, 1933, EK experimented with the poisonous honey described by Xenophon in the Anabasis. He was told that it was a year old and hence harmless, but both he and Fikri were made ill by it. The honey is

made from nectar of *Rhododendron ponticum*, and can cause sickness, blindness and even death (8). EK after a sleep seemed none the worse, and walked eight or ten miles to rejoin his party.

Above Hamsekui is an interesting natural "factory" for tufa, where grasses and moss are enveloped in lime and gradually turn to stone. Out of flower they found *Galanthus rizehensis*, which turned out to differ from other wild species in being a triploid form. In lush hayfields of the upper slopes grew lilies, *Lilium monadelphum* and *L. szovitzianum*. *Primula amoena* grew at 9,000 feet, and also at lower levels where it was larger and a richer mauve colour, the leaves having a densely woolly reverse. Below Kara Kaya Dagh ("Black Stone Mountain") was *Primula longipes* (found also in Iran the previous year, and again in Lazistan - Turkey - the following year, 1934). This is the most westerly of the Nivalids; it resembles *P. chionantha* but "its natural home is in the sopping bogs and running waters of the highest alps on the wet northern slopes" — probably the water was never quite stagnant. It had large heads of lovely, soft purple flowers, each one up to three-quarters of an inch across with a white eye, the stems, up to 18" tall, densely covered with white meal, while a broad band of white farina edged the underside of each leaf. EK recognised its special fragrance in some honey he ate near Rize, so famous that "it fetches unreasonable prices". Frank Barker brought at least one plant to flower and exhibited it at an R.H.S. show, but EK's hopes for it in cultivation as "a fat and lovely plant for the bog garden — it can fear no rival" were disappointed, though he collected both seed and live plants.

Geranium psilostemon (syn. *G. armenum*), originally introduced in 1874 and lost, was an excellent re-introduction. It is now securely in cultivation; 2 to 3 feet tall, with glowing deep cerise flowers which have black centres and dark veining. On Haldizan Dagh they found *Crocus scharojani* in the turf of newly mown hayfields at the end of August: a slender cup of deep pure gold, with very small corms. "Looking back into the valley we could see great golden stains on the wet slopes where *Crocus scharojani* was flowering in myriads so closely together that the blooms pressed against one another as they pushed up from the sopping ground."

They dried and sorted seeds and specimens in the "ironing room" at the British Consulate in Trabzon, where ants were convinced that seeds of *Polygala anatolica* were their own eggs — they kept carrying them off and laying them to incubate in warm cracks under the newspapers.

1934 - TURKEY AGAIN

The two friends set out for Turkey again in March 1934, and collected 1445 species. Again with Fikri and the same car, they were given permission to



Iris acutiloba, Turkey 1932



Lallelantia canescens - the slide shown in 1984 - see opposite

visit all the districts they wished. First they went to the Taurus region and botanised on the steep sides of the Cilician Gates; here, out of flower, they found *Cyclamaen intaminatum*. To the east at Gaziantep (Aintab) they found *Iris histrio aintabensis*. Then they went east to Erzingan, where they found *Tchihatchewia isatidea*, a member of the Cruciferae, "the perfume is certainly wonderful, although too powerful to be really pleasant. The rest of the plant is almost ugly . . . a coarse growth, harsh with stiff white hairs, and a stout central stem crowned with a dense head of cruelly majenta[sic]-purplish flowers".

They then went again to the Black Sea coast, as far east as Rize, and home when snow fell in mid-September. This was the year when they found *Orphanidesia gaultherioides* (now *Epigaea gaultherioides*), previously collected only twice, and then only as herbarium specimens (9). EK found some seed capsules of the previous year, with a few seeds still attached. These seeds were sent to Fred Stoker, who raised seedlings and distributed the plant for instance to Lionel de Rothschild at Exbury and to Mrs Berry in Oregon. Dr Stoker mentions it on p.342 of *A Gardener's Progress* (1938). Another good plant, still in cultivation (see Brian Mathew's *Dwarf Bulbs*), was *Fritillaria crassifolia* Balls' form. EK was full of praise for *Lallemantia canescens*, grey leaved with large Labiate flowers in spikes of purple, white and blue, aromatic and setting plenty of seed. It was at first thought an annual, later biennial, and in EK's own garden in Knebworth seemed to be perennial in the way that wallflowers can be. It seemed lost to cultivation, but turned out to be the plant listed in the AGS Seed List for 1982, no. 2661, as "*Salvia* sp., 9", col. Iran", which Phillip Harris of Barmby Moor had grown, and recognised when he saw EK's slide (opposite) at his 1984 lecture.

Balfour Gourlay's account of their plant collecting in Asia Minor in 1933-34 was published in *The Garden Lover's Companion*, ed. Peter Hunt (Eyre Methuen, 1974).

1935 - TURKEY with CHARLES BIRD

Unfortunately next year, 1935, WBG was not able to accompany EK, and he went with Charles Bird, an ornithologist at the British Museum. They hoped to explore the west and south sides of Lake Van in SE Turkey; they reached the country in February but were obliged to leave in June without seeing Lake Van at all. They met, with Fikri, at Adana, travelled with difficulty to Gaziantep and were there for five weeks trying to confirm permits seemingly granted the previous September. They were allowed to go 120 miles north to Malatya, but were then made to return to Gaziantep and then to leave the country. It seems that the Turkish authorities suspected EK of being a secret agent - he might even be Lawrence of Arabia, whose death they doubted! They were also, EK told me, uneasy about Charles Bird's guns and

ammunition, necessary for obtaining specimens. They collected what they could in the few places where they were allowed to go — 370 species of plants. In a letter to the *Gardeners' Chronicle* for June 22rd, 1935, Balfour Gourlay wrote: "I have always been impressed by the enthusiasm and conscientiousness with which Mr. Balls has worked in order to do his very best to collect good plants in quantity for his syndicate" — but circumstances were impossible and he had to come home.

Nevertheless there were a few good plants salvaged from the wreck of his hopes. He knew that the *Oncocyclus Iris gatesii* (see cover) grew in the Mardin district, and although not allowed to go there himself, EK was able to have a parcel of well-ripened rhizomes sent to him for his subscribers. The iris was growing well, 200 miles from Mardin in the herbaceous borders of the American Mission Hospital at Gaziantep, where he stayed, and where he photographed a pot of *Cyclamen persicum*.



Cyclamen persicum in pot, American Mission Hospital, Gaziantep 1935

Iris gatesii was first found in 1889 by the American missionary Dr. Gates. Some of the flowers on the plants in the borders at the hospital were as long as 12" from tip of standard to tip of fall. It surprised EK because "planted in garden conditions with such strangers as grass edgings and columbines, (it) flourished and multiplied under light shade, producing generously the magnificent pearly blooms on stems two feet tall . . . It does appear to have somewhat more tolerance than many of the other oncocyclus species." This account is from a series of 12 articles on Wild Irises written by EK for the *Bulletin* of the New Zealand Iris Society between 1953 and 1958. In their *Bulletin* no. 18 for September 1955, Wallace R Stevens, a nurseryman and iris enthusiast in Bulls, 30 miles south of Wanganui in the North Island, recalls receiving 24 plants of *Iris sari* and 24 of *Iris gatesii* in March 1935; both kinds grew and flowered, though Mr. Stevens says that he made "errors of culture . . . But from then on my stocks of both species gradually went back. Nowadays with our increased knowledge I would consider that neither of them should be very difficult to grow." In the *Gardeners' Chronicle* for December 7th, 1935, EK describes *Iris sari* as very variable, "from pale grey (in general effect) to deep red and purple-browns, with veining and markings almost as delicate as in *Iris gatesii*, to coarse, dark blotching . . . Some forms I have found with beautiful dark purple standards, others almost blue." Another good plant was *Ixiolirion montanum* EKB2190: "South of Gaziantep I came through a field of pale yellow *Viola assyriaca* above which countless blue *Ixiolirions* were waving, one of those visions which remain always." The bulbs were very deep down in hard ground, but there was a Turkish spade with a cross piece which was an efficient implement to extract them; there is a photograph of EK's helper, Mehmet, digging bulbs of the *Ixiolirion*. *Iris histrio aintabensis* was 8" deep or more, in clusters of up to 50 bulbs in heavy red or dark clay soil baked hard as brick in summer. EK had found *Gentiana olivieri* in Iran, where it was bright blue; here in chalk, EKB2258, it was white, tinged and lined with pale blue.

In EK's list of slides there are 121 for 1933, 120 for 1934, and for 1935 only 35, many of them views taken by Charles Bird and others, with only 15 of plants by EK. Charles Bird wrote at least two articles based on his experiences of that journey: "The distribution of reptiles and amphibians in Asiatic Turkey, with notes on a collection from the Vilayets of Adana, Gaziantep and Malatya" in *Annals and Magazine of Natural History*, ser. 10 vol. xviii, p. 257-81, August 1936, and "The birds of southern Asia Minor from Mersin to the Euphrates" in *The Ibis* for January 1937, pp. 65-85.

By now EK was in demand as a lecturer, and during the autumn, winter and early spring he gave slide shows to such groups as the Horticultural Club in London, and to natural history, geographical and botanical societies in many parts of the British Isles from Aberdeen to Southampton. He also

lectured at Oslo and at Bergen in Norway. As well as his articles describing the whole course of his journeys, for the *Gardeners' Chronicle* he wrote short descriptions of single plants, or of related groups, which appeared under the heading 'Plants new or noteworthy' whenever the editor had space. These activities helped to make a living, but it was fortunate that Mrs. Balls, as soon as she came to England, learned short-hand and typing in both Russian and English, and was able to find well paid work with a Russian import-export firm. Her support and encouragement were a great source of strength.

1936 - MOROCCO with RICHARD SELIGMAN

In 1936 Major Stern urged EK to go to Morocco to visit the region of the Great Atlas Mountains. Stern's "enthusiasm and generous support contributed very largely to making possible the realization of the plan" (report in the *Gardeners' Chronicle* of May 22nd, 1937, of a lecture to the Horticultural Club). It is interesting to compare EK's six articles in the *Gardeners' Chronicle* published from January to April 1937, his later account in the *RHS Journal* (vol. 69, 1944) and the account by his companion Richard Seligman (7), with Jim Archibald's article on the same region, published in the *AGS Bulletin* in December 1963. Jim arrived in early July, whereas EK, about 25 years' earlier, had reached Marrakesh on May 29th. Bill Gourlay was not able to come, but EK got on well with Seligman who was with him only for the first month. Seligman records that EK collected 750 species, and mentions the "exhausting task of collecting and pressing, whilst I fed him with more specimens." On all these journeys it was necessary to carry the large plant presses and the heavy quarter-plate camera with its tripod. EK was able to sell sets of herbarium specimens to several institutions and so help to finance the journeys and support his family, but at times this involved pressing, mounting and sending off as many as ten sets of specimens.

Marrakech was a good centre, and he returned there repeatedly to send off bulbs, seeds and specimens. Roads radiate from it towards many peaks and passes of the Atlas, whereas one cannot travel directly from east to west of the range at all easily. The friends arrived without set plans, since it was necessary to obtain permission from the authorities on the spot for travel in some areas — in the "zones of insecurity" military escort was necessary. While waiting for permits they made short trips to the foothills, south-west to Amizmiz and farther south by the main road to Tinmal. Unfortunately at the very moment when the permits for Quarzazat were ready (the Whitsun holiday had caused delay) Seligman fell ill; EK went alone from June 2nd to June 11th while Seligman recuperated at Amizmiz.

Much of the country is extremely dry, but where streams break out, and especially after a wet spring there is rich flora - and by good fortune an unusually wet spring preceded EK's visit. Sometimes the French botanist

Jean Gattefossé of Casablanca came with his car, at other times a bus or hired car took EK to a village where he engaged horses or mules to carry the tents and other baggage.

Ouarzazat lies to the south east of Marrakesh, and is reached by a very twisting road via the pass of Tizi n'Tichka, at 6,500 feet. He first found *Narcissus watieri* (still rare and not easy, though seeds appear in the seedlists quite regularly) near this pass, in very hot, coarse, steep screes. It is a tiny dazzling white jonquil, no more than 4" high, with grey leaves; there were clumps of 50 or more bulbs together. EK found it at three separate stations. He kept some bulbs to grow himself, both in pots (see opposite) and in his garden at Knebworth in Hertfordshire and found that they did well out of doors, in spite of the extreme dryness it would experience in summer in its home. Here it flowers in April, EK found it to flower in Morocco between the end of February and end of March.



Narcissus watieri, Knebworth

From Ouarzazat EK went west to climb Djebel Siroua and Djebel Amezduur. EK's predecessors in the Great Atlas had been Hooker and Ball in 1871, but they had not been able to climb very high and so had missed some of the choice alpine plants found by EK, though French botanists from 1912 had accumulated a comprehensive herbarium in Rabat.

On Djebel Amezduur there were many springs and a profusion of flowers; from 7,000 to 9000 feet the streams were bordered densely with *Narcissus bulbocodium* ssp. *vulgaris* var. *nivalis*, a hoop-petticoat 4 to 10 inches tall. There was "good, falling seed" of *Ranunculus calandrinoides*. EK came back to the recovered Seligman with nearly 4,000 specimens of 250 different species, and dealt with them in Marrakesh before they set out again to Djebel Erdouz to the south-west, beyond Amizmiz and 8,500 feet above it.

They left by van on June 12th and camped under walnut trees at Azgour near lead and tin mines. Twenty-five years later Jim Archibald "made camp beneath a stout walnut tree"; a few Europeans "manage . . . the molybdenum deposits." Some of Jim's illustrations are photographs taken in 1936 by Dr. Seligman. Both parties found *Salvia taraxacifolia* with blue-grey and white to deep pink flowers, the whole plant strongly aromatic, and the superb *Matthiola scapifera*, but EK was too early for seed here, finding the plant again on Djebel Ghat 100 miles to the east. Jim listed the *Matthiola* in his nursery catalogue for 1972-3; it grew in rock cracks or on fine scree, its leaves a soft crystalline, green, crinkle edged, with fragrant stock flowers in shades of pink, making dense hummocks of overlapping rosettes. EK found it at 10,500 feet. He was surprised to find also *Fritillaria oranensis* at 7,000 feet — no fritillaries had been found in the Great Atlas before.

Next on June 20th, EK and Seligman set out for the Cirque d'Arround due south of Marrakesh. Here Seligman could not quite climb to the summit of Djebel Toubkal, being still somewhat weak from his illness; EK struggled to the top. This is the highest peak of the Great Atlas, nearly 14,000 feet. This region is today marked on the map as a National Park. EK and Seligman used two refuges (mountain shelters) of the French Alpine Club, at Arround and at Tashdirt. Above the Refuge at Arround was *Aquilegia vulgaris* var. *ballii*, named for John Ball who had travelled with Hooker, not for EK. This is a four-foot columbine with fragrant little snow-white blossoms. Higher was *Pteroccephalus depressus*, with its mushroom pink scabious flowers and leathery seed-heads (the name means wing-headed), and *Convolvulus sabatius*, grey-leaved, in crevices and scree with large lavender-blue trumpets. EK found that it was not quite the same as *C. mauretanicus* — today it is widely offered as a plant for hanging baskets. Both parties also found *Linaria tristis lurida*, which Jim named 'Toubkal' and listed in 1972; it has large parchment-coloured snapdragon flowers, green tinged, with dark

maroon lips.

Seligman had to return home at the end of June, but while they were still together EK photographed his friend's ingenious method for photographing a fiercely saxatile plant in a vertical cliff crevice, with the help of two tripods and his Arab assistant; the picture appears in *AGS Bulletin* vol. 17 p.100, the plant itself *Phagnalon helichrysoides* subvar. *lanatum*, on p.344. Clay's *The Present-Day Rock Garden* has four of Seligman's Moroccan photographs: *Campanula filicaulis*, *Salvia taraxacifolia*, *Scorzonera deliciosa* and *Stachys villosa* var. *saxicola*.

EK came back to Arround and Tashdirt several times and found new flowers each time. *Narcissus watteri* was at two stations here, with the widespread *Alyssum* (now *Ptilotrichum*) *spinosum* and several handsome thistles. He found the dead leaves of a colchicum and collected a fair number of bulbs; it flowered in his garden in England, proved to be the spring-flowering *Colchicum triphyllum*, and won him an A.M. at the RHS in February 1937. Sadly the slugs of Hertfordshire found it delicious and none of it survived. Jim Archibald listed it recently but has also now lost it. *C. triphyllum* looks most attractive in EK's photograph, with soft pink globular flowers; it had unripe anthers of bronze-green.

On July 6th having new permits for more easterly peaks, EK set out for Djebel Ghat with an entomologist, M. Antoine of Casablanca. This is a limestone mountain which they reached with mules after a scorching hot coach journey east from Marrakesh. The track was very rough, but the friends, near evening, were cheered by finding black and red striped longicorne beetles on eight foot golden verbascums in the village of Ait Toutlin. The limestone cliffs of the Gorge of Iminouaka were thick with attractive plants — *Linaria*, *Inula*, *Dianthus*, *Convolvulus* and many more. They came to Tirsal just below Djebel Ghat, and from there spent two days on the mountain, at first across painfully steep screes. When the slopes became more gradual colourful plants were abundant: pink *Ptilotrichum*, *Cytisus purgans* var. *balansae* in tangled masses as much as eight feet across, the flowers fairly large, deep, clean gold; blue *Linum*, *Erinacea pungens* in some extremely dark almost purple forms. "If the *Erinacea* grows as slowly in its native places as it does in cultivation some of the plants which we saw in the Great Atlas must be several centuries old." On the final cliffs was a larger form of the *Matthiola*, deeper in colour, and *Lonicera pyrenaica*, with pairs of cream-white fragrant bells flushed outside with pink. Again, a wet spring had made all the difference to the amount of flower.

They slept comfortably in a cave which the Arabs believed haunted and refused to enter; above it in crevices grew *Sarcocapnos baetica*, with grey leaves and white tissue-paper flowers. Clay says "Mr. Balls has described to

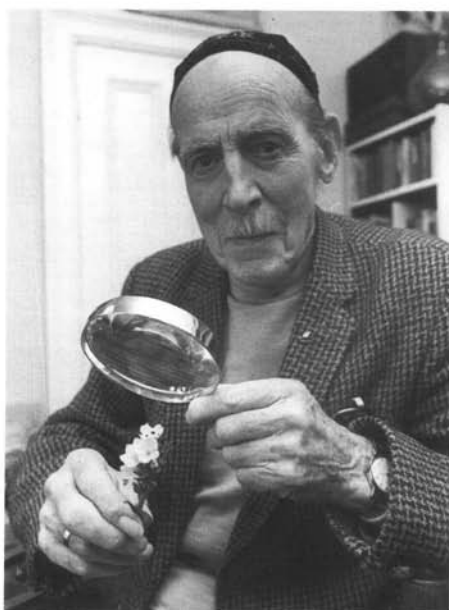
me how those seen in Plate 46 scented all the air about then with a delicious sweetness." This appeared in the 1985 SRGC seed list, and it consented to grow and flower in East Yorkshire, but without the fragrance. EK found *Androsace villosa* above the grass of Tifsit (Tizi n'Tiisit) as a crevice plant, rather than in scree; it was known nowhere else in the Atlas. *Saxifraga demnatensis* (named from the village of Dennat but found all along the northern slopes at 11,000 feet) was reintroduced by Jim Archibald. It is a mossy saxifrage with large, full heads of white flowers, their centres having faint green shading; the whole plant is sticky and aromatic, smelling like pine woods. EK found it rigidly saxatile, preferring shade and moisture. Another good plant of the Djebel Ghat was *Geranium cinereum* ssp. *nanum*: hard cushions of closely curled silver foliage above which rise the delicate, pink, almost transparent flowers on thread-fine stems.

From now until the end of July, EK revisited regions where he had seen plants in flower and was able to collect a good deal of seed. In a letter to Humphrey Gilbert-Carter of Cambridge on July 30th, EK was hoping to sail from Tangier on August 3rd, though trouble in the Spanish part of Morocco made it uncertain. Names for many of EK's collections in Morocco were supplied by Dr. Maire of Algiers and completion of the field notes took until April 7th, 1937. EK's sponsors were keen for him to continue collecting, as he was himself. At first the next project was to travel in the Caucasus with Balfour Gourlay, but permission was not forthcoming and they were to spend four months together in Greece in 1937.

This was to be EK's last European trip; from 1938 his attention would be fixed upon the New World.

REFERENCES

- (1) see also Ruth Fry's *A Quaker Adventure: the story of nine years' relief and reconstruction* (1926) especially pp. 129 and 176.
 - (2) AGS *Bulletin* vol.2 p.1-4
 - (3) AGS *Bulletin* vol.12 p.85-6
 - (4) AGS *Bulletin* vol. 23 p. 115
 - (5) AGS *Bulletin* vol. 29 p. 163
 - (6) AGS *Bulletin* vol. 5, 1937
 - (7) AGS *Bulletin* vol. 17 p. 178
 - (8) see also SRGC *Journal*, vol. 18 pp. 380-81
 - (9) see RHS *Journal* vol. 65 p. 210-11 & vol. 73 p. 381-2; in vol. 97, p. 229-30, Mrs. Knox Finlay describes how it grows at Keillour, with a picture opposite p. 216
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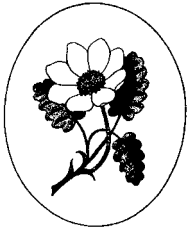
E K Balls (1892-1984)
photographed in Cottingham May 10th, 1984

The Scottish Rock Garden Club is pleased to acknowledge the Trustees of the Royal Botanic Gardens, Kew, for their kind permission to quote from material in their Archives.



Plants of the Drakensberg

Mike Brett



IT SEEMS INAPPROPRIATE to extol the virtues of a sister society in this publication but, credit where it's due, one of the best things that the AGS does is the organisation of tours to remote mountain regions that are not easily accessible to the ordinary traveller.

Although the first AGS trip to the Drakensberg in 1997 was oversubscribed, we were lucky enough to be included in January 1998. The trips were led by Peter Erskine who will be familiar to many and who has a wide knowledge of the plants and the region, and also by David McDonald, a botanist at Kirstenbosch Botanical Gardens who has visited the area many times and knows the customs and language. The AGS trip was so enjoyable that we returned to the area under our own steam with a hire car in January 2000. The following comments relate to both visits and although the time of year and the plants were very similar, the experiences of travelling with a group and by ourselves were quite different.

There are very many mountains in South Africa with those in the west receiving autumn and winter rain and snow fall whilst towards the east in the Drakensberg, heavy, thunderous downpours are a real feature of summer. In the west the altitude rarely exceeds 2000 m and, although numerous fine plants are to be found from August to October they are not true alpine. Winters in the Drakensberg are usually very cold and dry or with occasional snow cover. The mountains at over 3000 m have a true alpine flora best seen in December to February when, admittedly, there is a risk of a soaking!

The Drakensberg mountain range stretches for over 1000 km in all with the highest points in the Kingdom of Lesotho and along its 250 km eastern border with South Africa. In 1998 we were taken in and out of Lesotho from South Africa starting the trip at the Sani Pass and finishing at Witsieshoek, completing about three-quarters of the circumference of Lesotho, that is, supposing Lesotho to be a clock (about the size of Belgium) we went clockwise from roughly 25 minutes past the hour to 10 minutes past. In January 2000, we completed most of the remaining part of the clock. What

Fig. 47 - *Cotyledon orbiculata* var. *oblonga* with *Euphorbia clavarioides* (p.117)

opposite Photo: Mike Brett

was demonstrated was that the leaders had really done their homework and had taken us to the highest points on our first trip. On our own we rarely found ourselves so high or the mountains quite so accessible.

THE SANI PASS

The mountains form a natural division between the fairly prosperous South Africa and the relatively poor Kingdom of Lesotho. *Barrier of Spears* by Reg Pearse is an apt description as well as a very informative book. From the flat plains of South Africa the land suddenly rises to produce a long sheer escarpment with numerous buttress-like ridges and dead-end deep ravines and valleys with very few passes from one country to the other. Many of the valleys have national parks or hotel resorts at the end with walks up into the mountains, but the higher ground of Lesotho is more primitive with impoverished scattered farming communities. To the south there is one road into Lesotho, the Sani Pass, if that can be called a road. It is a rocky track open to four-wheel-drive vehicles only and climbs steeply from about 2000 m to approaching 3000 m with numerous switchbacks from which crashed cars and lorries can be seen in the roadside ravines. It was a relief to stop at intervals and get out of the bumpy, dusty vehicles to examine the various layers of vegetation as we climbed higher up the pass. The South African customs post which is locked at 4 pm is at the foot of the mountains with Lesotho's at the top near the Sani Top Chalet with its advertisement to be 'The Highest Pub in Africa'. In between is a no-mans-wonderland of plants ranging from nearly tropical to alpine mostly just beside the track.

The range of plants went from, at the bottom, the small *Chironia krebssii*, a clear pink gentian, *Pentanisia prunelloides* about a foot tall with clusters of star-like blue flowers, *Harveya speciosa*, a large white flowered knee-high semi-parasite in the Scrophulariaceae, *Sandersonia aurantiaca*, a climber in the Liliaceae with orange bells, and *Protea roupelliae* and the Common Tree Fern, *Cyathea dregei*, both small trees in a nearly treeless landscape. At the top were to be found many true alpine plants such as *Craterocapsa congesta* in the Campanulaceae with typical blue flowers, *Hirpicium armerioides*, a low-growing daisy with huge white flowers stained reddish on the reverse of the petals, and numerous bulbous items such as *Romulea thodei* (fig. 48), *Hesperanthera baurii* and *Rhodohypoxis baurii* var. *confecta* with *R. deflexa* in the wettest places. It came as a surprise to us that *Dianthus*, looking much like the European types, were growing in the region – on Sani Top a compact white one with large full petals was growing from a fissure in the rocks. Elsewhere, they were considered to be *Dianthus basuticus* and could be lanky with a wide range of pinkish petals (of many shapes, but there remains a question-mark over the example at Sani Top. There were taller plants rarely considered to be alpine plants growing alongside the

cushions and dwarf bulbs like *Kniphofia caulescens* and a large *Moraea*, possibly *M. alticola*.

Between the bottom and the top many other interesting plants were seen, from the demure *Euphorbia clavarioides* with hard cushions the size of footballs or larger (which sometimes grows in association with *Cotyledon orbiculata* var. *oblonga*) (fig. 47), to the gaudy scarlet *Gladiolus flanaganii* draping from sheer wet cliff-sides. Otherwise known as the Suicide Lily, we reckoned it earned its name from photographers trying to get the best shots by clambering, as many of us did, among the slippery rocks of the cliff-face! A wide range of terrestrial orchids were to be found at all elevations but identification was a real problem. There were many other good plants such as *Glumicalyx goseloides*, *Zaluzianskya microsiphon*, *Eucomis bicolor*, *Jamesbrittenia* (formerly *Sutera*) *pristisepala*, *Lobelia preslii*, as well as species of *Dierama*, *Diascia*, *Euryops*, *Berkheya*, *Galtonia* and others.

THE ROOF OF AFRICA

The track climbs higher from the pass into Lesotho and after brief stops at a village and then a very wet area we reached the Black Mountain area (near to Thabana Ntlenyana, the highest mountain in Southern Africa at 3482 m). We were made welcome at the village and shown inside a thatched rondavel with a fire in the centre where a kind of bread was being cooked. The floor is made of dung mixed with water, then smoothed out to leave a velvet-like carpet of sorts. The fuel on the fire was also animal dung (there being no trees and few shrubs available). There were neither windows nor chimney so smoke escaped through the thatch or the doorway, giving us a flavour of the place! The boggy areas near the track had plants in wet soil or running water. Species like *Lobelia galpinii* (very much like the New Zealand pratias), *Limosella vesiculosa* and *Eriocaulon dregei* var. *sonderianum* were found. These are all neat, desirable little plants designed to give wet knees to photographers! They were intermingled and matted together in apparent harmony; in places making a fine spongy alpine turf. Rarely, apart from those in rock crevices like the *Dianthus*, were plants found in isolation such as we mostly grow them in captivity.

The high peaks and plateaux of Lesotho are the Roof of Africa, with cool harsh conditions and windswept flattened plants. Again like New Zealand, the tallest plants (apart from the occasional *Dierama*) were tussock grasses such as *Merxmuellera drakensbergensis* very often with gems like *Jamesbrittenia jurassica* (fig. 49) sheltering among them or *Moraea* species flowering through them. It was disconcerting when, in the group, our vans would stop near an apparently deserted mountaintop and no sooner had we piled out than we would be approached by shepherds with cupped hands asking for food. We would not feel as comfortable about stopping in such remote areas by ourselves although we have no reason to suppose it to be

unsafe. A common plant association in this area was *Lotononis galpinii* var. *prostrata* and *Helichrysum sessilioides*; a deep blue pea relative with silvery leaves and a white composite, both dwarfed by the severe mountain conditions to about an inch high. Occasionally the slightly taller (7.5 cm) *Moraea alpina* was to be found peeping through. This was perhaps the best of the dozen or so moraeas seen.

The next area visited was west of the Sani Pass, and began in the small village of Rhodes and went on to the Tiffendell ski resort. (Roughly half-past the hour on our supposed clock.) Between the two, Naude's Nek proved floristically worthwhile with a wide range from wahlenbergias to orchids. From the roadside through the high passes we saw many more eye-catching plants that brought the vans to a sudden halt. A brilliant orange *Harveya scarletina*, apparently semi-parasitic on an *Erica*, seemed to shout to us although only 10 cm tall. Other exciting items included a choice *Zaluzianskya*, unusually, for the genus, fully open at mid-day; a *Sebaea*, a yellow gentian this time; and the tall thistle-like *Berkheya purpurea* with enormous 'daisy' flower-heads (fig. 50). No sooner had we checked into the ski lodge, the only accommodation in the area able to take the 22 strong group and specially opened in the summer for us, than Hazel and I went for a walk. Within a few yards we came across a real knockout of a plant, a *Wurmbea elatior*, but of finer form (fig. 52) than the photo in *The Botany of the Southern Natal Drakensberg* by Hilliard & Burtt which was our bible for both trips. The 10 cm tall plant is bulbous, in the Liliaceae, and has white six petalled star-like flowers with blackish/brown markings, forming an attractive circle when open.

BEN MACDHUI

Tiffendell ski lodge is at 2873 m on the slopes of Ben Macdhui (3001 m), a name that took us by surprise. The peak was apparently named by a Scottish surveyor. Although mid-summer, the temperature plummeted overnight and puddles were iced over in the morning. The day started fine but by the time we had trekked to the top of Ben Macdhui it was raining, then sleeting, with a heavy mist even though there was a howling wind accompanied by thunder and lightning. We all returned early, cold and wet and spent most of the afternoon around a huge open log fire drying our socks and boots. The aroma must have vied closely with that in the Sani Top village! Although not the best of days, some of the finest plants were seen before the weather closed in. Near the top was an attractive short *Dierama dracomontana* with dusky pink flowers and white flecks looking like litter in the distance turned out to be *Disa crassicornis*; the largest flowered ground orchid to be seen. On the slopes below the ski lodge were thousands of Red Hot Pokers, *Kniphofia caulescens* (fig. 51), which shone out like beacons attracting bright coloured sun birds that darted in and out for nectar.

We next stayed virtually due north of Rhodes/Tiffendell by some 100km as the crow flies in the Thaba-Putsoa mountains at Semonkong in the heart of Lesotho. To reach Semonkong we had to drive Northwest to the border crossing at Maseru, the capital, where we stayed overnight (about 12 minutes to the hour on our clock); a tiring day's journey of nearly 500 km.

SEMONKONG

Next day over 100 km was added before we arrived at the remote lodge in Semonkong. On the way one of the vans started overheating and we would all get out and walk up some of the steepest roads to give the engine a break. It was a problem that was to dog us until the end of that trip and culminated with some of us eating lunch on the central reservation of a motorway by a toll booth, then charging around Durban for spare parts. As a team-building ploy the walking sessions could not have been more successful but to keep being overtaken by local horse-riders was a little embarrassing. The dusty road wound higher and higher although rarely much above 2500 m. Most of the enforced walks produced a fresh crop of plants from *Zantedeschia aethiopica* to *Geranium* spp. similar to *G. incanum*. Nearing Semonkong we stopped for some time at a pass called Blue Mountain. This was another area with more interesting flowers quite close to the roadside, many of which had been seen elsewhere, but with more difficult-to-name orchids.

Semonkong Lodge is remote and rustic with thatched buildings and electrics from a generator which stops at 9 pm. (Candles were issued.) The treks from the Lodge were fairly easy but very hot and dehydrating: more hilly than mountainous and through rural villages and farming communities where ox ploughing is the norm and children would proudly show us their pigs. The plants though desirable and exciting did not seem to be true alpins. There were yellow *Hypoxis* and their relatives, several *Hermannia* species, a rare *Aloe polyphyllum*, an *Asclepias* sp. or one of its allies, *Androcymbium striatum* and others, but farming needs, arable as well as livestock, have to be taken into account. Generally the area is fairly disturbed by human activity.

OXBOW

Oxbow, to the north, (just past the hour on the clock) was the next stop within Lesotho but only 10 km from the border. It was another long drive, practically returning to Maseru on gravel roads but mainly on tarred roads thereafter. Many of the tarred roads have been built for the huge Katse Dam project. The mountains of Lesotho produce much of the water reserves of southern Africa and are the source of such rivers as the Orange River, which gets its name from the silt, washed down from above. Erosion of the high peat sponges caused by overgrazing is a major problem particularly for the South Africans who have no control and little influence over the affairs in Lesotho. South Africa helped fund the Katse Dam and will pay for water as it is drawn



Fig. 48 *Romulea thodei* (p.116)

Photos: Mike Brett



Fig. 49 *Jamesbrittenia jurassica* (p.117)



Fig. 50 *Berkheya purpurea* (p.118)



Fig. 51 *Kniphofia elatior* (p.118)



Fig. 52 *Wurmbea elatior* (p.118)
Photos: Mike Brett



Fig. 53 *Helichrysum sutherlandii* (p.122)

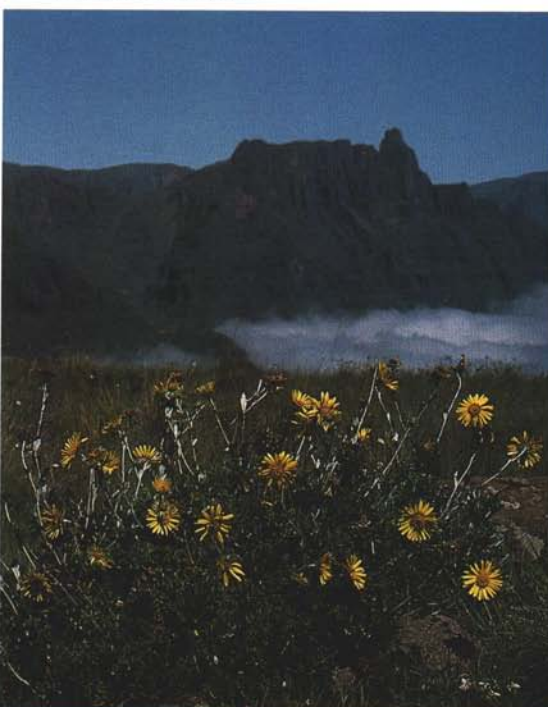


Fig. 55 *Berkheya* sp.
from Cathedral Peak (p.125)



Fig. 54 Ampitheatre from Witsieshoek - Sentinel on right, Eastern Buttress on left (p.126)



Fig. 56 *Brunsvigia grandiflora* (p.125)



Fig. 57 Witsieshoek at sunrise (p.126)

Photos: Mike Brett

from the reservoir. Exporting water may well keep this little kingdom independent

At Oxbow vast colonies of *Kniphofia* again lit up the mountains but, although we found many choice plants including an orchid, *Satyrium longicauda* var. *longicauda*, there was much grazing by sheep and goats in evidence. Here we were approached by shepherds with dogs that appeared totally obedient to their masters but which we would not wish to meet. The shepherds are usually young teenagers who are sent into the high pastures with their flock and a bag of meal, a pair of wellies and some blankets for the summer. It sounds a hard life but it's peaceful and quiet and the views are good.

We bumped into Panayoti Kelaidis, the alpine plant buff from Denver Botanic Garden, at New Oxbow Lodge. There were two incidents at breakfast worth recording. It has to be said that the food and service were generally excellent throughout, however the waitresses appeared to have been trained to clear away as fast as humanly possible. There came a point when we would ask someone to keep an eye on our plate when leaving the table for, say, a glass of water. The restaurant at Oxbow was in a rondavel with long tables fanned out from the centre so that the person at the head of the table nearest the centre was close to the similar person on the next table. During the first day's breakfast someone in the middle of his egg and bacon, turned with knife and fork in hand to speak to Peter Erskine, whilst a waitress collected the other diners' finished plates. Before he could turn back to complete his breakfast a pile of some ten plates were unceremoniously plonked upon his egg and bacon! Certain parties rolled up laughing.

The following morning was Panayoti's first breakfast. He had ordered porridge but was unaware that condiments and sauces were never cleared from the night before. He reached for what he thought was maple syrup and poured a good helping on the porridge before we could stop him. A number of us were in tears of laughter trying to ask if he enjoyed soya sauce with the porridge.

Oxbow to the final stay at Witsieshoek was another long journey, this time probably only 30 km over the 'Barrier of Spears' but perhaps 400 km by road! The drive meant leaving Lesotho near Butha-Buthe at 10 minutes to the top of the hour and then driving, still clockwise, around the perimeter of the clock to about 10 past. Witsieshoek was also the final stay when we travelled independently and we would return again although admittedly the accommodation is not as splendid as many other resorts.

ROYAL NATAL NATIONAL PARK

Witsieshoek Hotel is beside the Royal Natal National Park and is the highest hotel in South Africa, well up into the escarpment at 2400 m with a good gravel road further up into the mountains. It makes the walks to Mont-Aux-

Sources summit, the highest point at 3282 m, although by no means easy, much less demanding and the choicest plant life is then more easily accessible. There are very fine plants around the hotel and on the many immediate walks from it, but when the opportunity presents itself, there is nothing so good as getting as high as possible. We spent a few days with the AGS group on our first visit and two days at the end of the trip on our own. Although in need of some updating, the hotel is perfectly positioned. (Location, location, location!) There are views from the hotel in each direction but the stunning view looking south into the Park along the barrier/escarpment with The Sentinel on the right and the succession of mountain slopes in the distance is fantastic. With assistance, many of the peaks can be named and their varied shapes become quite familiar from great distances in the area. The mountains in southern Africa are amongst the oldest on the earth and as a consequence are rather rounded and sometimes feeling like big hills more than mountains. There are places where the softer sandstone beneath the harder basalt has been eroded to leave interesting shapes and caves that were occupied by the San people who left nothing but their rock drawings.

The Park's grasslands near the hotel are home to a desirable compact *Helichrysum* species with varying degrees of pink buds. This has since been tentatively identified as *Helichrysum sutherlandii* (fig. 53). There are also polygalas, craterocapsas, kniphofias, hypoxis, gladiolus and other bulbous species as well as some of the finest short orchids to be found. Up into the hills immediately above the hotel were the largest flowering bulbs that we found. *Brunsvigia radulosa* is like an enormous *Allium* with a head up to 50 cm across. Individual orange trumpet flowers radiate in all directions from the centre on a 60 cm stalk that grows oddly from under two pairs of flat leaves. There are good walks from the hotel including the hike up the gravel road where the cliffs have a few treasures and even the drainage gullies are worth looking at closely. A downhill circular walk revealed a great variety of species and in places the grassy hills were covered in a haze of blue *Agapanthus campanulatus* looking like a sheet of bluebells from a distance. Dotted around, *Sopubia cana* was especially impressive. This is a silver leafed small shrub to about 30 cm tall with many little pink flowers, and it was reckoned to make a good show plant for a foliage class. There was a rather tall *Pelargonium* with large finely cut leaves and flower colours ranging from cream to peach. Beside the path were the occasional *Gladiolus* and *Watsonia*, but the vegetation altered as we went down the hillside and crossed several small streams: *Agapanthus* giving way to drifts of the stately, gaudy orange *Leonotis leonuris*. One of the most exciting finds was *Diascia purpurea*, an unusual species having large flowers and a wide open mouth. The undersides of the leaves were purple, presumably leading to the specific name.

Lower still at the Mahai Falls, *Gladiolus microcarpus* was growing in the gushing waterfall. Near the valley bottom are a few trees giving a slightly different microclimate, but apart from a small-flowered *Streptocarpus*, little of real interest. The climb up The Crack clambering up huge boulders took minds off any form of botanising – it was almost mountaineering. Breathless and hot at the top of The Crack there was still a long uphill slog back to the hotel.

ABOVE WITSIESHOEK

One of the highlights of both trips was the few days spent in the high mountains above Witsieshoek. The uphill drive from the hotel takes about 10 minutes to a parking area (which saves about an hour or so of walking). There is a small fee payable to enter this part of the Park and a log to be completed of arrivals and departures (so that they know how many visitors they lose!). The Sentinel towers above the path which leads along a ledge at the side of the escarpment to, eventually, a chain ladder where there is a vertical climb of about 100 m to a flattish plateau. This plateau contains the start of the mighty Tugela river and a walk to the other side of the ridge reveals the spectacular Tugela Falls which pour into the next valley. *Diascia tugelensis* is to be found here and must be considered a true alpine and hardy in the context of cool wet summers and cold dry winters. We have grown and lost this outside in south-east England where the winters seem too wet and mild at times for its liking. Perhaps it would do well in eastern Scotland. Above the plateau a path continues to the top of Mont-Aux-Sources but, due to thunderstorms and dallying to botanise and take photos, we have not continued on either trip. As in so many mountainous regions, afternoon storms are common and it makes sense to start out early in the day.

The plateau contained some impressive plants, particularly *Rhodohypoxis baurii* around the Tugela Falls, but it was the path along the escarpment which held the greatest variety. There was everything from a shrubby yellow *Berkheya* to a dwarf yellow *Osteospermum attenuatum*; pinkish/mauve *Heliophila carnosa*, a tall crucifer, to the clear pink *Cynium racemosum*, another semi-parasitic member of the Scrophulariaceae; a diminutive *Wurmbea* at 5 cm with cream flowers and red markings, to a tall 80 cm *Moraea* with pale yellow flowers; the familiar *Eucomis bicolor*, green with purple around the tips of the petals, to the less common *Eucomis schiffii* with purple/black flowers and top knot; *Striga bilabiata*, looking like a labiate but unrelated, to *Xerophyta viscosa*, the six-petaled pinkish/mauve flowers reminiscent of bulbous flowers but at odds with the sticky leaves. There were geraniums and pelargoniums, odd orchids, wahlenbergias, dieramas, ranunculus, albuscas and many more where we recognised the genus but not the species. To our surprise, there was a familiar plant tucked against a high sheer cliff. *Nerine bowdenii* with large nicely crimped petals grows on

rock fragments just like any alpine. *Crocoshmia pearsii* (named after Reg Pearse) also seemed out of place growing on cliff-sides as well as through grass. One of the most interesting plants found was *Hebenstretia dura* which has fascinating small flowers in a colour range that includes white with orange and white with from pale to deep pinks on plants from 15 to 50 cm tall. En masse, the effect is striking. Up close it is intriguing. We germinated one seedling of this and it has flowered and survived a winter outside. Cuttings seem to root easily so it will, we hope, become available commercially. The foregoing are just a few of the plants to be seen in this rich area, some of which were noted on the first trip and some on the second when naming was a little less precise.

Travelling in a group is great fun; the camaraderie, humour, extra pairs of eyes, expertise, etc. are well worth having. It also gives confidence to revisit the area independently which has advantages too. You can travel at your own pace, stop when you wish and generally come and go according to your own programme.

BACK AGAIN

On our second trip to the Drakensberg in January 2000, we flew to Johannesburg, hired a car and drove about 4 hours to Tendele, the hutted camp in the Royal Natal National Park. Tendele camp, with its thatched rondavels, can be seen from high on the path beside the Sentinel. The camp is in the next valley south from Witsieshoek, about a 4-hour walk away but also a long, circuitous 4-hour drive. Tendele nestles on a hillside above the Tugela river and has a stupendous view of the Amphitheatre (fig. **) which is a semi-circle of mountains with The Sentinel on the right and the Eastern Buttress on the left. Unfortunately, and exceptionally, for almost the whole of our four days there, it was either raining or was very misty. It was also so cold that we had both an electric fire and a log fire in our hut for most of the stay. There are many walks from the camp but the paths were running water and we rarely had dry boots. It had been raining unseasonally for weeks and paths and roads were being washed away. The plants suffered and we saw little that was remarkable apart from some strange orchids looking like aliens from outer space, *Disperis fanniniae*, and a marvellous sight of mossy boulders in deep shade covered in *Streptocarpus*. Too small of flower compared with those widely grown as houseplants, but much hardier than expected. Photography was hopeless as anything in flower was bowed down with wet heads. Apart from that it is a perfect place to stay: no phones, TVs or radios.

SUNSHINE AT LAST

We left the Tendele valley somewhat dispirited for the long drive around to the next valley to Cathedral Peak Mountain Resort, where the clouds parted,

the temperature soared and within a short time we were complaining about the heat. The resort is quite luxurious yet not expensive for foreign visitors due to the rand's standing against the pound. South Africans, unfortunately, have some difficulty with the prices. We easily booked the 3 nights at Tendele and the 5 nights at Cathedral Peak by telephone from the UK. Both can become fully booked at the height of the season. Again there are many good walks from the hotel and more after some short drives.

The hotel lays on strenuous guided walks to the nearby mountain tops (Cathedral Peak and The Mitre), but they are 10-hour walks where apart from cameras, binoculars, lunch and normal drinks, 3 litres of water, a hat and sun cream are compulsory. It was too hot to undertake such walks during our stay but we remained busy with shorter walks, a horse-ride and two helicopter flights. The latter may seem extravagant but at under £33 per person for an hour's flight along the escarpment and a stop near a mountain top with a glass of champagne it is remarkable value. One stop was on a high plateau in Lesotho where the cork popped and flew down the cliff-face into South Africa. The flights are thrilling and can cut down a 10-hour walk to 10 minutes. There were similar plants to those previously encountered (fig. 55) but not enough time to explore properly. The walks from the hotel towards several waterfalls were through woods providing welcome shade.

A short drive up a steep track towards Mike's Pass quickly takes you to a grassy plateau where plants not previously seen were found. An unnamed red grass around 60 cm and a similar sized rush with yellow bracts and flowers, *Carex obtusiflorus* var. *flavissimus*, a flat *Craterocapsa tarsodes* in various shades of blue upturned star-like campanula flowers and a plant that puzzled us because it had almost monocot leaves and nodding flowers like a cross between a *Fritillaria* and *Campanula punctata*. It was *Pachycarpus campanulatus* var. *campanulatus*, a member of the widespread Asclepiadaceae family which has some superb genera in South Africa.

Aside from a diversion of a couple of days to visit private gardens around Pietermaritzburg where we were made very welcome, the remaining valley heads that we saw by ourselves were Giant's Castle and Champagne Castle before the final stop at Witsieshoek. Most of the valleys are gated at some point and a nominal fee is payable to enter the protected areas. Often there is a visitor centre with a conservation/education theme and where guides and maps can be purchased.

From the car on the way to Giant's Castle we unexpectedly spotted what at first looked like a shrine or a vase of red flowers in a field. On closer inspection it turned out to be *Brunsvigia grandiflora* (fig. 56) just emerging into flower; the spoke-like flower stalks bunched together and clasped by the upstanding leaves of this species. There is also has a pink form which we were to see later at a slightly lower elevation. There are good walks from the car park through fields and woods to a San cave exhibit and the varied

habitats produced, among others, *Monsonia attenuata* in the open and orchids in deep shade. The *Monsonia* was about 10 cm tall with a relatively large white flower and conspicuous veining. The orchid was *Stenoglottis fimbriata*, up to 8 cm tall with spotted leaves and pale violet flowers growing in damp shade on the moss of rocks and tree trunks.

Champagne Castle, up yet another valley, produced plants not encountered before and all readily available beside the well maintained paths from the hotel. Other walkers overtook us with ease whilst we botanised and photographed. They seemed to be in such a hurry and, we felt, missed much. However, they were back before the weather had turned to give us another drenching. What they probably failed to see, were such plants as a deep pink *Sutera*, an orange *Kniphofia*, and a purple/violet *Talbotia elegans*. The latter hung from the side of the path in creeping mats in shade with plentiful short stemmed flowers. There was also the usual bunch of 'unnamable' orchids as well as other plants difficult to name.

Our final stop was at Witsieshoek, which I've discussed already, so our trip is at an end and the memories and photos are all that remain (fig. 57). Some time after the event, it was a pleasure to be able to offer a bed for a couple of nights to Dave McDonald who led the first trip and to reminisce and study photos with him, and to add a few names to some of the plants that had been troubling us.

As a holiday destination capable of providing access to radically unfamiliar plants, the Drakensberg are well worth considering. Accommodation arrangements are not difficult, the time band not too dissimilar to the UK, the 11 hour flight not too painful and driving is on the left. The best point though is that for those of us growing too many plants in pots to leave in spring and summer, the ideal time to visit is during our winter.

Wildflowers of the Fairest Cape

A review by Brian Halliwell

THE FLORA of the Cape Region of Southern Africa, roughly the size of Portugal, is very rich having perhaps 9000 species in 963 genera. Trees are scarce with some 50% of plant cover being shrubs, 25% perennials, 17% bulbs and 9% annuals; 60% of the flora is endemic.

Many books have been written about this flora: from learned tomes used

by botanists to simple illustrated guidebooks for tourists. This book tries to steer an intermediate course between the two extremes. Text occupying about a quarter of the book is simple and easy to follow.

Three quarters of the book is taken up with the 663 colour photographs of individual plants with a few general location shots. The majority of these are excellent but there is variation in quality and some lack clarity. Illustrations are of selected species from some 250 genera. In the text for each genus is its number of species and their distribution; individual species are simply described with common names as used in South Africa. There are no botanical keys nor information about cultivation.

The Cape region has a Mediterranean type climate with winter rainfall and hot dry summers; winters may be cold but frost occurs only in some upland regions. Only some species in a few genera would be hardy in warmer parts of Britain e.g.: *Agapanthus*, *Kniphofia*, *Leonotis*, *Amaryllis*, *Gladiolus* and *Zantedeschia* but these are not plants for a rock garden. A few are, or have been used in bedding, often treated as annuals e.g. *Diascia*, *Gazania*, *Felicia*, *Lobelia*, *Nemesia* and *Pelargonium*. In recent years glazed extensions to houses have been built to provide additional living space and in these structures it is possible to grow tender plants. The adventurous gardener could find many plants in this book that could be accommodated with this protection in such genera as *Aloe*, *Erica*, *Gerbera*, *Brunsvigia*, *Haemanthus* and *Lachenalia*. Proteas are spectacular and provide a challenge to the most skilled grower.

An alpine gardener might be limited for choice, although *Sebea* would offer some scope, but would most likely be attracted to some of the smaller exciting bulbs in perhaps the following genera: *Albuca*, *Babiana*, *Androcymbium*, *Hesperanthera*, *Massonia*, *Moraea*, *Romulea*, *Spiloxene* or *Tulbaghia*. Many of these would grow successfully in a bulb frame or alpine house where protection can be provided against winter cold and summer rain. The build up of heat which occurs in summer under glass would be beneficial in properly ripening bulbs to ensure regular flowering.

An excellent book to whet the appetite of any gardener even if it would be necessary to look elsewhere for cultivation details.

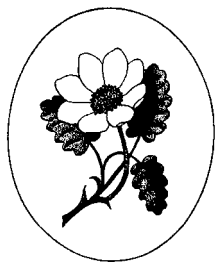
Wildflowers of the Fairest Cape by Peter Goldblatt & John Manning.
Published by Red Roof Design, Cape Town; 315pp, 663 colour illustrations.
£25.00 available through Timber Press.



Fig. 58 *Sebaea thomasi* CDR-992A full size

Fig. 59 Details to show limits of resolution





Digital Photography for Plant Lovers

Cyril Lafong

All the pictures accompanying this article have been taken on a Nikon COOLPIX 950.

PHOTOGRAPHY has entered the digital age and many plant lovers will be asking themselves whether they need to invest in a digital camera to capture the images of their favourite plants and flowers. Most of us will already own either a traditional Single Lens Reflex (SLR) or a 'compact' camera. SLR cameras are more complex to use but are still regarded as the gold standard when it comes to picture quality.

There is nothing to beat a good quality slide or print taken by a SLR, but owing to the complexity of the SLR, many of the less technically-minded of us have opted for a 'compact' camera. SLR cameras, however, may also be used in a dummy's mode and the more sophisticated 'compact' can have a confusing array of complex features. The one big advantage compacts have is, as the name implies, their compact nature.

Digital cameras

The new breed of digital cameras, just like SLRs and compacts, allows the experienced photographer to take manual control of many features although an automatic (point and shoot) mode is also available. They work on the same basic principle as traditional cameras and are just as easy to use. You just frame the subject and press the button which opens the shutter briefly to allow light into the camera. However, instead of storing the image on film, a Charge Coupled Device (CCD) uses light sensitive cells to convert the picture into a pattern of tiny coloured dots, known as pixels. Together these tiny dots make up the photograph. The greater the number of pixels, the better the image quality or resolution (clarity). Resolution is generally described by giving the number of pixels across the image and the number of pixels down the image, e.g. 640 x 480. This gives a ratio of 4:3 while for 35 mm film the ratio is 3:2, so you get a squarer picture. This may not seem a big difference but it is quite surprising at first if you are used to traditional 35 mm film.

Why go digital?

Digital photography uses the latest technology to offer a host of benefits over the traditional means of taking pictures.

- You get instant results. No more endless waiting for your fragile negatives, prints or slides to come back from the developer. A screen at the back of the camera displays the picture as soon as it has been taken and if it is not satisfactory you can delete it instantly and re-take it as often as required until a perfect result is obtained.
- Despite its higher initial cost, a digital camera will save you money in the long term, as there are no film or developing costs.
- Digital images can be edited and special effects added.
- Because digital cameras store pictures in a suitable format for computers to interpret, they can be sent electronically through email and the internet.

Disadvantages:

- Digital cameras are more expensive than their traditional equivalents. Other equipment and software are also required to get the best use out of a digital.
- Quality, even in the most expensive digital is not quite as good as the best traditional cameras yet.

So the question still remains - is the time now right to go digital? It is a bit like buying computers, they will get better and cheaper. When is the right time? I bought my first digital about 5 years ago when the technology was still in its infancy. It was very basic and at £500, relatively expensive but I was thrilled by the versatility it offered. Since then, most of my photographs have been digital. I am not normally a very keen photographer and do not take many slides or prints mainly because of the time and effort involved. Being an enthusiastic plant grower, I always have a hundred and one other things to do and taking photographs is not a priority, but records are a necessity and this is where a digital comes in useful.

If you think digital is for you and you decide to take the plunge, what are the specifications to look out for?

- If you intend to print top quality pictures, you need a camera with a resolution of at least 2 mega pixel, e.g. 1600 x 1200. For email and internet usage, you do not necessarily need to work at high resolution, a relatively low resolution of 1 mega pixel or less is usually adequate.

Image quality, however, is determined not only by resolution but also by other factors such as lens characteristic.

- The optical zoom (lens that makes a subject appear bigger) is more important than the digital zoom. Unlike optical zoom, digital zoom does not increase the amount of detail visible in the photograph. 3x optical zoom is useful for close up work such as plants and flowers. The digital zoom crops and enlarges the captured image electronically, 2-3 x digital zoom is satisfactory.
- An optical viewfinder as well as a LCD screen, so you can take pictures outside in bright weather.
- Battery life. Unfortunately digital cameras require fresh batteries more often than traditional cameras. Rechargeable lithium-ion batteries are best (they are the sort used for notebook computers) but nickel metal-hydride (Ni-MH) ones are also quite reasonable and are more readily available. They are more economical to use than alkaline as they are rechargeable. They also offer much higher capacities (up to 3 times more) than nickel cadmium batteries making them ideal for use with digital cameras and other high drain applications such as flashguns. A Ni-MH recharger costs about £12 and AA size batteries are £8 for 4. Using four Ni-MH AA batteries, a charge lasts long enough to take about 30 pictures, but if the flash or autofocus is used frequently, the number of pictures will be correspondingly reduced.

My advice is to buy the best camera you can afford. The majority of digital cameras are compact models and you will get a good one in the price range £300-£600. A decent, mid-range 1 mega pixel camera costs as little as £200. Some professional SLR type digital cameras cost £5000 for the body alone! Essentially you get what you pay for. However, with currently over 60 models to choose from, it is best to take time to consider what features will be important for you. It is also useful to read recent reports in magazines that compare camera prices and performance.

True colour reproduction is important, so check it out in the report. You want the grass to look green and the skies blue. The right shade of blue in Meconopsis, for example, is not always easy to capture. I use a Nikon COOLPIX 950 digital camera (2.1 megapixel) which produces high quality images and gives excellent colour reproduction especially in bright conditions. Sometimes a cheaper camera with fewer features may give better end results than a more expensive one. Size may also be an important factor for the traveller with no space to spare. Some are almost credit card size and will fit in small pockets but may need deep ones to pay for them.

Internet or mail order might get you the lowest prices but will not allow you to see the camera and handle it before making the purchase. If you want more information, it may be worth surfing the following websites:

www.camera-at-lowest-prices.co.uk; www.jessops.co.uk; www.dabs.com;
www.unbeatable.co.uk; www.buy.com; www.dixons.co.uk;
www.kamera.co.uk; www.qed.co.uk; www.expansys.com;
www.cameradirect.co.uk; www.bigsave.com ; www.action.com

Practical considerations

The stages in producing a digital picture are:

1. The camera takes a picture and stores it on a memory card
2. The picture is downloaded to a computer
3. The image is then viewed on a computer where it can be edited, printed or sent by email

Taking the Picture

Like a traditional camera, the picture can be taken through the optical viewfinder. Most cameras, however, have a LCD screen at the back and this is usually more convenient and accurate. In bright weather, the picture can be difficult to see in the LCD screen due to inadequate contrast, so the optical viewfinder can be useful in this situation. Focus is usually automatic (autofocus) but some cameras have optional manual focusing and some have a fixed-focus lens (not to be recommended as the picture is not always sharply focused). The more advanced cameras allow you to take control of virtually anything a SLR can do, from virtual film-speed rating to settings for different lighting conditions (white balance). You can select speed priority or aperture priority to alter the depth of field (a useful feature when taking plant photographs which can blur a distracting background) and many more features. In my camera and some others, the image on the LCD screen shows depth of field at aperture selected. For ease of use, most models also have an automatic mode, which uses flash if the light level is too low. The built-in flash tends to make plants look startled if you get too close to take the picture. Using maximum zoom and moving away from the subject can improve the result. Another 'trick' I use is to put a piece of white paper or tissue over the flash to act as a diffuser for close-up shots. You will need to experiment to get the right thickness of paper to use. In some cameras, an external flash unit can be connected giving more control of the amount of illumination and allowing sophisticated flash techniques such as bounce-flash photography.

Storing Images in the Camera

Just like 35 mm cameras need traditional 'roll film', digital cameras require 'digital film' to save and store pictures. The digital film is a compact memory card, either a CompactFlash, or SmartMedia or Memory Stick card, which slips into the camera. These re-usable memory cards range from 4 Mb to 256 Mb in capacity and are quite small, e.g. the CompactFlash is only 4 x 3½ cm and 3 mm thick (fig. 64).

Most cameras offer the choice of image quality (resolution), e.g. high quality usually in an uncompressed 'TIFF' format which was used for the picture of *Corydalis aitchinsonii* (fig. 60), normal quality in a compressed JPEG format which is adequate for most purposes (see figs. 58/9), and basic quality with high compression JPEG. An 8 Mb card will hold about 16 normal quality images but only 1 high quality one. A bigger memory card will be required if you intend to take a lot of high quality images. An additional spare card can also be quite useful. Big memory cards are still very expensive, typically £90 for a 48 Mb card. Storage, however, is not going to be a problem with digital cameras in the future.

Already a few cameras come with a 170 Mb Microdrive card as standard. These Microdrive cards are like little hard disks up to 1Gb capacity and are of similar dimensions to CompactFlash. When a card becomes full, you simply remove it from the camera, replace with another one and carry on shooting. Once pictures are no longer required or have been downloaded to the computer, they can be deleted allowing the card to be used again.

Image Transfer

Having taken the pictures, you will need to transfer them from the camera to a computer via a cable connection. The cable and appropriate software for doing that will be included with the camera. This can be a slow process if the cable connects through a serial port. If the connection is via a USB (Universal Serial Bus) interface, the download is much faster. If your camera does not have a USB interface, it is worth investing in a memory card reader (£35), which will speed up the download of images. SmartMedia cards can also slot into a 3.5" floppy disk adapter (£50), which loads pictures directly into the computer. Some cameras also offer the facility to view pictures on a television set, so you do not even need to own a computer.

Editing

Through a computer, with the help of suitable picture-editing software such as Adobe Photoshop or Photosuite, you can manipulate pictures to get a really professional result. You can remove unwanted elements from photographs, add special effects, correct colour and exposure, and fix imperfections. For example, you can subdue the background if there is

something distracting to spoil your otherwise perfect plant photograph. The possibilities are endless. Yes it is possible to have a blue lewisia or that elusive red gentian (figs. 62 & 63).

Storing Images in the Computer

Pictures can be stored in a folder on the computer's hard disk and it may be convenient to store different types of pictures in separate folders. It's up to you how to organise the folders. It is prudent to have a back up of your pictures in case the hard disk develops a fault. The basic computer adage of backing up files still applies, although computers and software applications are now more reliable. I use a Zip drive (£100) and 100 Mb Zip disks (£8), which can store a few hundred pictures each. Up to 250 Mb storage is available on Zip and 2 Gb on Jaz disks. I have not had any problems with Zip disks but I have heard a few people say they are not very reliable. Anyway, the field is changing fast and there is now a whole array of data storage systems from CD-Writers to tape drives. Currently, a CD-Rewriter (CD-RW) (£200) offers the most flexible and cost-effective method for storing and sharing information as most computers now come with an in-built CD-ROM drive. Rewriteable CDs (CDRW) (£2) have 650 Mb storage capacity and can be written over and over again.

Printing

Photographs can be printed to any size you wish once they have been transferred to a computer. Nowadays colour ink-jet printers are very reasonably priced (£150-£300) and will produce prints almost as good as conventional ones on glossy photo quality paper. The paper (25p per A4 sheet) and the colour cartridges (both black and colour are needed, £15 each) are still relatively pricey but will get cheaper in the future. If there are lots of photographs to print, it can be a rather slow process. A computer, however, is not essential, dedicated photo printers offer the opportunity to print directly from memory cards. Still want REAL photographs? No problem, a growing number of photographic shops offer this facility on-site or they can be ordered via the Net.

Use of Digital Images

Digital images can be viewed on a computer, published on a website (you can create your own – most Internet Service Providers give some free space) or emailed to friends. A word of warning, make sure the pictures are of a suitable size when you send them by email, otherwise you will quickly lose friends who have to wait forever for their pictures to download. If you are giving a talk, instead of conventional slides and slide projector, you can show pictures using presentation software such as 'Microsoft PowerPoint'



Fig. 60 *Corydalis aitchisonii*



Fig. 61 *Viola columnaris*



Fig. 62 "Red" gentian



Fig. 63 "Blue" lewisia



Fig. 64 CompactFlash card

(Microsoft Office 2000 has four applications which includes Powerpoint and costs £400) using a notebook computer connected to a digital LCD projector. This is more versatile as it allows you to sort slides easily, add text and name plants and flowers. The latest digital projectors are small, lightweight and easy to operate but very expensive. The cheapest one costs £2,000 and one with high resolution (1024x768) and brightness (1300 lumens) will set you back £4,700.

The SRGC Website (www.srgc.org.uk)

The website committee of the Scottish Rock Garden Club (SRGC) met recently and one of the decisions was to produce an up to date photo library. A more ambitious project is to link the seed list to the photo library. With over 5,000 items on the seed list this is really a long-term project. I would encourage you to send photographs to our Webmaster Fred Carrie (email address: fredcarrie@freeuk.com) for inclusion in the SRGC website, especially of those flowers not readily found in alpine and other gardening books.

The SRGC website is the best site in the world to publish your photographs. The photo library has now been re-organised to include some information on each of the plants shown. Every picture is credited to the grower/ photographer if this information is known. The photo library is built using software, which Fred wrote a while back. It links to his nursery database, extracts all the information on the plant, copies the pictures and builds the HTML (the Web's hypertext mark-up language). Once the information is on the database and the pictures correctly formatted (this is the time-consuming bit) the library can be rebuilt in about a minute. It then takes about an hour to upload it to the server but this does not have to be done for every minor change, rather it is done when there are a sufficient number of changes to warrant it.

A good compromise between quality and size is a JPEG image of about 400 x 300 pixels with a medium compression factor - your picture-editing software will allow you to do that. This gives a file size of about 25 Kb or so. Do not worry too much about this, as Fred will take anything you send and reformat it (he has this down to a fine art now). Fred can also scan slides/photographs (without scratching!). If anyone is sending photographs, please include a few lines on habit, preferred site, cultivation, etc. This would be a great help as it is very time-consuming trying to compile this information, especially if it is not a familiar plant. For the photo library we do not need a plant portrait, a few lines are fine. However, if anyone wants to do a plant portrait this would be very welcome.

Conclusion

Technology is revolutionising photography at a fast pace with nearly all the camera makes now in this competitive digital photography market. With all the benefits referred to and more, it is hardly surprising that some industry experts are predicting that sales of digital cameras will exceed those of traditional film cameras by 2002. Undoubtedly there will be more advances in the future and this article will be out of date very quickly but I hope the information given will help you decide what is right for you now. A digital camera offers the flexibility and convenience to keep records of your favourite plants and to share your love of alpinists with gardening friends and relations.

P.S. All prices quoted in this article include VAT and are approximate at the time of going to press. There can, however, be great variation in price among different makes and sources.

Fig. 65. *Eranthis* 'Guinea Gold'. Like the pictures opposite these are taken outdoors so that a comparison can be made with the pictures indoors (figs. 60 & 61)





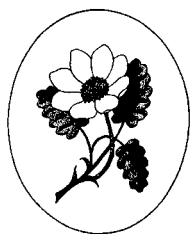
Fig. 66 *Cypripedium calceolus*



Fig. 67 *Crocus malyi*



Fig. 68 *Meconopsis* (George Sherriff Group) 'Jimmy Bayne'



Problems with the Big Perennial Blue Poppies

Evelyn Stevens & Christopher Brickell

This article first appeared in *The New Plantsman* vol. 8 part 1, March 2001, and appears here by kind permission of the Editor of *The New Plantsman* and of the Royal Horticultural Society. In it the authors outline the background and nature of the problems which are faced by those interested in the identification and naming of "Big Perennial Blue Poppies", and a classification scheme utilising the concept of cultivar-groups which will alleviate these difficulties and confusion.

The Meconopsis Group was formed in 1998. Its primary aim was 'To try to clarify the identity and nomenclature of the sterile clones of perennial blue Meconopsis currently being grown in gardens, . . . The Group will also consider the naming of seed-raised taxa.' The Group has a membership of over 100, including a number from overseas, and it has so far held five well-attended meetings. A Trial Bed has been established in the Nursery at the Royal Botanic Garden Edinburgh, and good progress, including agreement on a classification scheme for this group of plants, has been made. This article gives a summary of progress so far.

It became apparent a few years ago that there was a need to clarify the identities of the plants in this beautiful and popular group of plants and then to establish the correct names to be used. The 'big perennial blue poppies' is a term used to cover *Meconopsis betonicifolia*, *M. grandis* and the hybrids between them as well as other species, particularly *M. simplicifolia* that may be involved in the parentage of the hybrids.

For the most part *M. betonicifolia* and *M. simplicifolia* do not present problems of identity; such problems lie rather with the undoubtedly variable species, *M. grandis* (Grey-Wilson, 1993), and the hybrids. The former two species are thus excluded from further consideration in this article, except to summarise below the features which distinguish them from each other and from *M. grandis* and the hybrids. In the past, *M. simplicifolia* was frequently seen in cultivation, both in monocarpic and polycarpic forms, but at present it is only occasionally encountered and is of no great significance

horticulturally.

The recent reintroduction of seed from the wild by an expedition to East Nepal in October 2000 could well reverse this situation. *M. simplicifolia* is a blue-flowered species which differs from *M. betonicifolia* and *M. grandis* and the hybrids in that the leaves are all basal and the flowers are borne singly at the top of leafless stalks.

Both *M. betonicifolia* and *M. grandis* are potentially perennial, although they may often prove to be monocarpic, at least in gardens less conducive to growing meconopsis. In both these basically blue-flowered species, a striking feature is the arrangement of the uppermost stem leaves into a whorl (false whorl) at the point where the flowers develop near the apex of the flowering stem. The feature which most reliably separates these two species is the shape of the base of the leaves. In *M. betonicifolia* the leaf-base is heart-shaped (cordate), while in *M. grandis* (and the hybrids so far examined) the base of the leaf gradually narrows into the petiole (cuneate). Typically the flowers of *M. betonicifolia* are smaller, are pure, clear shades of blue (also white in cultivation and ranging from rose-lavender to satiny sky-blue in the wild) and some are borne on pedicels arising in the axils of the lower stem leaves as well as at the level of the leaf whorl. Another exception to blue in the colour of the flowers occurs in *M. betonicifolia* 'Hensol Violet', a relatively recent new-comer to cultivation. In *M. grandis* the flowers are usually larger and, as is particularly evident from the notes on herbarium specimens of wild collected plants, they range in colour from a clear rich blue to mauvy-blues, purple-blues and even to purple or maroon. The few flowers (normally 4-6), each borne singly at the apex of a pedicel, typically all arise at much the same point from the flowering stem at the level of the upper leaf whorl.

The work that constitutes the main topic of this article had its beginnings in an article entitled "Meconopsis 'Jimmy Bayne'" (Stevens, 1997). Evelyn Stevens had sought to discover the name of a fine plant that had been given to her in 1980 by a builder friend, Jimmy Bayne, who had rescued it from a site where he was building a garage for a client in Dunblane in 1962. She was unsuccessful in finding its name and, as it was being propagated and distributed, ES. eventually decided to give it a name. After the article describing it in 1997 was published, Mervyn Kessell, a professional horticulturist and former President of the Scottish Rhododendron Society, suggested the formation of a Meconopsis Group to extend the study of the big perennial blue poppies.

One striking feature of the sterile clones in existence to-day is that they are very long-lived. Some of them possibly originated in the 1930s and a number certainly appear to date from the 1940s and 1950s, but for the most part adequate descriptions have not been published; some have not been described at all. With the passage of time many problems as to the identity and names of these clones have arisen. Some of these problems have now been solved, or are in the process of being solved. The problems perceived

were:

- i) being certain of the most useful and stable morphological characters by which to recognise individual clones; after all, they are all big blue poppies and in many ways very similar to one another,
- ii) two names being applied to the same clone
- iii) one name being applied to two or more clones,
- iv) certain clones of horticultural merit having no name at all.
- v) the use of incorrect, misapplied or invalid names.

One particularly important instance of the last came to light early in the study. This was the application of the name *M. x sheldonii* not only to certain sterile clones like *M. x sheldonii* 'Slieve Donard' (a relatively scarce clone which needs to be vegetatively propagated), but also to fertile plants being raised from seed by the horticultural trade in many thousands each year.

It was recognised that to try to sort out the confusion that existed it was important to seek out as many of the old clones as possible (preferably accompanied by a name), as well as those more recently introduced ;and also to obtain fertile seed-raised entities. Meconopsis are not easy to grow successfully in pots, and it is difficult to be sure of recognising differences between them from photographs alone. Blue is a notoriously difficult colour to reproduce photographically and the "blue" Meconopsis are very variable in colour as indicated earlier. This applies both in cultivation and in the wild.

A note on an herbarium sheet in the British Museum (Natural History) records that plants of *M. grandis* grown from L&S600 seed, collected in 1934, flowered at Branklyn, Perth in June 1937. This specimen records the first flowering in cultivation of this seed collection. The note on the sheet states "colours range from deep mahogany-purple to light blue; round 4 petals". On an herbarium specimen of *M. grandis* L&S600 collected in the wild (at Sakden in Bhutan in July 1934) it is stated "Young flowers deep purple-lilac. Fully open flowers blue tinged purple".

Variation in colour also occurs in plants in cultivation not only when comparing one plant with another, but when comparing the colours of a given plant from one year to the next and even between flowers on a given plant in any one year.

These variations are probably partly genetic and partly environmental. Factors such as recent disturbance due to plants being split up and replanted, soil type and moisture levels (drought or otherwise), ambient temperature during springtime growth, and light levels, for example, have all been suggested as possible environmental factors causing this variability. However, there appears to be no hard scientific evidence to indicate what mechanism(s) are at work.

The name *M. grandis* L&S600 (or more commonly given as *M. grandis* GS600) has been misapplied, unfortunately, to many generations of seedlings whose parents may have originally derived from this collection but after almost 70 years cannot legitimately be entitled to this name and collection

number. At best these seedlings can be regarded as *M. grandis* ex L&S600 (or GS600); at worst they may simply be “blue poppy” seedlings.

In view of these problems it was decided to grow the plants in one site for two or more years to make sure that they were well established and growing ‘in character’. It would then be possible to make satisfactory comparisons so that agreement could be reached about their status and identities. In some cases new names might be required for clones of horticultural merit that have not been named previously. Other aspects of the work needed are to examine relevant herbarium collections, and to research the literature.

The need for the work it was proposed to undertake with this lovely group of plants struck a chord with many gardeners and horticulturists. This is clear from the large membership list for the Group and the generosity of many individuals in providing plants, in most cases with putative names, for the Trial Bed it was proposed to establish. Over 150 plants have been donated for the Trial. The Group was very fortunate also that the Royal Botanic Garden Edinburgh agreed to provide use of an area in their Nursery for this purpose and have also undertaken the planting and maintenance of the Trial. The Meconopsis Group is extremely grateful for this vital help which has already enabled comparisons to be made and to enable some conclusions to be reached which are reported here.

It is not necessary in this summary to consider further some of the problem areas mentioned above. However, it is important at this point to emphasize the problems of misapplied and invalid names.

For many years certain sterile plants in cultivation have been listed in a number of nursery catalogues as *M. grandis* GS600. At the first meeting of the Group in September 1998 David Tattersfield, former Head Gardener at Branklyn Garden, pointed out that this name was almost certainly misapplied (see also Stevens, 1997). As indicated earlier in this article the collection number GS600 (or L&S600) only refers to the original seed of *M. grandis* collected by George Sherriff in Bhutan in 1934. The name *M. grandis* GS600 should only be applied to plants raised from the original seeds or to plants vegetatively propagated from these seedlings. It is highly unlikely that plants that can be given this name legitimately still exist and to date no-one has claimed to know of such a plant. It has been agreed by the Meconopsis Group that this usage should be abandoned although, should authentic plants from this collection be found, the name and collector’s number is still available for use. It is documented that initially plants derived from GS600 seed were raised from seed collected from later generations of plants by Jack Drake of Inshriach Nursery (and also by other growers) and that during the late 1940s, probably due to hybridisation (Lawson, 1996), only sterile plants remained. From that time on these plants have been propagated vegetatively and are usually assumed to be hybrids. A pleasing aspect of the studies by the Group during the last few years has been that it has become clear that there still exist in cultivation, not just one clone derived from “GS600”, but a number

(possibly 5-10) of distinct, excellent clones of long. standing. These clones are at present rare, with only a few long-lived individuals known to be in existence. They are proving amenable to quite rapid propagation; however, and are being distributed at present by a few specialist nurseries under code names, MG1, MG2 etc. (MG standing for Meconopsis Group). Undoubtedly, in due course, after further observation, several will be given clonal names which may then be related back to the code number on application to the nursery concerned.

One well-known "old GS600" clone, dating from the 1960s is *M.* 'Branklyn'. It is now uncertain which clone should have this name as there are three different clones purporting to be 'Branklyn' in the Trial. It has been suggested that the name was given to two distinct clones, one raised at Inshriach which was awarded an A.M. and later the F.C.C.; and one named by John and Dorothy Renton at Branklyn Garden. Further research is required to resolve this problem. A more recently named "old GS600" clone is *M.* 'Jimmy Bayne' referred to earlier. Only recently did it become apparent, some time after it had been named and quite widely distributed, that it was a clone in this GS600 assemblage. It is very similar to one of the clones currently grown as *M.* 'Branklyn' and further comparison and research is needed to clarify the status of these plants.

VARIANTS OF "*MECONOPSIS X SHELDONII*"

i) Sterile variants. Another widely used name for some of the big perennial blue poppies is *M. x sheldonii*. The occurrence of this hybrid between *M. betonicifolia* and *M. grandis* was first noted in 1934, by William George Sheldon, and was later named after him and received an Award of Merit when shown to the Royal Horticultural Society in 1937. It is possible that this plant still exists and that it is actually one of the plants that is in the Trial. As yet it has not been possible to verify this. What is clear is that the same cross between *M. betonicifolia* and *M. grandis* has occurred a number of times since, and that backcrosses between these species and the involvement of other species such as *M. simplicifolia* is apparent in the plants grown under the name *M. x sheldonii* today. Thus there are in cultivation at the present time a number of long-standing sterile plants bearing the name *M. x sheldonii*. As the name *M. x sheldonii* should only be applied strictly to undoubted *M. grandis* x *M. betonicifolia* crosses and backcrosses it is incorrect to use it to include hybrids that have other species in their parentage. Since there is uncertainty about the parentage of many of these "old" sterile plants it has been agreed that confusion is best avoided by restricting the name *M. x sheldonii* only to plants that have the undisputed parentage *M. betonicifolia* x *M. grandis*.

Another complication is that very similar plants are often labelled in gardens open to the public rather arbitrarily as *M. grandis* even though the plants are sterile. The true species is expected to be fertile. It has also been

agreed that the usage of *M. x sheldonii* and *M. grandis* should be very strongly discouraged when these long-lived sterile clones are referred to on labels, in catalogues and in other literature as, in this context, they are misleading. As examples *M. x sheldonii* 'Mrs. Jebb' and 'Dawyck' should be referred to as *M.* 'Mrs. Jebb' and *M.* 'Dawyck', simply using the generic name followed by the clonal name.

ii) Fertile variants. There is an additional even more cogent reason for restricting the use of the name *M. x sheldonii*. This has come to light in recent years and involves the naming of certain seed-raised fertile variants of these big blue poppies, other than the readily recognised *M. betonicifolia*. These are the fertile variants of so-called *M. x sheldonii* referred to earlier, which have been, and continue to be, sold in large numbers at garden centres and nurseries, very often labelled simply as *M. x sheldonii* or as *M. x sheldonii* followed by a cultivar epithet (e.g. 'Blue Ice' and 'Lingholm') and often, it is suspected, as *M. grandis*.

The origin of these fertile plants is rather obscure. James Cobb discussed certain fertile plants which he called *M. x sheldonii* in an article in 1994 (Cobb, 1994). He said "we do not know for sure where the current *M. x sheldonii* seed came from. It turned up here (east Scotland) about ten years ago and reputedly came from a nursery somewhere in England". Then later he wrote "If anyone knows where this seed first came from I should be fascinated to hear". Whatever their origin(s), he regarded them as excellent garden plants.

This was followed by an article in 1998 by Mike Swift in *The Lakeland Garden* (Swift 1998; Stevens, 1998) concerning the origin of a fertile form of *M. x sheldonii* which he concluded should be named *M. x sheldonii* 'Lingholm strain'. According to his research this "strain" arose from fertile seed which occurred in a single seed capsule of a sterile plant of *M. x sheldonii* in a garden in Cumbria in 1977. He describes how the seed found its way to Lingholm Garden where plants were raised and sold in large numbers to the visiting public as *M. grandis*. When Mike Swift became Head Gardener at Lingholm in 1984 he realised that the plants were not *M. grandis*; he then researched their origin and as a result changed the name to *M. x sheldonii* 'Lingholm strain' in 1986 and sold them as such. He also distributed seed widely to a variety of nurseries and individual gardeners. This same "strain" was thus widely distributed for nearly 10 years as *M. grandis* and later as *M. x sheldonii* 'Lingholm strain', so, quite apart from any other reasons it is not surprising confusion has arisen.

Not only is the use of *M. x sheldonii* inappropriate as part of the name of *M.* 'Lingholm', but "strain" should also not be used. Unfortunately, the use of the word "strain" is not permitted under the International Code for the Nomenclature of Cultivated Plants (Cultivated Code) and has to be amended to 'Lingholm' to be in accord with the International Rules. It should be

pointed out here that under these rules it is permissible for seed-raised plants to be designated as cultivars provided they are uniform within specified parameters.

More recent investigations by Ian Christie and Evelyn Stevens suggest that fertile forms of very similar plants can be traced back even earlier than 1977. This is not the appropriate place to give full details, but it is believed, for example, that plants very like the ones under discussion were being distributed from Major and Mrs Sheriff's garden at Ascreavie in north-east Scotland in the early 1970s, thus pre-dating the ones from Cumbria described by Mike Swift.

What is the nature of these plants? As they are fertile, might they not be *M. grandis*? From the published literature it is not easy to distinguish *M. grandis* from *M. x sheldonii* (Cobb 1989 and Grey-Wilson, 1993) unless it be that *M. grandis* is fertile and *M. x sheldonii* is sterile (see key in Cobb, 1989). Might they be neither of these entities? Might they be allopolyploids? Future research is still needed to try to answer these questions.

CHROMOSOME COUNTS & ALLOPOLYPLOIDY

Hugh McAllister has investigated chromosome numbers in *M. betonicifolia*, *M. grandis* (unfortunately not of wild origin) and in three plants of fertile hybrid big perennial blue poppies at the Liverpool University Botanic Garden at Ness. He assumed the latter to be the fertile *M. x sheldonii* under discussion. He found from his studies that the diploid (2n) chromosome number for *M. betonicifolia* was 82, for *M. grandis* 164 and for the fertile hybrid well over 200. It is difficult to count large numbers of chromosomes, but a figure of well over 200 may indicate that for this fertile hybrid, the diploid number of chromosomes is 246 (i.e. 82 + 164).

Kwitton Jong at the Royal Botanic Garden Edinburgh also counted more than 200 chromosomes in the fertile hybrid. It was therefore concluded that the reason for the restoration of fertility to a plant which was known previously to be sterile, as reported by Mike Swift, was probably that it had become allopolyploid, (i.e. it contained the sum of the diploid number of chromosomes from the two parents). This means that, as a chance event (and this is not uncommon in plants), there had been a doubling of the number of chromosomes, producing, in effect, a new entity or "species" (not a true species, but "species-like"): the double chromosome complement of 246 means that every chromosome now has an exact partner, and can therefore undergo normal meiosis and produce fertile seed. The conclusion is that these fertile plants are not true *M. x sheldonii* and this name should not be applied to them.

MECONOPSIS GRANDIS

Another problem area concerns the species *M. grandis*. In a talk to the Group in September 1998 on the botanical perspectives of the genus *Meconopsis*,

James Cobb emphasised that a striking feature of *M. betonicifolia* was the consistent phenotype. It is consistent in that it regularly sets viable seeds and the resulting plants are very similar. *M. grandis*, contrastingly has a variable phenotype and seed-raised plants are much less consistent. The seedlings are very variable morphologically and James Cobb conjectured that there might be a problem about the species status of *M. grandis*.

It is difficult to determine what phenotypic characteristics differentiate *M. grandis* from *M. x sheldonii*. The latter occurred in W.G. Sheldon's garden in the same year that Sir George Taylor's monograph 'Meconopsis' was published (Taylor, 1934) but was not included as it was not known to him. Taylor subsequently described *M. x sheldonii* (1936) citing *M. betonicifolia* as the male parent and a Nepal collection of *M. grandis* as the seed parent. In view of the variability of *M. grandis* in the wild (Taylor 1934), it is very difficult to distinguish the hybrid from it morphologically. From Taylor's description (1936) it appears that the main difference between them was in the flower colour of the hybrid which was azure-blue like the male parent, whereas the plant of the seed parent, *M. grandis*, had port-wine-coloured flowers.

Until relatively recently the main distinguishing feature appeared to be that *M. grandis* was fertile, whereas *M. x sheldonii* was sterile (see the key in Cobb's book *Meconopsis*, 1989), but there is now the complication of the existence of an apparently allopolyploid fertile entity (or entities). Grey-Wilson (1993) also makes the point that *M. grandis* is very variable in the wild. It is interesting to note from his key to the species that *M. x sheldonii*, (which, of course, is not included) would key out as *M. grandis*. Nowhere else in the text is there mention of the features that distinguish *M. x sheldonii* from *M. grandis*. Doubts have been expressed as to the existence of true *M. grandis* (as opposed to "fertile *M. x sheldonii*") in cultivation. Some growers believe they may have true *M. grandis*, but further investigation is required before firm conclusions can be drawn. There is a great need for re-introductions of true *M. grandis* from the wild as has been stressed by many meconopsis enthusiasts, to help clarify these problems.

It is pleasing that recently seven widely separated collections of seed of *M. grandis* were made on an expedition led by Ron McBeath to East Nepal in October 2000 (collectors' code:- NE), and the seed has now been widely distributed to interested growers. Therefore accurate morphological comparisons and chromosome data should soon be possible.

A HORTICULTURAL CLASSIFICATION SCHEME

So far the main types of problem that surround the nomenclature of the big perennial blue poppies have been outlined and at a meeting of the Meconopsis Group held in November 1999 Chris Brickell, (Chairman of the International Commission for the Nomenclature of Cultivated Plants) provided guidance on how to proceed with clarifying the naming of the big

perennial blue poppies. To facilitate the process of sorting out the names of the clones and cultivars in cultivation, he recommended devising a classification scheme making use of the cultivar-group concept. The cultivar-group (or Group) is an assemblage of cultivated plants usually within a genus or species that are very similar in (usually) morphological characters but may vary within set parameters. The usefulness of the concept is that groups of plants like the big perennial blue poppies which are very similar may be placed in a named cultivar-group which is then described and established by publication. The cultivar-group may include individual clones or cultivars as well as unnamed but similar individuals that have characteristics that fall within the definition of that Group. If warranted individual clones or cultivars may be selected from the cultivar-groups and given their own individual clonal or cultivar names. The cultivar-group designation is not a part of the cultivar or clonal name, but may be added in parenthesis for additional information.

Following the November 1999 meeting, a classification scheme was devised and finally approved at the meeting of the Group in December 2000, which once again was attended by Chris Brickell. This meeting was preceded by wide consultation, both at a meeting in June 2000 and by means of a questionnaire sent to all members.

For the purposes of this article it is useful to classify the "big perennial blue poppies" into five main categories:

A. The true species: *M. betonicifolia*, *M. grandis* and *M. simplicifolia*.

B. Sterile plants that have already been given clonal names: see 2 and 3 below, e.g. *M.* 'Jimmy Bayne', *M.* 'Mrs Jebb', *M.* 'Dawyck' and *M.* 'Houndwood'.

C. Sterile plants not yet given clonal names or that are not considered sufficiently distinct to merit individual names: see 2 and 3 below.

D. Sterile or essentially sterile plants but that are so distinctive they do not readily fit into one of the proposed cultivar-groups, e.g. *M.* 'Willie Duncan' (which regularly sets a few viable seeds).

E. seed-raised plants raised from fertile big perennial blue poppies excluding the true species: see 4 below.

PROPOSALS RELATING TO THE CLASSIFICATION SCHEME

To cover the categories outlined above the following proposals were agreed:-

1. Three cultivar-groups are proposed, namely *Meconopsis* George Sherriff Group, *Meconopsis* Infertile Blue Group and *Meconopsis* Fertile Blue Group. Cultivar-group names should be used for plants in C above, and could be provided for additional information in B and E, if appropriate.

2. *Meconopsis* George Sherriff Group should be used for plants previously called *M. grandis* GS600. One clone has already been named (*M.* 'Jimmy Bayne') and some "old" ones are being checked. Plants not given, or not yet given, clonal names should be called *Meconopsis* George Sherriff

Group. This cultivar-group name may also be used to provide additional information on the named clones, if required. Additionally various unnamed clones may be distributed by nurseries as George Sherriff Group, in association with an MG (Meconopsis Group) number, e.g. *Meconopsis* George Sherriff Group / MG9. This could be an interim measure as the MG-identified clones may eventually be given clonal names.

3. ***Meconopsis* Infertile Blue Group** is proposed for the majority of the remainder of the sterile big perennial blue poppies.

These have for the most part been known as *M. x sheldonii*. *M.* 'Slieve Donard', already cited, is one of the best known clones belonging to this Group. A number of unnamed clones also exist in this Group, but further discussions and research are needed to establish their status. It is expected that publication of garden merit clones will be possible in the near future; the remainder to remain labelled simply as *Meconopsis* Infertile Blue Group, either with or without an interim MG number.

4. ***Meconopsis* Fertile Blue Group** includes all the fertile, seed-raised big perennial blue poppies at present being grown and distributed incorrectly as *M. grandis* or as *M. x sheldonii*. These are the plants referred to in category E above and may be defined under a) and b) below:

a). All seed-raised plants that have not been accorded cultivar status (i.e. have not been subject to selection to a specific standard and formally named) are to be referred to using the generic and cultivar-group name only, i.e. *Meconopsis* Fertile Blue Group.

b). Several named, seed-raised cultivars are placed in this cultivar-group e.g. *Meconopsis* 'Lingholm', which may also be designated as *Meconopsis* 'Lingholm' (Fertile Blue Group) to provide an indication of its status. It is important to emphasize here that all seed-raised cultivars should be rogued to a specific standard to maintain their cultivar status.

Additionally, there is evidence a) that some other cultivars in current use are synonymous with *M.* 'Lingholm', b) that some plants currently being distributed as *M. x sheldonii* 'Lingholm' or *M.* 'Lingholm' are very variable and do not fall within the circumscription of 'Lingholm' and that, because of this variability, they should be referred to as *Meconopsis* Fertile Blue Group c) that a few (as yet unnamed) distinct and garden-worthy cultivars will probably be introduced in the near future.

PROVISIONAL KEY TO CULTIVAR GROUPS

As yet it has not been possible to carry out detailed observations on all the plants in the Trial or to confirm the measurements and growth data necessary to provide a comprehensive and scientifically acceptable key.

A tentative key is, however, provided here to give guidance to growers and nurseries on these *Meconopsis*. Following further study it is intended to prepare a more detailed key and descriptions.

1. Rosette of emerging leaves in early spring with a marked purple-red cast. Leaves broad, both at leaf emergence and at maturity. Flowers blue, often with a purplish cast. Seed capsules ovoid with a dense covering of short bristles. Sterile: **George Sherriff Group**

1. Rosette of emerging leaves not as above. Leaves relatively narrower. Flower colour characteristically clear blue lacking purple colouration. Seed capsules covered with bristles (in some cases long, in others short), less dense than in George Sherriff Group **2**

2. Sterile plants. Seed capsules narrowly conical to ellipsoid:

Infertile Blue Group

2. Fertile plants. Seed capsules oblong-ovoid, containing numerous plump, fertile seeds: **Fertile Blue Group**

ESTABLISHMENT OF CLONAL AND CULTIVAR EPITHETS

At the most recent meeting of the Meconopsis Group in December 2000 a session was devoted to considering possible ratification of the names recommended for a number of the clones and cultivars under discussion.

It was agreed that the clones and cultivars listed below were clearly identifiable and as they could be distinguished by specific characters it was agreed to recommend that they should be accepted and used by nurseries and growers of the big perennial blue poppies in future. Where appropriate they should also be assigned to their appropriate cultivar-group.

Clones

M. 'Crarae'; *M.* 'Dawyck'; *M.* 'Houndwood'; *M.* 'Mrs Jebb'; *M.* 'Jimmy Bayne'; *M.* 'Slieve Donard'; and *M.* 'Willie Duncan'.

Cultivars

M. 'Lingholm', *M.* 'Crewdson Hybrid'

Other names accepted

M. grandis ex KEKE 490 and *M. betonicifolia* 'Hensol Violet'.

Confusion over some long-established names

There are also other long-established names that are in use for a number of the big perennial blue poppies that are of uncertain application and authenticity.

These include *M.* 'Betty's Dream Poppy' (also known as 'Betty Sheriff's Dream Poppy'); *M.* 'Branklyn'; and *M.* 'Ormswell'. A particular problem occurs with the well-known 'Crewdson Hybrid' which is sterile, although offered as seed-raised. The latter plants appear to be good variants of *M. betonicifolia*. Clarification of the status of the sterile clone(s) is still needed.

FURTHER RESEARCH

The Meconopsis Group is continuing its research and observations on the nomenclature of the big blue perennial poppies and will be preparing descriptions and herbarium specimens as well as photographic records so that Standard Specimens can be deposited at the Royal Botanic Gardens Edinburgh as a permanent record. It is intended to publish these descriptions in a further article, or articles, once it has been possible to reach conclusive decisions on the status of the clones and cultivars involved.

This research will be further strengthened as the RBGE has generously agreed to provide a trial area in which to grow stocks of seed-raised perennial blue poppies (other than *M. betonicifolia*) to assess their uniformity and status.

It is apparent that there is considerable confusion for growers and gardeners alike between seed-raised plants which are grown and sold as *M. grandis* and those sold as *M. x sheldonii*. In order to try to clear up this confusion nurseries are being asked to participate by donating plants of each of their seed-raised entities (*M.* 'Lingholm', *M. grandis*, *M. x sheldonii*, *M.* 'Blue Ice' etc.) for assessment in the Trial Bed. The aim of this additional trial is to encourage the raising from seed of accurately named and uniform plants of good quality throughout the trade.

THE MECONOPSIS GROUP

The Meconopsis Group has made good progress since its formal inception in September 1998. Thanks to the RBGE and to members who have contributed plants, a fine and unique collection of big perennial blue poppies has been established in the Trial Bed. This has been largely instrumental in enabling members of the Group to devise and agree on a classification scheme which is helping to clarify the identity and nomenclature of the big perennial blue poppies in cultivation. The Meconopsis Group is basically a study group, and as such would welcome new members or hearing from anyone who feels that they could help in the work in any way, e.g information on the existence of long-lived clones or historical information on the plants. To make contact, please write to Dr Evelyn Stevens, The Linns, Sheriffmuir, Dunblane, Perthshire, FK15 OLP, Scotland, tel. 01786 822295, or e-mail: HYPERLINKmailto:levelinns@btintemet.com When the work with the plants in the main Trial Bed is complete, the plants, carefully labelled, will probably be transferred to a bed in the Demonstration Garden at Royal Botanic Garden Edinburgh for the benefit of visitors to the Garden.

ACKNOWLEDGEMENTS. This article has the joint authors Chris Brickell and Evelyn Stevens. However, ES. wishes on behalf of the Meconopsis Group, to acknowledge with gratitude the great help that has been, and continues to be, given to us by Chris in tackling logically, legitimately and authoritatively the tricky problems of plant classification and naming. We

would also like to thank Ian Christie for helpful suggestions after reading the text. And in particular we express very warm thanks to Peter Brownless and John Mitchell for the excellent cultivation of the plants in the Trial bed; and to the Regius Keeper at the RBGE for his great help and co-operation.

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Further Observations on the Big Perennial Blue Poppies

Evelyn Stevens

This follow-up article is being published simultaneously by *The Rock Garden* and *The New Plantsman*.

SINCE THE PUBLICATION of the article in *The New Plantsman* in March (reprinted above) there has been the opportunity to re-examine the big perennial blue poppies in the Identification Trial Bed at the Royal Botanic Garden Edinburgh and in members' gardens as the plants come into growth at the beginning of a new season (i.e. at the stage of leaf emergence and before the development of the flowering stem). As indicated in the previous article this is a valuable stage in the yearly cycle of the life of the plants in which to distinguish differences between them. It was also stated that there was a need to re-examine the plants at this stage in order to be able to confirm or otherwise the validity of the establishment of the two cultivar-groups, George Sherriff Group and Infertile Blue Group, to encompass the

majority of the "old" sterile clones. This has now been done and the conclusion has been reached that the establishment of these two cultivar-groups is both valid and valuable. This conclusion has been reached by informal discussion amongst about a dozen enthusiasts familiar with the plants and in particular by a small group of six who met at the Trial Bed at the Royal Botanic Garden Edinburgh towards the end of April.

Characteristics of GEORGE SHERRIFF GROUP and INFERTILE BLUE GROUP

At the outset it can be reported that, contrary to the strongly voiced view of one experienced member of the Meconopsis Group, we are convinced that it is invariably (or almost invariably) and certainly usefully possible to distinguish George Sherriff Group plants from Infertile Blue Group plants on the basis of the newly emerging leaves. However, having made this claim, it has to be admitted that it is not easy to *describe* the distinguishing characteristics. Nevertheless, if differences can be seen, it has to be possible to describe them and this will be undertaken in the following paragraphs.

One general point to be made is that plants in George Sherriff Group are more uniform in their characteristics than those in the Infertile Blue Group. This is not surprising as there is every reason to believe the former have their origin in one wild seed collection (*M. grandis* L&S600 and more usually referred to for many years as *M. grandis* GS600), while once again there is reason to believe plants in Infertile Blue Group have more disparate origins.

It is relevant at this point to note that for the most part (there are exceptions) plants received for the Trial as *M. grandis* GS600 do clearly belong to George Sherriff Group. Also it is worth reiterating that it has become apparent that a number of distinct, long-lived clones are encompassed by this name, and that in due course some more of these, apart from the already named *M. 'Jimmy Bayne'*, will be regarded as worthy of clonal naming.

The features of the newly emerging leaves that are useful in defining and distinguishing between the different Cultivar-groups (and also in distinguishing between clones) are

- i) the stance of the emerging rosette of leaves,
- ii) the overall shape of the leaves,
- iii) the presence or absence of a striking red-purple pigmentation,
- iv) the nature of the hairs borne on both the upper and lower leaf surfaces,
- v) the shape of the base of the lamina (leaf-blade) where it merges with the petiole (leaf stem) and
- vi) the indentations on the margins of the leaves.

Other features to consider are details of the manner of growth of the off-sets by which clumps increase in size and the overall vigour of the individual clones.



Fig. 69 Trial Bed at R.B.G. Edinburgh



Fig. 70 *Meconopsis betonicifolia*
- south-east Tibet



Fig. 71 *Meconopsis simplicifolia*
- south-east Tibet



Fig. 72 *Meconopsis* (George Sherriff Group) 'Jimmy Bayne'

GEORGE SHERRIFF GROUP



Fig. 73 *Meconopsis*
(George Sherriff Group) MG3



Fig. 74 *Meconopsis* 'Jimmy Bayne' emerging
leaves Photos: Evelyn Stev



Fig. 75 *Meconopsis* (Infertile Blue Group) 'Dawyck'



Fig. 76 *Meconopsis* (Infertile Blue Group) 'MG21'

INFERTILE BLUE GROUP



Fig. 77 *Meconopsis* 'Slieve Donard' emerging leaves



Fig. 78 *Meconopsis* (Infertile Blue Group) 'Slieve Donard' Photos: Evelyn Stevens



Fig. 79 *Meconopsis*
(Fertile Blue Group) 'Lingholm'



Fig. 80 *Meconopsis*
'Willie Duncan'

FERTILE BLUE GROUP & OTHERS



Fig. 81 *Meconopsis betonicifolia* 'Hensol Violet' Photos: Evelyn Stevens

Stance of the emerging leaf rosette, overall shape of emerging leaves, shape of the base of the lamina, indentations of the leaf, and petiole:lamina length ratio

These are perhaps the most diagnostically useful features to distinguish George Sherriff Group from Infertile Blue Group. In Infertile Blue Group the leaves assume a very vertical stance (“reaching for the sky”), whereas in George Sherriff Group the leaves have a more “relaxed” appearance, with the leaves assuming a “towards 45 degrees from the vertical” stance. This overall “jizz” (to use a bird-watchers’ term) is substantiated by the shape of the individual leaves.

In both cultivar-groups the leaves are lanceolate: however the leaves are distinctly narrower in plants of Infertile Blue Group than in George Sherriff Group, enhancing the “reach for the sky” effect. Not only this, but also when considering plants in George Sherriff Group and in Infertile Blue Group, variations in the breadth and exact shape of the leaves helps in recognising the various clones.

The bases of the leaves in *M. grandis* and in the hybrids between this species and *M. betonicifolia* are basically cuneate or attenuate (that is, the leaf blade merges in a gradual way with the leaf stem), unlike the situation in *M. betonicifolia* in which the leaves are cordate (heart-shaped at junction of the lamina and petiole) with an abrupt junction between lamina and petiole. In both George Sherriff Group and Infertile Blue Group (also Fertile Blue Group) the leaf bases are basically cuneate or attenuate. However, in George Sherriff Group this feature varies between being shortly attenuate (the merging of the lamina and petiole occurring over a short distance) to cuneate (wedge-shaped), while in Infertile Blue group the leaves are consistently markedly attenuate with the merging of the lamina and the petiole occurring only very gradually.

By and large, the petiole:lamina length ratio in Infertile Blue Group is significantly greater than in plants belonging to George Sherriff Group, that is the petiole is relatively longer in relation to the lamina in Infertile Blue Group than in George Sherriff Group.

The leaf margin of plants in George Sherriff Group is crenate (with rounded teeth), (rather distantly so) at the earliest stage of development. Later, in some of the clones, the margin becomes serrate (saw-toothed) while remaining crenate in others and these differences help to define the various clones. At the earliest stage of leaf development, the leaf margin in Infertile Blue Group may be only very slightly indented to almost entire.

Leaf pigmentation

Conspicuous red-purple pigmentation in the epidermis of both the upper and lower leaf surfaces of the newly emerged leaves is a very striking feature of George Sherriff Group and helps to make plants in this Group readily recognised. But it also occurs in some clones belonging to Infertile Blue

Group, contrary to the statement in *The New Plantsman* article. For example, in *M.* 'Slieve Donard' and in *M.* 'Dawyck' there is pigmentation of the lower surface of the leaves and in other clones this occurs on both surfaces, as in George Sherriff Group. The suggestion has been made that possibly pigmentation in plants of Sterile Blue Group has been greater this year than normal because of the cold late spring weather conditions: to check whether this is true, further observations will need to be made in the future.

Leaf hairiness

The nature of the hairs on the upper and lower leaf surfaces is a further feature helping to distinguish plants of George Sherriff Group from Infertile Blue Group. In plants of George Sherriff Group both the upper and lower surfaces of the leaves are covered with a dense pile of short hairs, rather with the appearance and feel of slightly rough velvet. In some clones they are rusty brown in colour, in others they are lighter (sandy) in colour. The hairs occur on both surfaces, but are more abundant on the lower surface. In plants of Infertile Blue Group, the hairs on the leaf surfaces are more varied, this presumably reflecting the more disparate relationship between members of the Group. In some members of the Infertile Blue Group, such as *M.* 'Slieve Donard' and *M.* 'Dawyck', the hairs are very like those which characterise plants placed in Fertile Blue Group, such as *M.* 'Lingholm'. In the former two clones and in the latter cultivar the leaves are very hairy and the hairs are long, forming a dense and prominent covering to the lower surface, standing out prominently from the lower surface especially when viewed from the side.

Further, this prominent fringe of hairs appears bi-coloured because the hairs are dark (brown) towards the base, while towards the tip they grade into being colourless or white. The upper surfaces of the leaves are also clothed in long hairs, although not so densely. In other clones belonging to Infertile Blue Group the hairs on the leaf surfaces are markedly different forming either a dense short pile of single-coloured hairs (e.g. Infertile Blue Group MG21) or similar shorter hairs which are bi-coloured.

Characteristics of FERTILE BLUE GROUP

The production of seed capsules containing abundant viable seed characterises the species of big perennial blue poppies such as *M. betonicifolia* and *M. grandis*. The production of abundant viable seed also most readily distinguishes the hybrids placed in Fertile Blue Group from those placed in George Sherriff Group and Infertile Blue Group. Plants belonging to George Sherriff Group and to Infertile Blue Group are basically sterile, although occasionally they may produce a few viable seeds. It is worth mentioning here that gardeners often mistake the dust-like abortive, non-viable seed found for example in the seed-capsules of *M.* 'Slieve Donard' or *M.* 'Jimmy Bayne' for fully developed viable seed. The viable seed of *M. grandis* and of plants belonging to Fertile Blue Group are black in

colour, are rather irregularly oval to kidney-shaped and measure about 1-1.5 mm x 2-3 mm (*M. betonicifolia* fertile seed in comparison is roughly spherical about 1mm in diam. but still distinct from infertile seed). Of course, to observe the feature of seed formation it is necessary to wait until late summer. However, as already mentioned a conspicuous feature of plants belonging to Fertile Blue Group observed to date, is the hairiness of the leaves with a dense covering of long hairs which are dark towards the base and white or colourless towards the tips. In shape the leaves are narrowly lanceolate at the stage of early leaf emergence as in Infertile Blue Group and any red-purple pigmentation is confined to the lower surface. Another striking feature which develops before flowering stem emergence is that the leaves become slightly boat-shaped, this often resulting in a kink, or break, in the curved mid-rib.

The plants that have been placed in Fertile Blue Group include what are believed to be:- i) *M.* 'Lingholm', ii) other possible cultivars deserving of being named, iii) some cultivars which are synonymous with 'Lingholm', the names of which are therefore incorrectly applied and iv) plants which are not sufficiently uniform to warrant cultivar status and must therefore be placed under the umbrella name of Fertile Blue Group.

Seed-raised Trial

It is pleasing to report that the new Trial for seed-raised (fertile) forms of big perennial blue poppies has now been planted up in the Nursery at RBGE. A good range of plants has been kindly donated by members and we are grateful to them for these. Although there is not much room for many more plants we would be pleased to hear from anyone who has plants that they think would be of benefit to the Trail.

Chromosome counts

Dr. Hugh McAllister has undertaken to do chromosome counts on a number of forms, (carefully chosen by E.S. for the information they should yield), of both sterile hybrids and plants assigned to Fertile Blue Group. The Meconopsis Group is very grateful to Hugh for undertaking this time-consuming and painstaking task. We await the results with eager anticipation.

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At the suggestion of the Editor of *The Rock Garden*, a summary list of the clones and cultivars already confirmed as to identity and naming is appended overleaf. Included are "famous names" over which there is still doubt.

BIG PERNNIAL BLUE POPPIES

Plant	Clone, cultivar, species	Cultivar-group	Comments
<i>M.</i> 'Jimmy Bayne'	Clone	George Sherriff Group	
<i>M.</i> 'Dawyck'	Clone	Infertile Blue Group	
<i>M.</i> 'Crewdson Hybrid'	Cultivar	Infertile Blue Group	See note below *
<i>M.</i> 'Mrs Jebb'	Clone	Infertile Blue Group	Believed to be a selection from <i>M.</i> 'Crewdson Hybrid'
<i>M.</i> 'Slieve Donard'	Clone	Infertile Blue Group	
<i>M.</i> 'Houndwood'	Clone	Infertile Blue Group, or regarded as so distinctive that does not need to be placed in a Cultivar-Group	Note: 'Houndwood' not 'Houndswood' as on p.58 of <i>The New Plantsman</i>
<i>M.</i> 'Willie Duncan'	Clone		Regularly sets a few fertile seeds. See note below **
<i>M.</i> 'Crarae'	Clone	? Infertile Blue Group	This year's observations should resolve uncertainty
<i>M. betonicifolia</i>	Species		A few possible cultivars are under investigation
<i>M. betonicifolia</i> 'Hensol Violet'	Species		A distinctive form which has in recent years turned up in cultivation
<i>M. grandis</i> ex KEKE 490	Species		This appears to be true <i>M. grandis</i> . See also note below ***
<i>M.</i> 'Lingholm'	Cultivar	Fertile Blue Group	
<i>M.</i> 'Blue Ice'	Cultivar	Fertile Blue Group	Believed to be syn. with <i>M.</i> 'Lingholm' At present being checked in the Seed-raised Trial at RBGE
<i>M.</i> 'Branklyn' (not confirmed)	Clone		There is at present uncertainty over the identity of this clone. According to its provenance it should belong to George Sherriff Group

<i>M.</i> 'Ormswell' (not confirmed)	Clone		There is at present uncertainty over the identity of this clone. According to its provenance it should belong to Infertile Blue Group
<i>M.</i> 'Betty's Dream Poppy' (not confirmed)	Clone		There is at present uncertainty over the identity of this clone. According to its provenance it should belong to George Sherriff Group

* *M.* 'Crewdson Hybrid' was raised and distributed from seed (originally given to Jack Drake by Mrs. Cicely Crewdson) until the late 1950s at Jack Drake's Nursery at Inshriach (and undoubtedly elsewhere) by which time the plant had become almost sterile. The last record of sowing seed at Inshriach was 1959. Thereafter plants were vegetatively propagated from a number of very similar (almost identical) clones and continued to be sold as *M.* 'Crewdson Hybrids'. Therefore strictly speaking this entity, comprising a number of *very similar* clones, is a cultivar, but it is important to note that since 1959 it has been vegetatively propagated and that it is sterile. We consider that it will cause least confusion, and it is also valid, to apply the name *Meconopsis* 'Crewdson Hybrid' to this cultivar.

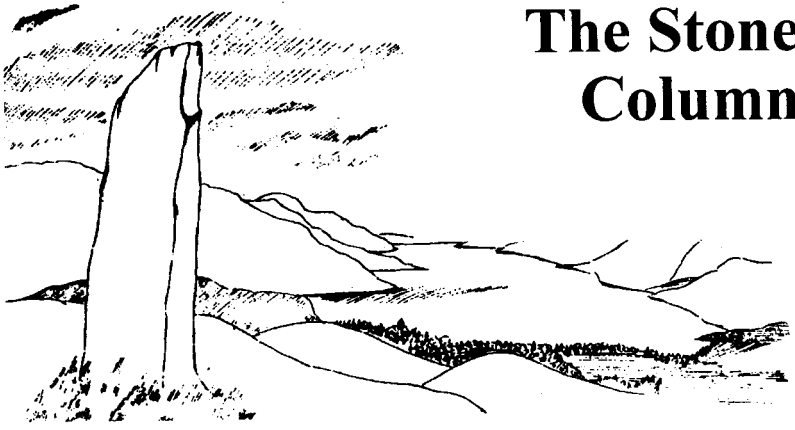
A further complication is the existence in cultivation of a fertile and good form of *M. betonicifolia* which is often seen in seed lists as *M.* 'Crewdson Hybrids' (see Swift 1998). The name 'Crewdson Hybrids' is thus incorrectly used when applied to these fertile plants.

In the Trial Bed there are plants donated by several members. Independent confirmation of the cultivar status of this entity was provided at the recent meeting at the Trial Bed as slight differences in the leaves of the various plants were remarked on by one member who was ignorant of history of their origin. However, as pointed out by Hugh McAllister, it is puzzling that, with a triploid chromosome number (123), it can ever have been fertile. **Note:-** The latter two paragraphs regarding *M.* 'Crewdson Hybrid' supercedes the sentences on this entity on p. 59 of *The New Plantsman*.

** *M.* 'Willie Duncan' It is strongly urged that seed is not distributed from *M.* 'Willie Duncan' under this name until or unless it can be shown that it breeds true. This has not been done so far.

*** Other forms of possible *M. grandis* are currently under investigation. Also, abundant seedlings of recently collected seed from the wild are at present being nurtured.

The Stone Column



THE STONE COLUMN no. 38 WET SWINGS, DRY ROUNDABOUTS

Yes, it's all my fault; forget global warming and climate change, after all George 'Dubya', his strings pulled by friends in the oil industry, says they don't exist. Having written this Column for almost 20 years I really ought to know better, but in the last edition I expressed the hope that the approaching winter be not too mild. So, as I write this in mid-March, we are still firmly in the grip of Jack Frost, and no respite is yet in sight. It is getting to the point where I feel that species which hibernate have perhaps got the right idea. While the more southerly parts of the British Isles have experienced a succession of downpours, with repeated bouts of flooding in low-lying areas, a series of persistent anticyclones to the north of Scotland have meant that in the Highlands this winter was somewhat colder, and certainly much drier, than average. In terms of precipitation our loss has been the South of England's gain. Possibly helped by the moderating influence of Loch Ness, which incidentally contains more fresh water than all the lakes and reservoirs in England and Wales put together, we did not suffer the same low temperatures as other parts of the north. During the first week in March an overnight minimum of -22°C was recorded in Sutherland. Here in the Great Glen there were two periods of roughly a fortnight each of continuous subzero temperatures, with overnight lows of around -15°C . During the first in mid-January there was no snow cover, and the ground froze very hard indeed. All we could do outside was to cut firewood, slicing up the trees by our north boundary which had been felled a year ago because they were becoming dangerous; and visit the usual ruined dyke "mine", stocking up walling stones in the top garden for this year's projects. A more changeable period followed, allowing the compost store and pot plants to thaw out; Poll was thus able to repot all of our reserve bulb collection. In this she was

greatly aided by the recent installation of electricity in the potting shed. For safety's sake we decided to delegate this task to a professional, a young man, now an electrician, who had been at school with our children. It makes us feel rather old. He buried an armoured cable along the path from the house to the shed, fitted a fluorescent tube over the bench, and added a twin socket. This should save us a fortune in batteries for Poll's radio, and enable the use of a slim oil-filled heater to take the chill off the shed.

IF IT WORKS, COPY IT

Towards the beginning of the last Column, I mentioned in passing that we had added a dedicated bulb frame to the old nursery in front of the house. During one of his talks on growing bulbs, Ian Young described what he referred to as a 'halfway house' between the open garden and greenhouse. It was a small raised bed with a cover, into which they plunged aquatic pots. When he mentioned that these lattice pots of bulbs could be left undisturbed until they became obviously overcrowded, my ears pricked up; and when he added that the cover improved the seed-set on erythroniums we were definitely interested. The rationale behind our winter covered screes was to save on repotting; here was a possible extension of this principle into our reserve bulb collection. We could use the same kind of cover: 'Correx' sheets fastened to a framework with bolts and wing nuts (*The Rock Garden* no. 99, p. 114). As this would be an addition to the upper frameyard, there was no need to harl the blockwork, and the superstructure could remain in place permanently, making it even simpler. I first built a rectangular box, 4 x 1.2 m and three courses high of standard 10 cm concrete blocks. To hold the framework for the four sheets of 'Correx', I set 15 cm lengths of light duty tie bar into evenly spaced vertical joints between the blocks. Each bar protruded about 5 cm above the top surface of the wall, and I simply bolted uprights of 25 x 50 mm treated timber to them. The cover slopes of course, but averages about 45 cm above the bed to allow room for the hoped for seedheads to develop. This was undoubtedly the quickest and easiest frame I have yet built.

Now, in fact, comes the hard part: filling up the frame, which was done in three layers. We first tipped in sufficient of the same graded road-making material we use in all our raised frames to take the level inside to just below the top of the first course. A double layer of woven ground cover plastic went in next, followed by a somewhat thicker layer of scree mix, 50% of which is 5 mm gravel, the rest equal parts of peat, leaf mould, loam, and Edzell grit. We used one of the largest size of aquatic pot bought by us, as a measure, filling the frame until the rim of the pot standing on the compost was about 7.5 cm below the top of the wall. As I usually mix something over a hundred barrow loads of compost during the autumn bulb marathon, the extra required for this

project wasn't a real hardship. The frame was then left to settle from November until around the middle of February when, as mentioned above, Poll was able to start the repotting of the reserve collection. This is much later than is normally recommended, but few had any appreciable top growth, and if one is careful not to damage the roots, and yet fast enough to avoid drying them, then the plants are not checked. The lattice pots were lined out in the frame, leaving gaps of about 1-2 cm between them. Extra compost was placed under the smaller sizes so that all the rims of the pots were at the same height. Once the frame was full, yet more compost was worked into the gaps between the pots using a short length of cane as a gentle rammer to ensure that no air gaps remained. As the pots were not yet top dressed, any compost spilling onto them didn't matter. Thus we created a solid bed of compost up to the level of the rims. This bed was then given a good watering and finally top dressed with about 5 cm of the 5 mm natural gravel, completely hiding the pots, and bringing the final level to within 2.5 cm of the top. This freeboard allows for easy watering. Each pot has a T-shaped label, the horizontal writing making for easier identification. Until growth started, the frame looked rather like a miniature cemetery, fortunately one interring the undead, including some from Transsylvania, see below.

EARLYS, LATES, AND A FEW OTHERS BESIDES.

Up until now our reserve frame of bulbs in ordinary pots had been a real *mélange* of species regarded as too precious, too fragile, too scarce, or even too small to risk out in the garden. As such it contained summer growers such as trilliums, lilies and *nomocharis*, mixed in with fritillarias, erythroniums, calochorti and other things which go down earlier. Since the last-named will at least tolerate moisture while dormant whereas drying out in growth is fatal for *nomocharis*, the frame was watered through the summer. With the advent of the new bulb frame we could at last separate the "earlys" from the "lates", putting the former into the new frame where the moisture supply can easily be controlled throughout the season. This made space to pot on the "lates" into larger pots to put back in the original reserve frame, and also collect together seedlings of special bulbs which had been parked in various other frames. When separating out the two categories, careful consideration is required when the genus contains both kinds; for example *Fritillaria cirrhosa* is a "late", it should never be dried off. We have raised a great many forms of this over the years, ranging from rich dark brown through various degrees of tessellation, to pure lime green, and even yellow. There aren't too many small hardy gladioli, but of the few we do grow, *Gladiolus kotschyanus* from Turkey is an "early". Our form of this from Josef Jurašek's seed is a lovely bicolour, white and soft lavender (fig. 83). On the other hand the startling, but elegant, *Gladiolus flanaganii* is a "late"; it was in bloom for the first time

when we arrived back from the US in August last. The pendulous blooms have a gorgeous texture, and are very large for such a slender plant only some 30 cm high (fig. 84). Native to crevices in basalt cliffs high on the Drakensberg, this was from a Jim and Jenny Archibald collection back in 1996.

In general *Nomocharis* are excellent garden plants in Scotland, and of course the vast majority of our plants are out in the open ground. We started off by growing them in the raised peat beds alongside dwarf rhododendrons; but as the latter grew these *Nomocharis* gradually faded out. I have often wondered whether this is a case of allelopathy, i.e. the production and release of chemicals by a plants which convey an advantage by inhibiting the germination or growth of competing plants, even on occasion others of the same species. Allelopathic chemicals may be exuded by the roots, or be produced in the leaves and subsequently leached into the soil from the leaf litter. Allelopathy is actually very difficult to prove in any given set of circumstances, our *Nomocharis* may simply have died out because the rhododendrons out-competed them for water and nutrients. Plants also produce whole batteries of chemicals to fight off, for example, fungal infections, or to deter herbivores. As a side effect some of these may be phytotoxic, and so injure other plants. Rhododendrons have been shown to inhibit the germination of tree seedlings under their canopy, and these studies are ongoing in North Carolina. They certainly do tend to keep themselves relatively clean in the garden. On the other hand trilliums are not deterred, one large clump of *Trillium vaseyi* has over grown and killed one side of a fairly large *Rhododendron yakushimanum*. Whatever the reason, the clumps of *Nomocharis* planted in raised beds of peaty loam with full exposure have done very much better, and are clumping up just like the neighbouring lilies and trilliums. These beds are top-dressed with the usual 5 mm gravel to deter weeds, moss, and cats, and to prevent soil splash during periods of heavy rain. One visitor asked if we were growing *Nomocharis* in a scree, not realising the nature of the soil underneath.

Our reserve bulb frame is definitely one of the most exciting parts of the garden, each year bringing some novelty into bloom. Then there is the thrill of the unexpected; for example, all our original pre-war *Nomocharis aperta* had segments of a uniform pink, with only a few darker spots in the centre of the flower. However, when the plants from CLD and, subsequently, from the KGB collection bloomed, they all had perianth segments which were beautifully blotched on the inner surfaces (fig. 87). The plants illustrated are actually the second generation; unlike some avid showmen, we always do our best to get new plants to set seed. As Ian Young has pointed out, setting seed does bulbs no harm. This is what they are programmed to do, and they simply stay in growth for a little longer in order to fix the necessary extra energy.

Although we identify these as the CLD form we should not use the original collector's number which refers only to the first generation plants from the wild. Continuing on the collector's number has led to the confusion over what exactly is *Meconopsis grandis* L&S 600, often corrupted to GS 600 or even Sherriff 600. Our original plants under this title came from General Murray-Lyon in 1974, and are still going strong, but they are certainly not pure *M. grandis*. The real thing does still grow here; we have original plants from the KEKE collection for example. These are fully fertile as one would expect for a species, and as far as we can tell are still coming true from seed. The seedling illustrated, a lovely white (fig. 80) has all the characters of *M. grandis* as described in Taylor's monograph.

The non-specialist gardener may well wonder what all the fuss is about, it's the beauty and constitution of the plant which really matters. The trouble is that many alpine gardeners, myself included, are species snobs. There are cases where a hybrid may be preferable in the garden. *Menziesia multiflora* is a Japanese species with lovely blue foliage and large pink flowers. It is, however very susceptible to damage from spring frosts. *M. ferruginea* from Western USA, 'MEFE' in US Forest Service parlance as it can be a dominant component of the understory, is bone hardy, but has green leaves and much smaller pale orange bells. Barry Starling crossed the two and the seedling he gave us combines the best features of both (fig. 85). Its young growths and flowers can resist the late frosts so common at Askival.

A RARE THING, A CROCUS SPRING

The period while we were able to work on the bulb frame was only mild in comparison with what had gone before; night frosts were frequent and only the most precocious of early bulbs, such as *Galanthus* 'Atkinsii', *Iris histrioides* and *Cyclamen coum*, came bravely into flower. A plant of the last in the narrow bed on the west side of the house is still in full undaunted bloom, fully two months after its first flower opened. Towards the end of February, Boreas tightened his grip again, but this time his icy blasts brought with them a good covering of snow down from the Arctic. Forced inside, we concentrated on Poll's slide collection, projecting, selecting down, and cataloguing those from the last two years, both fieldtrip and garden. This is one important aspect of our work here at Askival which may not be immediately obvious to the non-gardener. As March wore on the days grew longer, the sun gradually strengthened, and the frost started to lift in the daytime. The snow melted, and at long last the spring bulbs were able to start into growth in earnest. Only now are most of our snowdrops in full bloom, up to eight weeks later than usual.

The genus *Galanthus* has never been more popular, and cultivar names abound. However, I do feel that the differences in detail which make them so

fascinating for collectors are perhaps not of great significance in a gardening context; constitution is much more important. One of our favourites, growing vigorously in a variety of situations and seeding freely, is the bright green leaved species which came as *Galanthus ikariae*, but according to Aaron Davis' monograph, keys as *G. woronowii*. This, together with *Leucojum vernum*, provides a very welcome contrast with the multitude of glaucous foliaged snowdrops; as would *G. lagodechianus*, and the very distinctive *G. platyphyllus*, both of which we should like to grow someday. Davis mentions that this last two are from high, cold habitats, and should like the cool conditions at Askival. One can never be sure, of course, how a species will react in cultivation. The Siberian Larch, *Larix gmelinii*, was trialed in the 1960s by the Forestry Commission, as it was then, who planted it at over 600 m above Fort Augustus. It was not a success; a mild spell in early spring brought on premature leaf growth, which was subsequently frosted off. I also feel that this is probably why *Notholirion macrophyllum* is said, in a number of bulb books, to be rather tender. In a mild garden it may occasionally come up too early, and then be subject to frost damage. The bulbs themselves are definitely not at all tender; our plants have survived temperatures below -20°C for several weeks in boxes above ground. It is a pity that this daintiest of notholirions is not more widely grown, for it is very beautiful. Visiting one July, Peter Cox thought that one of our stands was a campanula, an easy mistake to make from a distance when the monocot foliage isn't at all obvious (fig. 86).

The weather during the second half of March could well have been designed to suit our crocuses; the clear nights down to -5°C did no harm, and there was now sufficient warmth on the fine sunny days to open them fully. *Crocus chrysanthus*, for example, normally appears in February, and is promptly battered flat by gales and rain, often without ever opening. It beats me how it is able to seed so freely. We started off many years ago with a dozen each of 'Blue Pearl', 'Cream Beauty', and 'E. A. Bowles'. Now we have a complete mixture along the side of the drive; whites have appeared, and I particularly like the clear pale yellows intermediate between the last two. On the other side of the drive a large patch of *Crocus flavus* provides a uniform more orange shade of yellow. A rather deeper colour than 'Dutch Yellow' and fully fertile, we started with a few bulbs raised from the SRGC seed exchange back in the '70s. For us this is what crocus growing is all about, self-sustaining stands out in the garden; but it should be added that they also make excellent pot plants. Their foliage isn't too gross, and there is sufficient variation to satisfy even the most avid collector.

The cold nights and warm days have also favoured that other big 'C' of spring: corydalis. When we started gardening tuberous corydalis were not widely grown; and the few that were available tended towards rather muddy

purple tones. Things changed up here in 1978 when we were given two dormant tubers by the late Siegfried Mayr under the name *Corydalis solida* 'Transsylvanica'. These probably represent the pale pink clone 'Dieter Schacht', or something very similar; but it is difficult to be certain for, as Liden and Zetterlund state in their monograph, the intensity of colour varies from season to season. This year, delayed by the cold they are a particularly deep pink. An especially striking clone of *C. solida* which turned up here has blooms of a rich crimson-scarlet, and probably arose as a cross between the lighter red 'George Baker' and an unnamed dark plum purple form whose origin we cannot recall (enter nursery, exit updating card index!). If a clear white is desired then *C. malkensis* is an equally good garden plant; its dense racemes of wide-lipped flowers lie flat when hard frosts strike, but stand up again unharmed when they lift. Our plants came as *Corydalis caucasica* 'Alba'; but as Liden and Zetterlund say, are clearly not that species. We do grow the true *C. caucasica*, which has lighter, less glaucous foliage, and lilac-pink flowers. It is not quite so vigorous here, and can be very slightly scorched by hard frost, but soon grows through any setback. Completing a quartet of good early flowering species for the garden is dark-eyed *C. paczoskii*, its light purple flowers sporting purple-black tips on the inner segments. Like the others this will self-sow, especially into a gravel top dressing.

SECOND TIME ROUND IN THE BULB HOUSE

Before leaving the topic of early bulbs and late springs perhaps I should mention the bulb house, our one and only venture into fully protected cultivation. Its construction was described in detail in *The Rock Garden* for June 1999, at which time it was still empty. It was eventually planted up in October of that year, rather later than is ideal. but then aren't most things here? As we are beginners at the method of cultivation, and will probably not be able to give it continuous attention, we had decided to plant mostly fairly easy species, nothing too rare or difficult. We are really just trying to extend the range of plants we grow to include species which, while frost hardy, prefer a dryish period when dormant. At present there is a mixture of mature, flowering size bulbs, planted directly into the bed, and seeds sown onto lattice pots plunged as in the bulb frame. Any of the latter which come to nought can easily be removed without much disturbance to the rest of the bed. Most of the former were bought in, or were gifts; although a few, such as *Arum creticum* and *Crocus baytopiorum*, were transferred from the open where they were not thriving. Almost all the incomers came up and flowered next spring, but one can take no credit for that, the trick is to get them to repeat the performance a second time. The only major problem concerned the top-dressing. Looking for alternative sources of 5 mm gravel, as an



Fig. 82 *Meconopsis grandis* ex KEKE (p.162)



Fig. 83 *Gladiolus kotschyanus* (p.160)



Fig. 84 *Gladiolus flanaganiae* (p.161)



Fig. 85 *Menziesia multiflora* x
ferruginea (p.162)



Fig. 86 *Notholirion macrophyllum* (p.163)
Photos: Polly Stone



Fig. 87 *Nomocharis aperta* (p.161)



Fig. 88 *Aciphylla glaucescens* (p.167)

Photos: Polly Stone



Fig. 89 *Cladosporium* infection of *Dactylorhiza foliosa* and *D. foliosa x majalis* (p.16)
(Photo: Brian Wilson)

experiment we had obtained a load of crushed and washed granite chippings from a quarry near Banff. These contained a high proportion of flat flakes, rather than the rounded natural whinstone pea-gravel we usually get from the Black Isle. Sharp is said to be better, but not in this case! Quite a number of the smaller plants, especially the crocuses, had difficulty in pushing their way up. A few failed to make it, and were yellowed and bent when I investigated; others appeared at all sorts of odd angles. After our return from the USA in August 2000, I removed the top-dressing completely while the house was dormant, and replaced it with the rounded 5 mm whinstone gravel. This is a big improvement but still not ideal; perhaps we should raise the crocuses up nearer the surface in lattice pots. The crushed granite was, as is usual here, recycled onto one of the paths around the frames, when it has proved more resistant to scattering by charging dogs than our usual reused top-dressings.

Most of the mature plants, of course, easily forced their way through the top-dressing. A narrow-leaved *Sternbergia sicula* from Kath Dryden was the first to appear for a second time, in October last year. I used this as a signal to water the bed somewhat, without making it really wet. Poll hand-pollinated the blooms and seed has been set. They remained green right through the winter surviving -10°C without damage. Sternbergias are one of the things we had previously tried outside without success, the various *Tulipa humilis* forms are another. All are up for a second time and either flowering, or about to open, as I write. We are particularly pleased that they are multiplying, for the lovely white-with-a-blue-centre *T. humilis* 'Albo-caerulea' is probably our favourite tulip. The brilliant scarlet *T. linifolia* has also started to increase; it too failed outside here. Knowing their reputation, the rhinopetalum fritillarias from Central Asia were a group we had never previously tried to grow. We obtained two from Kath: *Fritillaria bucharica* and *F. stenantha*. The latter set seed in its first year and came up for a second time in the mid-February mild spell. The foliage survived many subsequent nights down to -8°C without damage, and the more recent frosts of -5°C have left the flowers untouched. Luckily our two plants haven't read the 'Gardeners Guide to Growing Fritillarias'. One is almost white with just a hint of pink; the other a good pink, intensifying towards the midribs of the tepals. One of the *F. bucharica* has split into two, but nevertheless is clearly going to flower. A clump of this would be very nice!

THE SAVAGE GARDEN, ARCHITECTURAL ACIPHYLLAS

Here I must first confess to a certain schizophrania, I love aciphyllas for their striking forms, but hate having to weed or clear up around them. Not for nothing are they colloquially known as spear grasses, their viciously spiked foliage a deterrent against grazing by moas back at home in New Zealand. Moas are of course extinct, but the aciphyllas don't know this. In any case,

their formidable armament works equally well against the introduced sheep and deer, but apparently is less effective in deterring rabbits. "Please Brer Fox, don't throw me in the briar patch." Even the inflorescences are protected by spine-tipped bracts. For all their exotic appearance they are very easy to cultivate in Scotland, and can serve the same function as the fashionable agaves do in mild gardens. Seed germinates readily, even after a season or two, and most grow on quite quickly. They are often said to have a carrot-like taproot; but, although they are members of the same family, aciphylla roots have a quite different texture, much more rubbery than any carrot. Spreading horizontally as well as vertically and frequently branching, we have also found them able to withstand considerable disturbance. Plants left too long in their pots rapidly root through into the sand beneath. When eventually rescued one small batch grew away happily, even after the unavoidable loss of over half of their root systems. As with celmisias, an offset detached in spring with little or no root will often re-establish in the open ground. However, the spiky rosettes of the medium and large species do collect blown leaves. Poll suggested long tongs; but a less tedious method of removal is to use a small rake, such as the click-on type minus its long handle. All aciphyllas look much tidier if the dead lower foliage is removed in spring. I gently raise the living part with a trowel, which also serves as a shield, and remove from underneath only those dead leaves which come away easily complete with their sheaths, thus avoiding damage to the crowns. All aciphyllas are dioecious, that is there are separate male and female plants, and so a group must be planted if seed is to be obtained. In general, males are slightly more showy in bloom, but their spikes wilt rapidly and die down after the job of pollination is done. If fertilised, female inflorescences remain upright and architectural long into autumn as the seed ripens.

Although all aciphyllas are built to the same basic design, a glance through any illustrated flora such as "Mark and Adams" will demonstrate the great variation in size, colour and degree of dissection of their evergreen foliage. The problem for those of us with cold gardens is that, as with many New Zealand genera, quite a number of the species are not 100% hardy in a severe winter. The really choice dwarf, almost cushion-like *Aciphylla dobsonii* and *A. simplex* do not usually survive having their roots frozen solid for extended periods in containers for example. This is a great pity for their spiky golden-olive foliage adds a singular texture to a trough. Here we grow them in the winter covered scree, where their roots are better protected, together with the slightly larger *A. congesta*, *hectori* and *spedenii*. The first has light olive-green leaves, *A. hectori* dark green ones edged with pale yellow flecks, and the last is greyish or even somewhat glaucous. All these small species have flat-topped inflorescences, more archetypically umbellifer than most. Moving up the scale we grow a group of three rather similar

species in various shades of olive green; one is even called *A. similis*, the others being *A. montana* and *A. monroi*. Their flower heads are spike-like, and may attain 30 cm or more. Large enough to grow in the open ground, all three have persisted here for many years. Next comes one of the best garden plants we have so far come across, *A. sub-flabellata*. When our original group of five first flowered, Poll shook one of the males with a border fork to transfer the pollen. Perhaps she shouldn't have bothered as around a dozen self-sown seedlings subsequently appeared, some up to 10 m away. All have narrow pungent leaflets in some shade of brownish buff to bronze, and in bloom are almost 1 m high. Bending over near them is not recommended!

Of the really large species only one has survived long term. *Aciphylla aurea* and *A. horrida* have come and gone several times, but a male plant of *A. glaucescens* which we were given back in 1979 is still going strong. Like some ancient tree the middle has died out, but the surrounding rosettes continue to thrive. To celebrate the millennium they produced no less than 7 flowering stems, each over 1.5 m high (fig. 88). Perhaps more suited to the average rock garden are two of the most distinctive species which should be mentioned. *A. dissecta* has soft almost fern-like green foliage; resembling an anisotome, it is probably close to the ancestral aciphylla. Although a low alpine from the North Island seedlings survived the winter here. There is however no question mark over the hardiness of our final species: *A. pinnatifida*. This qualifies for inclusion on no less than three grounds. As the name suggests, the light olive foliage is distinctly pinnatifid, each leaflet having a pale lemon midrib; it is definitely stoloniferous, even escaping through the drainage holes when pot-grown, and when flowering adds a colour other than white, the bract-sheaths lining the stem are orange. I have to admit, however, that it blooms rather infrequently here; but when it does it becomes that great rarity, a colourful New Zealand alpine. You can have any antipodean colour you like as long as it's white, or occasionally yellow.

TAILPIECES

Some months ago we looked out of the window only to see a very large bird sitting in one of the beech trees. I couldn't resist phoning a friend in the RSPB and saying "Guess what's in our tree". The answer was in fact a fully mature golden eagle, with a wingspan obviously around the 2 m mark. It is probably quite a good thing that Dana and Grizzly were indoors at the time.

And finally, according to a little item in the *New Scientist* a reader heard a radio advertisement for an indigestion remedy which was said to contain "chemical-free" calcium carbonate. I wonder if the organic vegetable growers know of this wonder substance; they could use it to lime their brassicas.

Cladosporium orchidis

- a fungal pathogen causing leaf disease in *Dactylorhiza*



Maureen & Brian Wilson

DACTYLORHIZAS make desirable garden plants and are widely grown by club members in Scotland where many do exceptionally well. In recent years, in common with many other growers, we have observed an increasing incidence of dark brown spotting on the leaves relatively early in the growing season, leading to premature senescence of the plant. The spots usually start small, are often irregularly lens shaped, aligned with the length of the leaf and may be surrounded by yellowing tissue (fig. 89). The brown areas enlarge so that eventually the whole leaf goes brown, the stem collapses and the plant dies down to the ground. The appearance of the spots is that of a classic hypersensitive response to an infection. While initially the leaf damage does not usually kill the plants, the shortened period of growth means that the new storage roots are much smaller than normal and premature loss of the foliage in successive years weakens the plants so that they eventually fail to reappear in the spring. The condition seems worse if the plants start into early growth and are then subjected to frost and prolonged cold damp growing conditions. Some colleagues have reported dark spots on the storage roots which may also be truncated and lack the fine white hairs of healthy roots indicating infection by spores carried through the soil by rain. Infected roots may rot prematurely. As a precaution some growers have destroyed their stocks of plants. There is no evidence that the infection is systemic as infected roots reportedly give rise to healthy offsets. There seems to be some variation in susceptibility of *Dactylorhizas* to the disease depending on the genetic background of the plants. Thus, in our experience *Dd. praeterissima* and *foliosa* and the Cruickshank form of *D. fuchsii* are badly affected. In one colony of hybrids only a few variant plants which are thought to be sports or seedlings of the original hybrid were damaged.

THE CAUSE

Examination of the brown areas showed they contain fungal hyphae which have been identified as *Cladosporium orchidis* - a member of a family of plant and animal pathogens. *C. orchidis* is a known pathogen of orchids (Ellis and Ellis 1997) which occurs in the wild in the UK where it can be common on colonies of *Dd. fuchsii* and *majalis*. Like many fungal pathogens it probably enters the plant through local areas of damage and

senescing tissue such as those produced by frost. It is favoured by cool wet conditions. *Cladosporium* may also occur at times late in the season as the aerial parts of the plant die back for the winter. For those interested *Cladosporium* can be isolated on malt extract agar as olive colonies bearing greenish conidia. We do not know if *Cladosporium* infects other orchid genera but we have seen similar spotting on *Epipactis gigantea* and on *Orchis mascula* although we have not investigated these.

PREVENTION

Having identified the problem we now come to the speculative part, what are we going to do to save our Dactylorhizas next year? We would suggest the following strategy to reduce the extent of the disease. Like most plant diseases hygiene is a good place to start, thus cleaning up and destroying infected tissue and old leaves at the end of the growing season is essential. A clean mulch such as peat, sand, gravel or bark laid round the plants just before they start into growth should help to prevent overwintering spores being splashed onto the plants. Planting washed tubers into clean soil can also be tried.

Benzimidazole fungicides like Carbendazim applied at intervals early in the season should also help to control *Cladosporium* as should most other modern non-oomycete fungicides. For the amateur grower in the UK there are several fungicides suitable for use on ornamentals containing Carbendazim available in garden centres. There may be no recommendation on the label giving the frequency of application and dose for orchids but those suggested for fungal diseases such as *Botrytis* on ornamentals should be suitable. With most fungicides this equates to an application every two weeks in the early part of the growing season. As a precaution when treating new plants it might be wise to try spraying only a few plants initially to ensure that spray damage does not occur. Orchid leaves can be difficult to wet with sprays and the inclusion of a few spots of washing-up liquid as a wetting agent will help to ensure the leaves are thoroughly wetted by the fungicide. While these modern fungicides are to some extent systemic, a good coverage and wetting particularly of the underside of the leaves will ensure good penetration of the active ingredient. To reduce damage to the mycorrhiza (beneficial fungi) which are associated with orchid roots a wise precaution will be to protect the soil round the plants as much as possible and to spray upwards to reduce the quantity of spray reaching the soil. Because of the effect on the mycorrhiza we are not certain if dipping infected roots in fungicide and replanting them in clean soil will be beneficial.

In our experience physical protection of the plants in the early part of the year can also help prevent *Cladosporium*. Dactylorhizas grown in pots in the greenhouse and plunged outside when the danger of frosts is over seem to be free of *Cladosporium* infection. This treatment also improves the growth of young plants as their growing season is lengthened and they produce better

storage roots by the end of the season.

PROGNOSIS

Cladosporium will always be in the environment and harmless infections may well occur most autumns during senescence. It has probably become a major problem earlier in the season because of a succession of years when we have had very mild periods in February and March followed by occasional sharp frosts and a cold wet cold spring lasting until July. Our experience is that *Dactylorhiza* colonies which have been infected in the last two years were previously fully hardy and disease free. Since we have only just identified the problem we hope that by adopting the precautions suggested above we can return to enjoying disease free orchids of former years.

FOOTNOTE

At the time of writing we have not yet been able to try all of the precautions suggested above. Neither the authors nor the Scottish Rock Garden Club can accept responsibility for a failure of, or any damage resulting from the treatments suggested which are given in good faith.

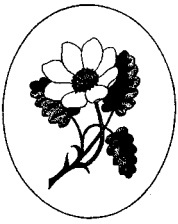
STOP PRESS: *It is now late April and we have carried out many of the suggested measures and as an additional precaution covered the emerging plants with a plastic sheet set on bricks to keep the rain off. To date our plants are disease free. We will never know if this is due to the precautions taken or to the more normal winter/spring weather we have experienced since last summer .*

ACKNOWLEDGEMENTS

We are grateful to Professor Graham Gooday of the Department of Molecular and Cell Biology, University of Aberdeen and Dr Roland Fox, Crop Protection, Department of Horticulture and Landscape, University of Reading for help in identifying *Cladosporium* and for comments during the preparation of this article.

REFERENCE

Ellis, M. B. and Ellis, J. P. (1997) *Microfungi on Land Plants: an identification handbook*. 2nd Edition Richmond Publishing, Slough.



New Zealand Native Plants

A review by Alastair McKelvie

The Gardener's Encyclopedia of New Zealand Native Plants

Yvonne Cave and Valda Pattison

Published by Random House, New Zealand 1999. ISBN 1 86962 043 7.

Price £45. Distributed by Timber Press.

THIS SHORT NOTE began life as a Review of Yvonne Cave and Valda Pattison's book but the editor has asked me to expand the review to cover my impressions of the New Zealand flora since I (plus my wife and Wilf and Dora Holmes) have just returned from four weeks there on holiday. I am, however, very much aware of the dangers of generalising about New Zealand on the basis of such a short stay. The words of Peter Fleming in 1934 come to mind when he wrote in his book 'Travels in Tartary':

The recorded history of Chinese civilization covers a period of about four thousand years. The population of China is estimated at 450 million. China is larger than Europe. The author of this book is twenty-six years old. He has spent, altogether, about seven months in China. He does not speak Chinese

I feel in much the same position about New Zealand although I do at least speak the same language. Mind you, I was a bit taken aback in a café in Auckland when the waitress on learning that we came from Scotland expressed surprise that we spoke English.

We were in New Zealand in February and March so that the spring and early summer flowering was over and the hills and plains were somewhat bereft of flowers but, nevertheless, there was much of interest especially in the forests, in the scrub land and up on the high hills with vegetable sheep and other cushion plants. Perhaps the most striking thing, however, was the super-abundance of introduced species especially broom, gorse and ragwort. It was easy to understand why so many New Zealanders hate plant and animal introductions of any kind since they have led to so many problems. The sheer scale of the war on possums was an eye-opener. The possums eat the crowns of many trees especially cordylines. In one forest we were in there was a notice to say that they had just scattered thousands of poison pellets and to beware of letting children or pets eat them. Lethal possum traps baited with apples were commonplace in many areas.

My first impression was, as expected, of a flora with predominantly white or yellow flowers but there was a scattering of blues and reds especially the Northern Rata or Pohutukawa (*Metrosideros excelsa*) and Southern Rata (*Metrosideros umbellata*) which blazed from the tree tops. Coloured berries from white to red, blue and purple of *Gaultheria*, *Coprosma*, *Myrsine*, *Nertera* and *Pernettya* were abundant on the mountainsides. But lack of general colour was more than made up for by the wonderful shapes of the plants from the spiky aciphyllas, vegetable sheep of the raoulias and haastias to the elegant bushes of leptospermum and hebe. Celmisias were there in their thousands of plants and very many species largely unidentifiable. The family Compositae actually makes up about one seventh of the whole New Zealand flora.

Identification of plants in the field was difficult because of the scarcity of flowers and the lack of a really good field guide. The New Zealand flora is covered well in a five-volume book as well as books devoted to individual groups such as trees, ferns and mosses but they are too bulky for taking to the field. The best of the small field guides is Salmon's *Field Guide to the Alpine Plants of New Zealand* published in 1968 especially its many coloured plates but it is incomplete and many of the Latin names are now out of date. We carried it with us, nevertheless, because it gave a quick and approximate idea of what a particular plant was.

The best way to get to know the New Zealand alpine flora is to find a good local botanist and this is what we did when we enlisted the help of Joan Whillans from Ruapuna to show us the flora of Mount Hurt and the help of Pauline and Brian Douglass from Lincoln to explore the Arthur's Pass area with us. Their extended hospitality and kindness were typical of what we found all throughout New Zealand.

The Gardener's Encyclopaedia of New Zealand Native Plants is a large volume not suitable for taking to the field nor does it give a comprehensive account of the New Zealand Flora but concentrates instead on those species which are suitable for growing in New Zealand gardens.

It was only fairly recently that New Zealand gardeners realised that their native plants were not dull and difficult but that even if they did not always have spectacular flowers they could create delightful green vistas of varying shape and texture.

The book includes cultivars of many of the native species so that, for example, 40 cultivars of *Leptospermum scoparium* (manuka) are included. These include many delightful dwarf types; a picture in the book of a bed of these cultivars in Auckland Botanic Gardens closely resembles a bed of UK heathers. It is interesting that The RHS Plant Finder lists 50 cultivars which are available in the UK but they are not, of course, hardy and need cold glass protection in winter in most parts of the UK so that they are not all that widely grown. Many of the cultivars can be found growing in the Botanic

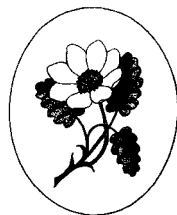
Gardens of the major cities in New Zealand.

The Encyclopaedia lists more than 1000 species and cultivars and includes over 1000 colour plates. The list is highly selective so that while only three species of ranunculus are mentioned there are descriptions and photographs of 30 species and cultivars of both hebe and leptospermum as well as 25 phormiums but then the emphasis is on plants which can be grown in New Zealand gardens. The cultural advice is of limited value for the UK where New Zealand native species are generally difficult to grow. And some of it is contradictory anyway. For example UK gardeners would accept that *Bulbinella hookeri* is an easy plant to grow provided it receives plenty of moisture but *Bulbinella rossii*, the finest species of the genus, which the book lists as being difficult to grow, is every bit as easy in the UK, provided you can get hold of a plant to begin with.

The photographs are of superb quality and can be readily used for identification. The text is limited in detail but is sufficient to provide a description and some cultural hints. There is no key so that identification is simply a question of looking through the plates until you come across a likely picture. But then, it is really a book for starting to search for information. Once a plant is identified the reader can go on to a more detailed book for further information.

This is predominantly a book for New Zealand gardeners but it will be of interest to anyone who has visited the country or is planning a visit.

In the high valleys of Georgia



Michael J B Almond

THIS ARTICLE is concerned with four high valleys in the central and eastern Caucasus, all of which lie within the boundaries of the Republic of Georgia but three of which lie on the northern side of the main Caucasus watershed and drain northwards and then eastwards into the Caspian Sea. Elbrus, the highest mountain in the Caucasus (5642 m) and Kazbek (Georgian *Mtkinvari*) (5033 m) are both volcanoes that have not been active in historical times, and both lie north of the main watershed. Whereas Elbrus is firmly in the Russian Federation, with the Georgian border running along the main watershed ridge, Kazbek is traversed by the border and the headwaters of the river Terek (Georgian *Tergi*) lie in the Republic of Georgia. The whole of the Terek valley above the famous Dariel Gorge (the Caspian Gates of the ancients, which Pompey the Great's army is said to have reached in 65 BC) lies within Georgia and constitutes the Georgian province of Khevi. In the Dariel Gorge the river Terek crosses the border of the Russian Federation into Ingushetia. Eastwards from Kazbek, the boundary between Georgia and Chechnya continues along the highest peaks in the area, which again lie north of the watershed ridge. This means that the headwaters of the rivers Argun, which flows out north through the Chechnyan capital Groznii, and Andikoysu, which flows to the Caspian through Dagestan, lie in Georgia; the two valleys comprise the Georgian provinces of Khevsureti and Tusheti, respectively. My fourth valley is that of the river Inguri, which flows down from the central Caucasus into the Black Sea. The high valley of the Inguri, above the gorges through which a road was finally driven in the 1930s, is known as Svaneti.

In July 1998, my wife Lynn and I joined a trek through Tusheti and Khevsureti. In 1999 and 2000 I visited Khevi and Svaneti as leader of a group organised by the *Field Studies Council Overseas*.

TUSHETI

Vehicular access to Tusheti is via a rough track over the Abanos Pass (different maps give different names). The southern approaches to the Abanos Pass are first through thick forest and then across steep grassy slopes. We saw *Campanula* of various types cascading over rocks above the road and *Rhododendron luteum* and, on distant hillsides, *Rhododendron caucasicum*.

Just below the pass was a fine stand of *Primula luteola*, but the lorry could not stop. We also had fleeting glimpses of *Lilium monadelphum*, a multi-headed *Silene* sp. and what appeared to be *Primula auriculata*. From the top of the pass (just below 3000 m) there is a good panorama north; there was little flowering in the turf apart from *Corydalis conorhiza*. Two or three hundred metres below the pass on the north side is an area of alpine meadow carpeted with campanula of the *Campanula tridentata/aucheri* type (fig. 91) and also *Gentiana pyrenaica*, *Primula algida* and *Corydalis conorhiza* (which usually has blue-purple flowers but occasionally, as here, includes some with pale yellow flowers). The steep hillside beyond was covered with *Rhododendron caucasicum*.

We did not find Tusheti very interesting as far as flowers were concerned, but it is possible that our impressions may have been unduly influenced by the fact that we had to trek for up to ten hours a day over difficult terrain, mostly without good paths – often without any path – and mostly in torrential rain, carrying heavy packs. These conditions are not conducive to a full appreciation of the native flora. Much of the valley sides was composed of what appeared to be a decomposed shale which tended to be unstable, its critical angle being somewhere around 45°; where it had not slipped recently it was covered in tussock grass.

The rocky citadel of the Tushetian settlement of Omalo had a *Sempervivum* similar to *S. soboliferum* scrambling over it (possibly *S. caucasicum* or *S. globiferum*). In the woods below could be found *Daphne caucasica*, *Linnaea borealis*, *Moneses uniflora*, *Platanthera chlorantha*, *Polygonatum ?multiflorum* and *Pyrola minor*; on the margins of the woods were *Aquilegia olympica*, *Echium russicum*, *Gymnadenia conopsea*, *Heracleum mantegazzianum* (the giant hogweed, very impressive in its native habitat), *Primula veris* ssp. *macrocalyx* and *Tanacetum coccineum*; and in the wet flushes *Caltha palustris*, *Dactylorhiza euxina*, *Geum rivale* and *Primula luteola* (fig. 93). This last is a robust, tall (up to about 45 cm) plant, related to the pink *P. auriculata*, but with a loose umbel of bright, rich yellow flowers. It is endemic to this area on the borders of Georgia, Daghestan and Chechnya. In the meadows beside the village of Diklo there was a mass of bloom, including *Aster caucasicus*, *Gymnadenia conopsea*, *Platanthera chlorantha* and *Stachys macrantha*. On the Diklo Pass, to the west of the village, campanulas including, probably, *Campanula bellidifolia*, scrambled over the rocks and, as we walked down from the pass into the valley of the Pirikita Alazani (the name the Andikoyso river is given during that part of its course which lies within Georgia), we passed masses of *Stachys macrantha* and *Echium russicum*, together with more campanulas. At the village of Chigho there was yet more campanula and, west of the village, a wet flush above the path was ablaze with yellow *Primula luteola*.

Probably the highlight of our walk up the Pirikita Alazani valley was the

day we spent at the village of Dartlo. It remained fine while we were there and we were able to walk up without our packs through the steep meadows to the hilltop village of Dano. The slope just above Dartlo was thick with burdock and a rose tumbled over the rocks. Higher up, the meadow was a mass of pink *Linum hypericifolium*, *Dianthus* and *Geranium*, red *Echium russicum*, white *Scabiosa* (*S. ochroleuca*?) and yellow *Pedicularis*, together with a great many *Gymnadenia conopsea* and a few *Orchis ustulata*. The rocks below Dano had on them yellow *Potentilla* and more *Campanula*. In the wet flushes to the west of Dartlo there was more *Primula luteola* and on the rocks around the village of Parsma, in addition to the various campanulas and the wild roses, there was a clump of *Doronicum*.

On the banks of the river beside our last campsite in Tusheti (at about 2500 m altitude), where the rain relented only briefly between the arrival of our exhausted and bedraggled band in the evening and our departure after a night under wet canvas, was a mass of *Primula luteola*, together with *Dactylorhiza euxina*, *Polygonum bistorta*, and the white *Silene lacera* (similar to *S. multifida* but found on glacial moraines and scree). The hillsides above the river on the opposite (north-facing) side of the valley were covered in *Rhododendron caucasicum*. As we trudged up to the Atsunta Pass (3430 m), we passed the usual various campanulas, *Aster caucasicus*, what appeared to be *Dryas* on cliffs, one solitary fritillary with an unripe seed capsule (possibly *Fritillaria latifolia*), *Gentiana pyrenaica*, *Lloydia serotina*, *Primula algida*, *P. luteola*, *Saxifraga flagellaris*, *S. juniperifolia* or similar on cliffs and *Veronica* spp., both tall and small. On the final steep scree below the pass there was a small white crucifer with fleshy leaves and red stems which we have been unable to identify, a small orange-red *Ranunculus*, *Lamium tomentosum* and a small yellow, sweet-scented *Viola* which occurred in greater numbers on the much looser scree below the west side of the pass, where there appeared to be virtually nothing else growing.

KHEVSURETI

The Atsunta Pass marks the boundary between Tusheti and Khevsureti. We camped below the pass on the west side at about 2900 m in an alpine meadow which had a multitude of flowers in it but which unfortunately we were unable to explore properly, arriving just before dusk and leaving again early the next morning. As we passed through we noticed two species of *Androsace* (*A. albana* and a tall, pink one), *Anemone speciosa*, *Aster alpinus*, *Gentiana pyrenaica* and *G. verna*, *Lloydia serotina*, two *Pedicularis* spp. (one yellow, and one small and red), *Primula algida* and *P. elatior* ssp. *meyeri*. The ridge above us was covered in *Rhododendron caucasicum* as was also the ridge to the west of our camp, along which we walked towards the Andaki Gorge. Also on this ridge we passed a lot of *Anemone speciosa*, *Aster alpinus*, a pale blue *Campanula*., a lot of *Coeloglossum viride*, *Fritillaria* sp. (plentiful, but all with



Fig. 90 Mountain view - Mt. Ushba & Mulakhi (p.181)



Fig. 91 *Campanula* aff. *tridentata/aucheri* (p.175)



Fig. 92 *Anemone fasciculata* (p.178)
Photos: M & L Almond



Fig. 93 *Primula luteola* below Atuntsa Pass (p.175)



Fig. 94 *Primula auriculata*
above Ushguli (p.182)



Fig. 95 *Primula auriculata* (p.178)
Photos: M & L Almond

unripe seed), *Gymnadenia conopsea* (lower down than the *Coeloglossum*) and the same two *Pedicularis* spp. we had seen at the campsite. As the hillside became steeper and we made our way down towards the gorge, we passed *Anemone fasciculata*, *Dianthus* spp. (white and pink), a short dark purple iris with white centres to its falls, which may have been *Iris graminea*, *Traunsteinera sphaerica* (all white), the startlingly scarlet parasite *Phelypaea coccinea* (fig. 98) and, almost down into the gorge, some *Lilium monodelphum*.

In the Andaki Gorge itself, and in its tributary the Chanchakhi Gorge, there was a profusion of roses, varying from white to deep carmine (this last possibly *Rosa oxiodon*), and many different campanulas, including *Campanula glomerata*, a pale *C. latifolia* and some other tall, statuesque plants of the steel-blue *Campanula ossetica*, in addition to the rock-growing species which more closely resembled those we had seen at higher altitudes. We also saw pink and white *Centaurea* spp., *Asyneuma campanuloides*, *Aconitum ?cymbulatum* (light blue), *Aquilegia olympica*, a white *Dianthus* with an unpleasant scent, *Gymnadenia conopsea*, *Papaver caucasicum*, *Rhinanthus ?major*, *Saxifraga juniperifolia*, and *Stachys macrantha*. Below the village of Mutso, clustered round a spring at the base of the cliffs, was a mass of *Primula luteola*, which had unfortunately finished flowering.

At our final stopping place in Khevsureti, the village of Shatili, the only flowers of interest we saw were a delicate purple *Verbascum* sp. and another campanula scrambling over a cliff, one which certainly looked different from any we had previously seen. Vehicular access to Khevsureti is by a rough road, scarcely better than the track into Tusheti, over the Datvis Jvari Pass; there is also a footpath up the Argun gorge from Chechnya. Our brief stop at the top of the Datvis Jvari Pass (about 2600 m) did not reveal any interesting flora near at hand.

KHEVI

Khevi, and its administrative centre Qazbegi, lie on the Georgian Military Highway, constructed by the Imperial Russian army to facilitate the incorporation of Georgia into the Russian Empire in the early 19th century. It remains the only all-weather road over the Caucasus (although its maintenance has been sadly neglected in recent years) and, as such, the main route between Russia and Georgia. This means, of course, that Khevi is much more frequently visited than any of the other three valleys referred to in this article. It also means, however, that livestock and their products can be more easily moved in and out, and so much of the province suffers from overgrazing. In particular, the Truso gorge (the upper valley of the Terek), with its fascinating geology, is reputed to be very overgrazed and not worth visiting to look at flowers.

At the Jvari (in Russian *Krestovy*) Pass itself (2379 m), where the Georgian Military Highway crosses the main watershed, the grassy hillsides are dotted with clumps of *Veratrum album*. The marshy stream banks at the top of

the pass are a mass of *Primula auriculata* (fig. 95) in early June, together with *Caltha palustris* and *Gentiana angulosa*. According to the *Flora of the USSR*, *G. angulosa* is larger, with larger flowers, than *G. verna* ssp. *pontica*: the dimensions given, however, are not very helpful (*G. angulosa*: stems up to 6cm; flowers 42-45 mm but occasionally 38-55 mm; *G. verna* ssp. *pontica*: smaller plants; flowers 31-40 mm but up to 45 mm on occasion. *Arnebia pulchra*, *Pedicularis* spp., *Primula algida* and *P. veris*, *Rhododendron caucasicum* and *R. luteum* can also be found just below the pass. Beside the roadside travertine outcrop a kilometre or so to the north of the pass can be seen *Arnebia pulchra*, *Primula algida*, *P. elatior* ssp. *meyeri* and *Rhododendron caucasicum*.

The Sno valley (a tributary valley of the main Terek valley which it joins from the east, a few kilometres above the town of Qazbegi), though generally overgrazed, has some small fenced areas very rich in flowers. In particular, one small patch of hillside a few hundred metres above the village of Sno, provided a spectacular display of *Anemone fasciculata* (fig. 92 & 96). This anemone is closely related to *Anemone narcissiflora*, but a proportion (in my experience probably varying between one and five percent) of the plants have pink, rather than white, flowers. The pink flowers vary between light and dark (a few very dark) pink, and the colour is not necessarily distributed evenly across the petals, with extremely attractive results. The floor of the valley was also, in places, a mass of marsh orchids (probably *Dactylorhiza euxina*), as also was the floor of the main Terek valley here and there. Some of the orchids had very bold leaf markings. Small amounts of *Daphne glomerata*, *Echium russicum*, *Gentiana septemfida* (leaves only in June), *Heracleum ?sosnewskyii*, *Pedicularis foliosa* and *P. ?oederi* (with brown-tipped petals), *Primula veris* ssp. *macrocalyx*, *Saxifraga juniperifolia* and *Veronica gentianoides* as well as undetermined species of a number of other genera had also managed to survive the attentions of the grazing animals.

A short walk up the hill to the east of the town of Qazbegi, to the Shrine of Elia, provides a good introduction to what can be seen in the area. At the beginning of June we saw *Alchemilla ?alpina*, *Androsace villosa*, *Anemone fasciculata* and *A. speciosa* which is similar but with lemon-yellow flowers, *Arnebia pulchra*, two *Astragalus* spp. (one small purple; one large white/mauve), *Campanula ?bellidifolia* and *C. aff. tridentata/aucheri*, *Centaurea ?cheiranthifolia*, *Cerastium undulatifolium*, *Chamaescidium acaule*, *Echium russicum*, *Erysimum ibericum*, *Gentiana angulosa*, *Gymnadenia conopsea* (in bud), a yellow *Linaria*, the pink *Linum hypericifolium*, *Lotus ?caucasica*, *Pedicularis coorincha* (with yellow flowers and big leaves), four *Pedicularis* species (pure cream; cream & red – *P. oederi* aff.; small yellow; and very leafy – *P. foliosa* aff.), *Polygonatum bistorta*, *Potentilla ruprechtii* and another unidentified sp., *Primula algida* and *P. elatior* ssp. *meyeri*, *Pulsatilla violacea* (fig. 97) which is described as *Anemone albana* in the *Flora of Turkey*, *Rhinanthus major*, *Saxifraga juniperifolia* as well as *S.*

kolenatiana and three other *Saxifraga* species (encrusted white; large-flowered white; yellow), *Silene ?dagestanica*, *Silene nutans* aff., *Stachys macrantha*, *Trollius patulus*, *Veronica ?gentianoides* and another unidentified sp., *Viola caucasica* and another *Viola* – a wood violet.

On the opposite (western) side of the Terek valley from Qazbegi lies the village of Gergeti, above which looms the mass of Mt Kazbek (5033 m). Along the alleys and on the walls of Gergeti are masses of a small *Symphytum* sp. and the henbane *Hyoscyamus niger*. On the lower slopes of Kazbek, immediately above Gergeti, is the 13th century Holy Trinity (*Sameba Tsminda*) church. The walk up through the woods (largely of the local "crooked birch", *Betula litwinowii*) from Gergeti to the church is very pleasant, and along the way you can see *Aconitum orientalis*, *Androsace villosa*, *Anemone fasciculata*, *Aquilegia caucasica*, *Arnebia pulchra*, *Caltha palustris*, *Coeloglossum viride*, *Corallorhiza trifida*, *Dactylorhiza ?euxina*, *Fritillaria collina* (previously *F. lutea*), *Gentiana pyrenaica* and *G. angulosa*, *Geranium sylvaticum*, *Gymnadenia conopsea*, *Polygonatum verticillatum*, *Primula veris* ssp. *macrocalyx*, *Rhododendron caucasicum*, *Traunsteinera sphaerica*, *Trollius patulus* and *Veratrum album*.

On the steep banks and small cliffs of the rocky outcrop on which the church itself stands there are *Astragalus ?kazbeki*, *Daphne glomerata*, *Draba bryoides*, *Gentiana angulosa*, *Primula algida* and *P. elatior* ssp. *meyeri* including one or two with white flowers instead of the usual purple-pink.

Above the church one can continue to walk up the mountain ridge towards the Kazbek glacier. The north side of the ridge, which drops away steeply to a valley below, is largely covered in *Betula litwinowii* and above that *Rhododendron caucasicum*. The south side of the ridge, however, dips far more gently to another valley and consists of mountain pasture. In the grass in various places can be found *Androsace villosa*, *Anemone fasciculata* and *A. speciosa*, *Antennaria dioecia*, *Astragalus* sp. (with tiny leaves and white or blush violet flowers), *Campanula tridentata/aucheri* aff., *Cerastium* sp., *Daphne glomerata*, *Eritrichium caucasicum*, *Fritillaria collina*, *Gagea* sp., *Gentiana angulosa*, *G. pyrenaica* and *G. verna*, *Lloydia serotina*, a *Pedicularis* with small, lemon-yellow flowers (apparently a different species from any noted above), *Pushkinia scilloides*, *Veratrum album* and a prostrate *Veronica*.

North of Qazbegi, the Georgian Military Highway continues down the Terek valley for some kilometres before entering the defile of the Dariel Gorge, where the Russian border is situated. In early June the cliffs above the road were festooned with large numbers of hogweed flowers (*Heracleum*) and there was a mass of *Campanula* cascading down the rocks.

The last side valley coming down to the Terek within Georgia from the flanks of Kazbek (on the west) is the Devdoraki valley. There is a good track up the valley towards the Devdoraki glacier, but the valley floor is heavily

grazed. Here, in spite of the low cloud and driving rain which accompanied us, we managed to identify *Androsace villosa*, *Anthemis marschaliana*, ?*Astragalus* sp. (mauve), *Campanula tridentata/aucheri* aff., *Chamaesciadium acaule*, a tall *Draba* sp., *Echium russicum*, *Linaria meyeri*, ?*Lotus* sp. (yellow/orange), *Orchis ustulata*, *Primula algida*, a white *Silene*, a small *Symphytum*, *Tanacetum coccineum*, *Veratrum album*, and *Veronica ?gentianoides*.

SVANETI

Svaneti proper comprises the upper valley of the river Inguri, which flows into the Black Sea below the town of Zugdidi and which forms, for part of its lower course, the boundary of the breakaway province of Abkhazia, travel into which is not possible at present. During our drive up the Inguri gorge to reach Svaneti we passed *Campanula*, *Erysimum*, *Euphorbia*, *Heracleum*, *Salvia*, *Stachys*, as well as *Helleborus orientalis*, ?*Lychnis/Silene* sp. (multi-headed), and *Vincetoxicum nigrum*. We also found *Cyclamen coum* leaves under the trees among the leaf litter. Eventually the valley widens out and the gorges give way to upland pastures. In the meadows that are being kept for winter fodder and have not been opened up to the cattle and the foraging pigs there is a mass of flowers, among them *Dactylorhiza ?iberica*, and *Orchis coriophora*.

For an account of a brief visit to Svaneti in July 1991, walking over the Mestia pass from the Baksan valley on the northern side of the Caucasus and returning there over the Becho pass, see my article in *The Rock Garden*, XXIII(2), no 91(Jan 1993). In 1999, we visited the woods in the lower part of the Becho valley and, among the hazel and beech we found ?*Aconitum/Ligularia* sp. (white), *Aquilegia olympica*, *Centaurea* sp. (with large, cream flowers and finely divided leaves), *Echium russicum*, *Fragraria vesca*, dwarf *Genista* sp., *Galium odoratum*, two *Geranium* species neither *G. sylvaticum*, *Lilium monadelphum*, *Neottia nidus-avis*, *Omphalodes lojkae*, *Orobanche* sp. (white with orange tips), *Paris incompleta*, *Pedicularis atropurpurea*, *Platanthera chlorantha*, *Polygonum bistorta*, *Silene ?vulgaris*, and *Vicia* sp. (with big, pendulous, yellow-orange flowers).

More or less at the centre of the upper valley system of Svaneti is its administrative centre, Mestia, a small town of about three and a half thousand inhabitants. It lies at a height of about 1300 m and is surrounded on both north and south by peaks rising to over 4000 m in height. In Mestia and in the other villages of Svaneti there are preserved many traditional tower houses, which served as both dwellings and strongholds in more lawless times (which lasted until only a little over one hundred years ago). The lush green landscape and the villages dotted over it, framed by the soaring snow-capped mountains, form a picture of unforgettable beauty. The whole of the town seems to be surrounded with yellow azalea (*Rhododendron luteum*) which, however, is past its best by early June at this height.



Fig. 96 *Anemone fasciculata* (p.178)



Fig. 97 *Pulsatilla violacea* (p.178)



Fig. 98 *Phelypea coccinea* (p.177)
Photos: M & L Almond



Fig. 99 *Corydalis emanueli* var. *pallidiflora* (p.181)



Fig. 100 *Daphne glomerata* (p.182)

Photos: M & L Almond

Directly above Mestia is Mestia mountain, rising to about 2300 m. It is, in fact the ridge between the main Inguri valley and the tributary on which Mestia itself stands. The views from the top are stupendous. To the north lies the main ridge of the Caucasus, dominated by the twin peaks of Ushba (4700 m) (fig. 90); to the east lies the soaring peak of Tetnuld (4858 m) and, in the distance at the head of the Inguri valley, Mt Shkhara, at 5201 m the highest mountain in Georgia; to the south lies the Laila range, rising to 4008 m, an offshoot of the Caucasus which seals Svaneti off from the rest of Georgia; and to the west the Inguri valley drops away into its precipitous gorges, with the ridges of the western Caucasus as a backdrop. Here, on top of the ridge, we saw *Corydalis emanueli* var. *pallidiflora* (fig. 99) which is similar in form to *C. alpestris*, which we have found growing in the high screes of the Caucasus and the Pontic Alps, but the variety *pallidiflora* has attractive, lemon-yellow, flowers instead of sky-blue. Other species included *Ajuga ?pyramidalis*, *Anemone caucasica*, *A. fasciculata*, *Aquilegia caucasica* (in bud), *Campanula lactiflora* (in bud), *Coeloglossum viride*, *Dactylorhiza ?euxina* and *D. flavescens* in both red and yellow forms, *Daphne glomerata* and *D. mezereum*, *Gentiana angulosa*, *Lilium monadelphum* (in bud), *Omphalodes lojkae*, *Orchis pinetorum*, a large yellow *Pedicularis*, *Polygonatum verticillatum*, *Primula pseudoelator*, *Pulsatilla aurea*, *Pyrola* sp. (in leaf, with last year's seedhead), *Rhododendron caucasicum* and *R. luteum*, *Salix* sp. (with very distinctive catkins up to 10 cm in length), *Trollius patulus* and *Veronica gentianoides*.

From Mestia a very rough road leads eastwards, first up the Zanner valley and then the upper Inguri valley, to Ushguli, the highest village in Svaneti – indeed, at over 2000 m, the highest year-round habitation in the Caucasus and higher than any permanently inhabited village in Europe. The road east of Mestia, below the towing pyramid of Tetnuld is lined with *Berberis chinensis*, *Lonicera* sp. and *Rhododendron luteum*. At the Ugyr Pass, where the track crosses from the Zanner to the Inguri valley, the pasture round the picturesque tarn is hemmed in with *Rhododendron luteum* and the water's edge is dotted with *Primula auriculata*. High on the ridge above Ushguli towers Tamara's castle, surrounded by *Pulsatilla violacea* and *Trollius patulus*. From the castle there is a fine view of the village itself and also of the two valleys which meet there.

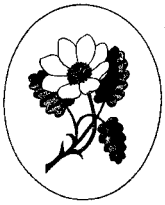
The more southerly of the two valleys leads up to the Zagar Pass (2643 m), over which the map shows a road (now seemingly permanently closed to vehicular traffic) leading south down to a tributary of the river Rioni. The road is quite adequate, however, as a footpath or bridle track. It looks across to the north-facing side of the valley, much of which is covered in *Rhododendron caucasicum*. The south-facing slope, up which the road winds, is mainly covered in herbage of various kinds, including a wealth of flowers: *Ajuga pyramidalis*, *Anemone caucasica* and *A. fasciculata*, *Arnebia pulchra*, *Caltha palustris*, *Dactylorhiza ?euxina*, *Euphorbia ?macroceris* and *E. ?stricta*,

Gentiana angulosa, *Helianthemum caucasicum*, *Tussilago farfara*, *Polygonum bistorta*, *Primula algida* and *P. pseudoelator*, *Rhododendron caucasicum*, small *Stachys macrantha* and *Trollius patulus*. The slopes near the top of the pass (fig. 94), near the melting snow and above the drifts of bright pink *Primula auriculata* and bright yellow *Pulsatilla aurea*, were dotted with the dark purple bells of *Fritillaria latifolia* for as far as the eye could see. Later (in July) the statuesque *Sredinskaya grandis* can be found here, a relation of the *Primula*, with yellow onosma-like flowers on tall stems with farina, displayed in a primula-like inflorescence, and with large leaves.

The more northerly of the two valleys which meet at Ushguli ends at the spectacular south wall of Shkhara. After a narrow stretch above Ushguli, the valley widens out and becomes broad and flat bottomed. Growing here and there on the banks of the torrent are large patches of the low-growing *Daphne glomerata*, its cream (sometimes pink-tinged), sweetly-scented flowers forming globular inflorescences (hence the specific name) about the size of a golf ball (fig. 100).

In the shingle of the valley floor and on the lower slopes can be found *Achillea ptarmica* aff., *Ajuga pyramidalis*, *Androsace villosa*, *Anemone caucasica* and *A. fasciculata*, *Anthemis ?rudolfiana*, *Arnebia pulchra*, *Aster alpinus*, *Caltha palustris*, *Campanula ?bellidifolia*, *Coeloglossum viride*, *Corydalis emanueli* ssp. *pallidiflora*, *Crepis aurea*, *Dactylorhiza ?euxina* and *D. flavescens*, *Gentiana angulosa* and the leaves of *G. septemfida*, *Geranium sylvaticum*, *Geum rivale*, *Lilium monadelphum*, *Orchis ustulata*, *Polygonum bistorta*, *Potentilla ?agrinthioides* and *P. ruprechtii*, *Primula algida*, *P. auriculata* and *P. pseudoelator*, *Rhinanthus ?angustifolius*, *Rhododendron caucasicum*, *Stachys macrantha*, *Tanacetum coccineum*, and *Trollius patulus*. Later in the year, the hillsides up towards the Shkhara glacier are ablaze with the large yellow flowers of *Lilium monadelphum*.

Communications with the high valleys of Georgia are often difficult but the effort is more than repaid by the wealth of flowers and the magnificence of the scenery. They are places to which, once you have been, you long to return. I myself hope to lead another party to Khevi and Svaneti in June 2002 and, if there is sufficient demand, in subsequent years. For further information contact *Field Studies Council Overseas*, Montford Bridge, Shrewsbury, SY4 1HW.



Report on Northumberland Show 31st March 2001

Barry McWilliam

THE EARLIER THAN USUAL show date, very late spring, gloomy reports from earlier shows and the absence of one or two stalwart exhibitors must have given the show secretary cause for concern. On the day this proved groundless with almost 450 pans of excellent plants in the Open Section. Numbers in Sections B and C were disappointing but quality high. Marvellous colour was provided by the larger than usual number of *Dionysias* and their hybrids, *Primulas*, *Saxifrages*, *Frits* and *Corydalis*. The improved lights provided by the show secretary received favourable comment and removed the need for supplementary lighting.

Under AGS rules this year it was a Farrer Medal which went to Mr and Mrs P Hurst of Saddleworth with *Shortia uniflora* var. *kantoensis* narrowly ahead of *Corydalis incisa alba* from Fred Hunt's AGS Medal winning 6 pans large. For the second year running Ian Kidman won the R B Cooke Plate for the most first prize points in the Open Section. Of the many *Primulas* on show pride of place must go to the *Primula* 'Joan Hughes' shown by Geoff Mawson which won both the Ione Hecker Trophy for the best *Primulaceae* and the Sandhoe Trophy for the best plant in a 19cm pan. This small hybrid has relatively small flowers of a glowing dark purple with a small white eye, and the plant on show was tightly covered with blooms. Strong competition for the best *Primulaceae* must have been provided by both Helen Kidman's *Dionysia* 'Monika' and the long tom of *Dionysia bryoides* from D J Pickard.

Saxifrages were both numerous and varied but none outshone the native *Saxifraga oppositifolia* 'Theoden'. Several individual plants deserve mention: P Craven of Yarm received a Certificate of Merit for one large pan, but an almost equally meritorious pan was shown by Alan Furness and a pan in Section B shown by the winner of the Gordon Harrison Cup for the most first prize points, M Childerhouse of Brigg, would have held its own in the open section as would some of his other offerings.

A further Certificate of Merit was awarded to a pan of *Iris pamphylica* shown by Mike Smith of Hythe Alpines, E F Rainford won the E G Watson Trophy for a new or rare plant with *Corydalis darwasica* x *nariniana* and a new exhibitor, D Boyd of Newcastle, cleaned up on Section C winning both the Cyril Barnes Trophy for most first prize points and the Northumberland Cup for an exhibitor who has never previously won a first prize.

A few comments on fashion in judging might be in order. It is noted that flowers are no longer a disqualification in the cushion classes, unless the schedule specifically excludes flowers. In the silver or grey foliage classes *Celmisia* species currently rule with the not very silver *Celmisia spedenii* occupying the first three places in the Open small pan class and *Celmisia insignis* placed first and *C. spedenii* second in the large pan. Finally, the judges were a little niggardly in not awarding a first in Class 40, the Open 6 small pans, depriving an exhibitor of an AGS Medal.

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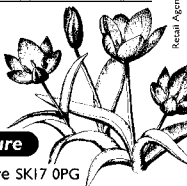
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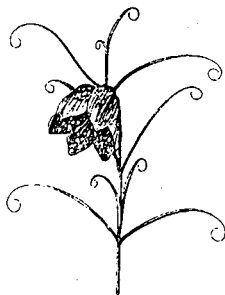
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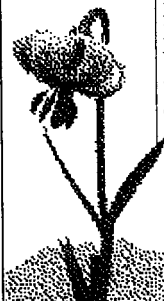
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