The Journal
OF
The Scottish Rock Garden Club

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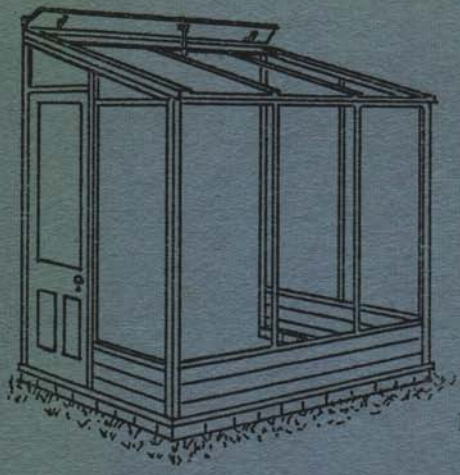
VOL. VI. PART 3 No. 24—April 1959



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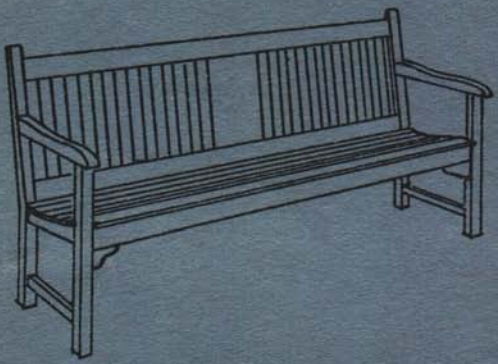

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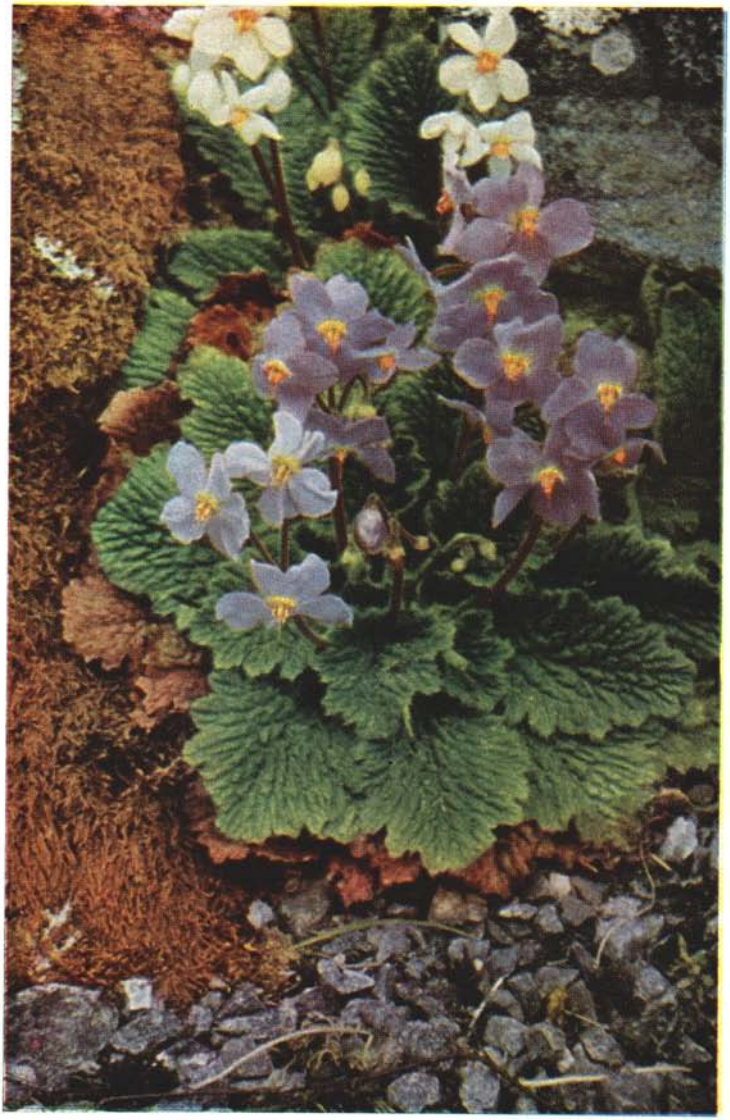

J. C. Lawson

Fig. 28—RAMONDA PYRENAICA (see page 233)
(*By courtesy of Messrs. Jack Drake, Aviemore*)

The Journal
OF
The Scottish Rock Garden Club

Editor—J. L. MOWAT, University Botanic Gardens, St. Andrews

Chief Contents

	PAGE
Editor's Notes	219
Notices	221
Clark Memorial Lecture—New or Rare Rock Garden Plants	225
The Control of Soil Pests, by Henry Tod, Ph.D.	230
Highland Air, by John C. Lawson	232
A Dolomite Tour—1958, by Stewart Mitchell	234
How I began my Rockery, by J. Rogers	239
More about Dwarf Conifers, by Roger F. Watson	241
More Survivors, by D. M. Murray-Lyon	244
Seed Hunting in Nevada and Colorado, by C. R. Worth	245
A Plea for more Auriculas in Scotland, by R. B. Pike	250
Taste and Colour in the Rock Garden, by J. Archibald	254
Purple Patches, by " Pierre "	258
Floral Arrangements for a Beginner, by Beryl Muir	262
Flora is a Fickle Mistress, by D. B. Marshall	263
Seeds, by J. M. Waldie	271
The Basket, by " Locum Tenens "	271
A Selection of Dwarf Shrubs (continued), by A. Evans	272
Another Beginner's Story, by J. E. L. Murray	278
The Julian Alps—1958, by C. E. Davidson and B. B. Cormack	280
" If only I had known . . .", by J. G. Collee	285
Garden Warfare, by A. B. Conelly	286
Gardens in Trust	288
Plants, Problems, and Letters	289
Discussion Week-end in Perth—1958	294
Show Report—North Berwick	299
Book Reviews	301
Index to Advertisers	305

VOL. VI. PART 3 No. 24—April 1959

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Editor's Notes

AN INTERESTING point which emerged during the Discussion Week-end at Perth last October was the dearth of reliable information regarding the control of pests affecting non-utility plants generally, and rock garden plants in particular, in spite of the research done on the control of pests affecting vegetable and other commercial crops. It was suggested that here was an instance where Club members could do some useful work by trying out various recommended insecticides in their own gardens and pooling the results of their experiments. All members who have pest troubles (other than two-legged) in their gardens or alpine houses should read Dr. Henry Tod's note on the subject, appearing on page 230, and endeavour to co-operate with him in what should be a very interesting and beneficial piece of work.

A group of plants which in recent years has shown great advances in both quantity and quality at our Club Shows is that very fascinating but bewildering section of plants known as dwarf conifers. This increase in popularity, or perhaps more correctly—renewal of popularity, is reported from all over the country and is evident in the growing lists of names in nursery catalogues. It is those very lists of names we feel, bewildering in their great variety and often difficult in their identification, that have had a considerable effect in retarding the enthusiasm of many for these always interesting and often delightful plants. People who would otherwise have been keen to go in for them have been put off by the very obvious problems of identification as evidenced by the controversies and arguments which invariably arise when two or more enthusiasts meet, and by the great variation in names in catalogues.

Another influence which has caused some members to avoid these plants is an unfortunate tendency by some traders to list specimens which on cultivation turn out to have been imported stock, grafted, often out of character, and quick growing, and soon losing all resemblance to what they are supposed to be. What the answer to this is, other than dealing only with reliable nurserymen—of which there are many, I do not know, but it is good to have a further note on dwarf conifers from Roger Watson to supplement his article on the subject in the *Journals* of 1955-56. Quite a number are also dealt with very thoroughly in Anne Ashberry's recent book—"Miniature Trees and Shrubs."

We are reminded in "Modern Shrubs" of another group of garden plants which has steadily been gaining popularity with increasing momentum over the last two decades or more, namely flowering shrubs. Even some of the more progressive public authorities are beginning to introduce flowering shrubs in place of those masses of rigorously clipped laurels, yews, and aucubas which have unfailingly adorned (?) the entrances to parks, cemeteries, and the like since Victorian times. Even yet many professed garden lovers have still to

discover the wonderful variety of form, colour, and season of flowering obtainable in flowering shrubs.

Among them is a wealth of dwarf or fairly dwarf species ranging from a few inches to three or four feet, and most of them unexacting in their requirements and reasonably hardy in most parts of the country —even though there may be some choice specimens which gardeners in the less congenial parts of Scotland unfortunately have to forego. Bearing in mind that such carpeting plants as thymes, helianthemums, hypericums, heaths, and cassiopes are really true shrubs (even though so dwarf), it should be well within the scope of some adventuresome enthusiast to construct a most attractive rock garden occupied by shrubs alone ; variations of habit and growth, height, shape, and colour are almost limitless. And what about the beauty of autumn colouring, either of foliage or fruit, so often to be found in shrubs ?

At a time when the study of 'flower arrangement' is so popular throughout the country, classes and clubs devoted to it springing up everywhere, and a trophy for "Cut Flowers and Foliage of Rock Plants arranged in 6 inch Containers" for competition at the Club Show in Edinburgh, it is appropriate that this *Journal* should have an article such as "Floral Arrangements for a Beginner" for the guidance of interested members. Nevertheless, in our own 'thrawn' way we confess to being perhaps somewhat prejudiced against seeing flowers of rock plants plucked and arranged in bowls. We may be old-fashioned—we probably are—but for us one of the main attractions of rock plants is the general effect of dwarf perfection resulting from combination of flower, foliage, and habit of growth all united in a complete whole. Without the natural setting of their parent plants the flowers of rock plants, to us, tend to lose more of their attraction when picked than do most other flowers. After saying all this, we admit to being so inconsistent as to be able to admire an arrangement of rock plant flowers—if well done—and find great pleasure in it.

The Season of Club Shows is with us again ; in fact, by the time this *Journal* reaches members three shows will be 'past events,' and those members who do so much to delight and instruct their fellows by exhibiting their plants in our shows will no doubt be sorely worried and pessimistic after the long spell of extremely adverse weather throughout January. Lacking any protective covering of snow—at least in our part of Scotland—during the most severe of the frost, rock plants went through a very trying time. It is still too early to know the worst, but there can be no doubt but that many losses have occurred.

It is all the more desirable that all members should support the Club Shows to the very best of their ability and particularly that those eligible for Section II should turn out in strength. In this regard we would again draw attention to the fact that a change in show rules makes eligible all who have not previously won a Bronze Medal or more than six First Prizes at Club Shows. Our Show Secretaries have many worries in organising our shows—not for their own benefit

but ours—and anything that members can do to help and encourage them will earn their gratitude.

The fact that the S.R.G.C. became twenty-five years of age last August passed without any official comment, but this Spring it would almost seem as if something more than usual had inspired a number of members to become new contributors to the pages of the *Journal*. In this regard the words of sound advice passed on to others at the end of the Article, "Another Beginner's Story," on page 278, would bring a warm glow to the heart of any editor continually pleading for 'copy.'

To all contributors, particularly those whose names are new to these pages, we tender our heartfelt thanks, as we also do to those who submitted such an unusually wide range of photographs for use as illustrations. We are particularly grateful for the loan of the colour blocks which made the three colour plates possible with little cost to the Club.

St. Andrews, *April* 1959.

S.R.G.C. Christmas Cards

We want to stress that the colour plates appearing in this *Journal* are NOT those to be used for Christmas Cards. These will appear in the September *Journal* as Figs. 18, 19, 20 and 21—the subjects being *Soldanella pusilla*, *Androsace sarmentosa* v. *watkinsii*, *Phlox subulata* cv. "Temiskaming," and *Phyllodoce coerulea*. These (all very attractive pictures, we feel) were intended for publication last September in *Journal* No. 23, as illustrations to articles in that number, but were received from the block-makers too late for insertion. Since several members felt that April was too early in the year to think of Christmas cards, it was considered advisable to hold them over till September.

Christmas Cards should be ordered in the usual way—in lots of NOT LESS THAN ONE DOZEN, either all of one kind or mixed (it is sufficient to state fig. numbers when ordering), from Mr. STEWART MITCHELL, 1 Muirfield Crescent, Dundee. The price, including envelopes, is 9/- per dozen post paid.

Show Secretary, Edinburgh—5th, 6th, 7th May

All entries should be sent to Mr. G. Millar, M.C., F.R.C.S., 15 Frogston Road East, Edinburgh 8, and **NOT** to Mrs. Doreen Murphy, who has recently accepted an appointment which precludes any Club Show responsibilities.

Resignation of Honorary Treasurer

Mr. Stewart Mitchell has intimated his resignation owing to pressure of his own business. This will take effect from the end of this Session, or earlier if a successor is available.

It is with great regret that Mr. Mitchell has taken this step, as he has had a great deal of pleasure and satisfaction in carrying out the very worthwhile duties.

The work involved as Treasurer could perhaps be best undertaken by someone without other commitments. Some knowledge of book-keeping and accounts, and office experience generally is necessary. Possession of a spare room for use as an office and for storage of equipment and stocks of publications is also required.

Any Member interested in the work of the Club, who might consider applying for the appointment, can obtain further particulars from Mr. Mitchell direct.

Index to Journals 1 to 19

It is hoped that an Index for *Journals* No. 1 to No. 19 (price 2/6, 3/- post free), which has been prepared by Mr. W. H. MacGregor, will be ready for sale to members on application shortly after the appearance of this *Journal.* All who desire to purchase a copy should communicate with the Editor. A limited number only is being printed.

Seed Distribution, 1958-59

Applications from Overseas have risen by nearly 50%, and there has also been an increase in those from England. On the other hand, applications from Scottish members have declined. I hope this is due to the notices in the April and September *Journals* of 1958 concerning a change in the issue of Seed Lists having been overlooked—and not to a falling-off of interest in raising plants from seed ! Please note that SEED LISTS CAN BE OBTAINED NEXT WINTER from Mrs. Cormack, 199 St. John's Road, Edinburgh 12, simply by sending her a stamped addressed envelope. This does NOT apply to Home members who send in seed, or to any Overseas members. They will receive copies of the Seed List without making application. A further reminder will be given in the September *Journal.*

To the one hundred and sixty members who sent donations of seed last Autumn, I wish to express my sincere thanks. The items of the list have increased steadily each year, and I hope they will continue to do so. I should also like to thank the members who once again rallied round and spent much time sorting, packeting and distributing seed.

C. E. DAVIDSON

Summer Week at St. Andrews

ACCOMMODATION for these meetings has been reserved at St. Regulus Hall (12 double, 74 single rooms), which is adjacent to the Botanic Garden and about 100 yards from the Department of Botany where the lectures, etc., will be given. The charge will be £12 per head and will cover full board and lodging, coach trips and gratuities. (*N.B.*—Towels are not provided at St. Regulus Hall and should be brought).

To make the week a financial success it is necessary that **at least 35 individuals attend.** Bookings should be made as soon as possible to :

S.R.G.C. Summer Week,
c/o Department of Botany,
University of St. Andrews,
St. Andrews, Scotland.

Full details will be sent by return.

The provisional programme is as follows :—

Saturday 27th June		Members arrive **after** 1 p.m. Tea 4.30 p.m. Dinner 7 p.m.
Sunday 28th June	Morning free	
	2.15 p.m.	Visits to local gardens
	8.00 p.m.	Guest Speaker
Monday 29th June	9.30 a.m. / 11.00 a.m.	Construction and Culture
	2.00 p.m.	Coach trip to Branklyn
	8.00 p.m.	Rock Garden Construction Demonstration Lecture
Tuesday 30th June	9.30 a.m. / 11.00 a.m.	Shrubs
	2.00 p.m.	Nursery & Book Display
	8.00 p.m.	Discussion on dwarf conifers with specimens
Wednesday 1st July	9.30 a.m. / 11.00 a.m.	Native Mountain Flora
	2.00 p.m.	Visit to Maryfield Nursery
	8.00 p.m.	Photography
Thursday 2nd July	9.00 a.m.	Visit to Aviemore—all day
Friday 3rd July	9.30 p.m. / 11.00 p.m.	Herbaceous Plants
	2.00 p.m.	Coach trip to Keillour Castle
	8.00 p.m.	Hat Night
Saturday 4th July		Informal discussion, visit to Botanic Garden. Vacate residence by 12 noon

Conference Fee for Non-Residents, £1 1/-.
(Excursions extra and must be booked).

Obituary

The Berwickshire Group of the Scottish Rock Garden Club heard with regret of the death of the Rev. J. G. W. Hendrie, who prior to his retirement from his parish, in December 1957, owing to bad health, had been County Representative for Berwickshire. Mr. Hendrie, during his tenure of the post, did much to foster interest in rock gardening in the county, sponsoring meetings in Duns for lectures, demonstrations, and bring and buy sales, to raise funds for local activities. Under his guidance visits were arranged to interesting gardens in the county and further afield, to the enjoyment of all concerned.

Mr. Hendrie was of a kindly unassuming nature, whose pleasure was in the simple things of life—nothing pleased him better than to spend an afternoon in one of the Berwickshire bays, enjoying the wealth of wild flowers to be found there, and to study the marine and bird life. It was with keen regret that we heard that his failing health had forced him to resign as our representative, and we all hoped that freedom from active duties would at least partially restore his strength, but it was not to be, and he passed away at the home of his brother-in-law at Elie, Fife, just before Christmas ; bringing to a close a life spent in the service of his fellow men.

Mr. Hendrie is survived by Mrs. Hendrie and a daughter, to whom we offer our most sincere sympathy in their loss.

A. D.

Change of Address—Spain

Word has been received that Mrs. Y. A. Agnew, formerly of Lochnaw, Stranraer, is now resident at "Monte de la Torre," Los Barrios, Provincia de Cadiz, in southern Spain. Mrs. Agnew writes to say that she will be delighted if she can be of any assistance to any Club members who may visit that part of the world.

CLARK MEMORIAL LECTURE—EDINBURGH, 15/10/58

New or Rare Rock Garden Plants

By DAVID WILKIE, A.H.R.H.S.

I EXPECT many of you will have asked yourselves the same question as I have asked myself several times during the preparation of this talk, and that is "What is a rare plant ?" There are many rare plants, some rare in nature and others that are rare only in cultivation. It is of the latter that I wish to speak, not about those plants that are never seen or those lost because of no garden value. You may not agree with me as to what is a rare plant ; that I cannot help, but what I hope you will agree with is that the plants I am showing you today are of garden value.

During this century there have been more new plants, and old ones re-introduced, than in any other period in our history, and I had the opportunity of handling the material sent in from the various expeditions. Many genera were increased in number beyond all belief, such as *Rhododendron, Primula, Gentiana, Lilium,* and many others. Because of the number of new and rare plants I have omitted them from this talk with the exception of *Gentiana.*

I well remember in those early days of the Chinese Expeditions of Forrest, Ward, and Wilson, of the interest taken in any plant sent by them when it was about to flower, and I remember the first *Nomocharis,* a poor miserable plant compared with what you see on the screen, that flowered at Edinburgh. It was *N. pardanthina* and was followed quickly by *N. mairei* in flower. While these two are the finest, there were others. Another genus which was increased to double its former number was *Codonopsis* and these are still rare and this applies to others from other parts of the world. The present one is *C. meleagris,* a rather unusual plant with flowers held high above the foliage, pale outside and speckled within with red.

I have already mentioned the genus *Gentiana* and, while many were introduced over forty years ago, they still remain scarce. Where is the original *G. farreri* of that luminous cambridge blue ? I admit you can see a plant named *G. farreri* in many gardens, but it is without that particular shade of blue. Also collected by Farrer at the same time was *G. hexaphylla,* a neat compact plant quite unlike a gentian in its Spring growth, with pale blue flowers distinct in their six-petalled flowers and with six leaves to a whorl. From China there was also *G. trichotoma* of upright stems nearly twelve inches in height and set with blooms of a deep metallic blue. A smaller flowered variety was sent home by Ward, but the colour was almost white and not to be compared with the blue. Like so many of the plants sent home from China, this wasn't 'new' as it had been collected during the latter part of the last century but never brought into cultivation.

Some genera will always remain 'rare,' such a one is *Omphalogramma.* These were included at one time under *Primula,* but were

separated from that genus on account of the shape of the flower. They are all short meadow plants, most of them blooming before the leaves develop, such as *O. delavayi*, while in the others, like *O. vinciflora*, both come together. During their resting season the plant is enclosed in a bud and it is while in this condition that they are sometimes scraped out of the soil by birds and left to dry.

Roscoea humeana is a very distinct plant and gives the appearance of belonging to the stove or greenhouse rather than the outdoor garden, but it is perfectly hardy, the tuberous roots withstanding very severe frosts. The flowers are pale magenta pink and are produced in great numbers.

When Farrer was collecting in Kansu he sent home seed of a plant at that time called *Isopyrum grandiflorum*. Since then it has been changed to *Paraquilegia*, a beautiful plant with blue-grey leaves very finely cut, and large pale blue flowers. It has more recently been collected from other parts.

The various expeditions into Tibet and Nepal have increased the number of desirable plants ; many are entirely new, while others have been known to Science for many years. Once again I wish to mention *Codonopsis* and the species this time is *C. mollis*, sent home by Major G. Sherriff : it has pale blue tubular flowers and grey hairy foliage, and is without the horrid smell so often associated with the genus. Another pretty species with no horrid smell is *C. ovata*.

It is not always the professional collector that we have to thank for our new plants ; quite often it has just been an ordinary traveller on pleasure or business who has sent home a real gem. Such an instance is the introduction of *Anemone obtusiloba patula* from Burma. I consider it a wonderful plant, with a colour not common in Windflowers ; it is a deep blue and continues in flower throughout the season.

In a genus like *Anemone* with so many lovely plants it is difficult to pick out any that are the best, but two rare plants from this part of the world are *var. patula* and the white flowered *A. demissa*. This is an attractive plant even when not in bloom, with deeply cut foliage covered with whitish hairs ; when in bloom it sends up several stems with large flowers in umbels.

Blue flowers have always been favourites of mine and *Corydalis cashmeriana* is certainly blue. I am glad to say that this plant is settling down in at least one garden and looks as though it will lose that label 'rare.'

When speaking of blue flowers I must mention *Gentiana ornata* (see Fig. 31), that species which brought confusion. It was first found about a hundred years ago, but it wasn't until the 1929 and 1932 expeditions to Nepal that it was introduced into cultivation. Another fine species was sent home by Ward from Burma and was named *G. gilvostriata*. It forms hummocks of lax rosettes of greyish green leaves and sends up large blue trumpets which are almost stalkless. They are pale blue

with bands of brown on the corolla. Still a rare plant is *G. kurroo*, although I can remember when it was plentiful. Certainly it doesn't like our winter, but the whole section to which it belongs prefer drier conditions and have the advantage of withstanding more drought than other sections. The last blue or purple-blue flower I wish to show from here is *Cyananthus microphyllus*, an attractive plant with silvery-grey foliage and an ideal one for hanging over a rock face ; in fact this position is a help, as it allows the water to run off. There are many good species, but this one, often called *C. integer*, is useful as it flowers much later than the others.

An old favourite and a dainty plant which the older gardeners will remember is *Meconopsis bella*, with its deeply cut leaves and huge flowers. First found away back in the eighties, it was sent home about 1903. Seed was sent to Edinburgh and it flowered there in 1906. Of recent years a form called the 'simple-leaved form' has arrived in this country, but it is a very different plant.

New Zealand has its quota of beautiful plants, most of which are rare in this country. For instance, take the genus *Celmisia*, from the tiny *C. argentea* and *C. sessiliflora* to the taller group which includes *C. coriacea*. All with the exception of three or four species have white flowers, but their evergreen foliage and stately habit are of value even when not in bloom, as in most cases the foliage is silvery. Like other countries, New Zealand has its Edelweiss and it is just as pretty as the Swiss one. The name is *Leucogenes grandiceps*, and if grown in a scree it keeps a compact habit, showing its silvery leaves and bracts off to better advantage. If given too good soil it becomes lax and drawn. Many people complain that the most of New Zealand plants have white flowers, and that may be so, but they are of a pure white. Even the Gentians have white flowers or they may be veined with purple. Nowadays we are seeing more of *G. saxosa* in gardens and at the shows and I would like to see one of its allies increase in cultivation ; this is *G. corymbifera*. This species differs in having upright stems of nine to twelve inches which are well branched, producing blooms over a considerable period.

Tasmania too has a wonderful flora and many good plants were brought into this country from the Expedition there about thirty years ago. One of these was *Milligania densiflora* (see Fig. 35), a plant with stiff hard leaves and spikes or racemes of cream-coloured flowers. It was said that there was a pink flowered form, but all the seed that germinated in this country gave cream coloured plants.

Prior to World War II we were fortunate in contacting two Japanese nurserymen willing to collect native flora and send it to us. Much of it failed, but others survived and settled down. They are still rare, such as *Diapensia obovata*. Many authorities reckon it is just a form of *D. lapponicum*. This may be so, but the leaves are different in shape and the flowers larger in *D. obovata*. The tiny meadow rue *Thalictrum kiusianum* is a pretty scree plant, where it rambles about, the tiny stems of an inch or more bearing white or pink flowers and

the foliage so fine as to be hardly discernible. Shade is recommended in many books for Japanese plants and it may be necessary in the south, but not here. I remember the first plant we had at Edinburgh of *Pteridophyllum racemosum* (see Fig. 32). When we received it from Japan, instructions were attached to the plant that it had to be kept in deep shade where it was dry. When I saw it under a canopy of *Juniperus chinensis* it was as dry as tinder and looked as though it was dying. We took a gamble and transplanted it to full light and moisture and in a very short time it flourished and became a wonderful plant, sending up numerous sprays of pure white flowers well above the foliage. Peat lovers seem to be plentiful in Japan, and their *Phyllodoce nipponica* and the Japanese form of *P. caerulea* are among the finest. The former is a rounded compact bush with large pure white bells almost hiding the green, and the latter a larger or at least a longer flowered form of our native *Andromeda* or *Arcterica nana*, either the tiny form or the upright form are beautiful plants. The last Japanese plant I wish to show you is *Astilbe simplicifolia*, and although it arrived in this country before 1912, it can still be considered rare. This is surprising as it is perfectly hardy and of immense value because of its late flowering.

Between the two World Wars was the period that saw immense quantities of the American seeds and plants arriving in this country ; new *Lewisia* species and also *Penstemon* and *Phlox* from the Rockies and Western States. Apart from the larger genera many odd ones were sent, such as *Kelseya uniflora* which we saw so well flowered at a Show this year ; *Rydbergia* and *Townsendia* and the dwarfer species of *Lupinus* like *L. ornatus* and *L. lyallii*. I do not know when the first *Lewisia cotyledon* was cultivated here, but I was growing it or one of its forms in Argyll in 1913. There was a rainfall of between eighty and ninety inches which they seemed to enjoy, providing we kept the rain off the crowns. Of the many species, two have always a superior look about them ; these are *L. rediviva* and *L. brachycalyx*. The first, which is the State flower of Montana, has large pink flowers that appear after the leaves die back. It is well named 'rediviva' as it is said to have grown after being dried on a herbarium specimen for months. My own experience is this. A grower sent me some roots in an envelope without packing, and when they were received the roots were completely dried up. After being in damp sand for a time, about three quarters of their number grew. *Lewisia brachycalyx* is very different in habit ; it forms a loose rosette of greyish-green leaves and it is from that the white or pale pink flowers arise ; they are almost stalkless and give the impression of a posy sitting on the ground.

Two genera with many rare species are *Penstemon* and *Phlox*. Time will allow me to mention only one, which I think is one of the most beautiful, and that is *Phlox triovulata*, a plant with needle-like leaves and large clear pink blooms. One wonders why it should still be so rare, as it propagates from root cuttings. For those members with peat beds or peat walls there are two peat lovers from America

well worth trying, one old but rare and the other new and rare. The former, *Harrimanella stelleriana*, a heath-like plant with pendent white flowers with red calyces ; the other *Kalmiopsis leachianus*, a tiny *Kalmia* with pink flowers on racemes. It was introduced about 1935 from the Western States of North America. Few people associate gentians with America, but I would like to point out that there are numerous species both in South and North America. Needless to say, those from the South are impossible in our climate, but there are many from the North that are perfectly hardy. One that is attractive is *G. newberryi* from the Western States and California, which resembles our European *G. frigida* with white or pale blue trumpets of over one inch and a half in length.

When I started gardening, most of our rock garden plants and alpines were European and many of you older members will remember the host of European Primulas, Saxifrages, Campanulas, Androsaces and Gentians that were grown. It was only after the introduction of the Chinese plants that they gradually disappeared. Personally I think it was unfortunate, as there are as many beautiful plants in the European flora as can be found anywhere. In preparing this lecture I was sorely tempted to deal with European natives alone.

Almost every large genus has its rarities, for instance in *Campanula* there are many, but it will suffice to mention *C. raineri* and *C. zoysii*, the former with its hairy leaves and cushion habit and greyish-blue cups. For some time now the plant sent out by some traders has not been the true one, but a form of *C. carpatica*. When talking of *C. zoysii* one thinks of slugs, because that is its greatest danger.

The Buttercups have always been favourites, especially *Ranunculus parnassifolius*, a distinct species with deep blue-green leaves and large white flowers. I might add a word of warning here. If collecting it or buying it, try to do so when the plant is in bloom, as there are many forms with very poorly shaped flowers. And what of the white flowered species with divided leaves ! What could be more lovely than *R. glacialis*, or one of its allies like *R. seguieri* or *R. traunfellneri* ? (See Fig. 33).

Resembling at first glance a composite but really very different is *Callianthemum rutifolium*, an alpine plant which sends up white flowers in the early part of the year and follows with its ferny-like leaves. A moist scree is the place for this.

Anemones or Windflowers constitute a valuable part of our garden flora and one species by no means 'new' is still a scarce plant. I refer to *A. vernalis*, undoubtedly one of the finest of the European species. A species which is said to have come from the Caucasus a few years ago as *A. caucasica* is like a yellow flowered *Pulsatilla*.

At one time many good plants were sent from the Pyrenees ; two that I would choose are *Phyteuma comosum* and *Lithospermum gastonii*. The *Phyteuma* is an ideal scree plant, or wedged between two rocks and the *Lithospermum*, which is a rare plant in nature, has upright stems and large deep blue blooms.

I have already mentioned *Saxifraga* as a genus, and of the many that I would like to include, is the true *S. longifolia*. Granted that it dies after flowering, but it sets quantities of seed, and while growing the rosettes of silvery leaves are attractive ; and when it does flower, it sends up a magnificent flowering stem. One other, the Italian form of *S. oppositifolia* known as *var. latina* !

Eastern Europe, to which some of our collectors have gone during recent years, has many new and scarce plants. Of the newer ones, *Orphanidesia gaultherioides* (see Fig. 34), is a peat lover with large wide open saucers of deep pink. Prostrate in habit, the foliage closely resembles *Epigaea asiatica*. Another plant of recent introduction is *Anchusa caespitosa*, a cushion Borage with pure blue blooms, and *Cytisus demissus*, a prostrate Broom with yellow flowers, but as they age the standards turn brownish.

The Prickly Thrifts, so well known by *Acantholimon glumaceum*, have one or two species not seen often enough, namely *A. acerosum* with green leaves forming a spiny cushion, and *A. venustum* with large spikes of pale pink flowers and silvery leaves. Both make a pretty picture when grown in a cliff face.

One of the ambitions of every rock plant gardener is to grow and keep *Eritrichium nanum*. All I can say is that I wish them luck, as it is a lovely plant.

When earlier I was mentioning genera that had grown scarce, I omitted the genus *Viola* ; there are many very fine species, and one that is rarely seen is *V. cenisia*, a species of dark green leaves and that definite shade of pink.

In conclusion I must mention European Gentians. Apart from *G. verna*, very few of the same group, such as *G. pumila*, *G. bavarica*, and *G. brachyphylla*, are seen now ; the other that I miss is *G. pyrenaica*, plentiful in nature but rare in cultivation.

The Control of Soil Pests

AN APPEAL TO MEMBERS FOR ASSISTANCE

By HENRY TOD, Ph.D.

IT IS RATHER unfortunate that almost all the research which is being done on insecticides and plant protection generally, is either on agricultural crops or on vegetables. Admittedly some investigations are being made on flowering plants which give a commercial crop such as anemones, but, apart from this work, little is known about the control of many of the pests which affect other "ornamental" plants, and particularly those plants which interest Club Members.

This point emerged very clearly at the Discussion Week-end at Perth, and it was suggested that members might be able to gather some valuable information on these problems in their own gardens. The proposed plan which was evolved—in rough outline—was that

members should try several soil insecticides against soil pests such as root aphis on primulas, vine weevil grubs and such like, either on plants grown in the open ground or in pots or pans.

They should then send their findings to me, when they could be collated and analysed, and from this some very useful information might emerge on dealing with these problems. If, then, you are having trouble with any soil pests, will you please help in this way. Try, on different affected plants, several materials from the list given —or any other you know of—make a careful note of the results obtained and send the notes on to me.

I would suggest the following materials :—

Dusts or solids :	DDT dust	BHC (Lindane) dust
	Aldrin dust	Dieldrin dust
	Naphthalene	Jeypeat
Liquid applications :	DDT emulsion	BHC emulsion
	Volck	Any other emulsion or solution
	Tritox	
	Metasystox	Malathion

I would like to emphasise the potential value of such results and to appeal to as many members as possible to co-operate in this investigation. Notes of results should be sent to : Dr. Henry Tod, Carnethy, Seafield, Roslin, Midlothian.

Highland Air

By JOHN C. LAWSON

INSHRIACH is a garden encircled by a birch wood which lies at the foot of the Cairngorm mountains. A stream runs through the garden finding its way over small waterfalls to a pond around which is built the bog garden with its many moisture loving plants. The climate is very severe and in the winter with temperatures down below zero in most winters, sometimes with very little snow, but when the snow does fall it affords the best and most natural coverage for alpine plants. The soil is very sandy and very stony, lacking humus which is essential for healthy plant growth. This deficiency has been made up by adding quantities of peat and leaf mould and top dressing with bone meal every autumn (avoiding the asiatic gentians). There is not only a bog garden but also a rock garden, with a south, an east, and a north aspect, embracing two screes, one facing south and the other south-east. Another feature is a sunken plunge bed surrounded by four dry stone retaining walls which face the four points of the compass. In these notes I would like to mention a few of the outstanding plants which survive the rigorous conditions of this highland garden.

A plant that has caused a great deal of controversy, not to mention a certain amount of ill feeling, is *Incarvillea grandiflora* Ludlow & Sherriff form (fig. 30), at one time thought to be *Incarvillea younghusbandii* and unfortunately distributed under that name for a number of years. It is a most excellent plant for a well drained sunny position in the rock garden or alpine border. It displays its handsome stemless trumpet-shaped flowers at the beginning of June. Propagation is executed to the best advantage by sowing seed early in the year. This plant has been confused with *Incarvillea sp.* Ludlow & Sherriff, which has a bigger flower and in habit is much more leafy ; its flowers appear a fortnight earlier.

Celmisia is a genus of plants varying from two feet to fractions of an inch in height. They make excellent rock garden plants, while many of the smaller members are ideal alpine subjects. *Celmisia spectabilis v. argentea* (Fig. 29) is one of the better known celmisias, and is a tower of strength to the rock garden in the winter months, with its stiff silvery leaves giving great architectural value to perhaps a badly built rock garden or one that has been designed primarily for a Spring show. It is useful in much the same way as a conifer is useful during that dead period between November and February. The flowers are huge daisies borne on stems twelve inches long, rarely setting seed so well in this country as they do in their native New Zealand.

New Zealand is also the home of *Gentiana bellidifolia*, a short-lived perennial gentian with small leathery leaves from which arise stems covered with white flowers in August. It is not an easy plant outside, but it is worth trying in a sunny scree and a piece of glass for winter protection. It makes a handsome plant.

J. C. Lawson

Fig. 29—CELMISIA SPECTABILIS (see page 232)
(*By courtesy of Messrs. Jack Drake, Aviemore*)

Although coming from the other side of the world, *Douglasia laevigata* will thrive in the same soil and aspect as *Gentiana bellidifolia.* A member of the primula family growing in the Olympic Mountains of America, it is a rather short-lived plant in cultivation, but very often sows itself in between the stones of the scree, forming tight cushions with small pointed glossy leaves and flower heads of deep rosy pink.

Another but totally different plant in the Primulaceae family is *Omphalogramma vinciflorum,* which enjoys the drier beds on the edge of the bog garden. It is easily raised from seed but not so easy to bring to maturity. The flowers resemble huge violets in shape and colour, and any trouble taken over this plant is repaid by its exquisite beauty when in bloom.

Ramonda pyrenaica (Fig. 28) is primarily a plant for a north wall or a north-facing crevice where it will form rather ragged rosettes of crinkly leaves covered with brown hairs. The flowers are mostly violet, but there are both white and pink forms. Ramondas can be raised from seed, but as the seed is so minute great care must be taken to ensure that the young seedlings never suffer from lack of moisture. The propagation of special coloured forms must be by division or by leaf cuttings.

One of the greatest displays at Inshriach is when *Meconopsis grandis G.S.*600 is in flower at the end of May and throughout June. This majestic meconopsis grows to a height of five to six feet and has flowers six inches across of the purest blue. In some gardens the flowers are inclined to be rather purple, but as the plants accustom themselves to their surroundings and the new soil conditions they will recover their true colour. Quantities of peat and leaf mould should be added to the soil to make this plant really happy. *Meconopsis grandis G.S.*600 is the ideal foil for the many bog primulas which flower at the same time and give an unchallenged riot of colour at that time of year, *Primula* "Wilbrook seedling," *Primula* "Bonfire," *Primula sikkimensis* and *Primula* "Inshriach hybrids," to mention only a few.

It is a great thrill, after the rather dull months of July and August, to see the first of the autumn gentians. Although *Gentiana x fasta* "Highlands" is not quite the first, it is well up the list, and certainly one of the finest gentian hybrids to be raised. It was raised by Mr. G. H. Berry when he crossed *Gentian farreri* with *Gentiana x stevagensis* and was named "Highlands" after his home in Enfield, Middlesex. The flower is very similar in colour to *Gentiana farreri* but about twice the size with a very long wiry stem. It is another lover of leaf mould, enjoying a cool lime-free root run.

The last plant I would like to note is a bi-generic hybrid between *Celsia acaulis* and *Verbascum phoeniceum,* a most exciting plant forming prostrate rosettes of reddish green leaves and Celsia-like flowers of a very unusual pinky bronze on stems six inches high. This is a plant which requires a very well drained bed or a scree in a sunny position where it will flower for a very long period in the Spring. As this plant is a hybrid it can only be propagated vegetatively.

A Dolomite Tour, 1958

By STEWART MITCHELL

"MAGIC" is the word used by many writers to describe the Dolomites, including Farrer, who has so many other words he could use. He used the others too, of course, in a most enthusiastic way, adding that he would willingly return there again, and again, and again. With this sentiment many of us will heartily agree.

They certainly are the most enchanting mountains and command attention, admiration and awe from even the most nose-to-the-ground plant hunters.

The Dolomites are situated in the extreme north of Italy, in what was before World I the Southern Tyrol, and are one of the most magnificent and colourful areas in Europe. Lofty mountain groups combine with deep valleys dotted with charming small towns and villages. Through these run a network of good access roads. When to all these are added good service buses, cable cars, and chair-lifts, it becomes an ideal spot for those who love mountains and flowers, but are not used to too much energetic walking.

The name "dolomite" was first of all given to the rock—known as magnesium limestone—of which these mountains are formed. The conclusion is that they were originally coral reefs, thrust up to their present positions by volcanic forces. This seems to be borne out by the isolation of each group, the strangeness of their form, and the evidence of their being built up on lower beds of other rock.

At various places the volcanic disturbance has thrown up ranges of primary rock between them, such as we found at the Pordoi Pass, and the Colbricon mountains on the other side of the valley from the Pala Group, when we were at San Martino di Castrozza. Thus the plant hunter can see lime-loving plants and lime-haters in the same area. This adds greatly to the floral richness of the Dolomites.

But, from the general to the particular ! The Tour, organised by the Alpine Garden Society, left London Airport by B.E.A. Viscount in the wee sma' hours of Wednesday, 2nd July, and arrived a few hours later at Malpensa Airport, near Milan. A private bus then took us up the west side of Lake Garda to Riva, where we had breakfast. The journey over the plain and along the tunnelled side of the mountain was all very wonderful. The tall columnar cypress trees which were a feature of the landscape reminded one, in scale, of the Noah's Ark Junipers in our rock gardens at home, as someone has already mentioned. The Oleanders of various colours also attracted attention. On continuing our journey we practically bye-passed Bolzano, which was a pity, for there's quite a bit of the tourist in me. Not long after that we entered the Val Gardena, and so to Selva for lunch. The Hotel Osvaldo was excellent in every way, and our stay there until the morning of 10th July was most pleasant.

A walk up part of the much commended Val Lunga in the afternoon gave us a foretaste of what it could offer on closer inspection.

The next day was wet for periods, but good enough in the morning for us to start on a day's exploration of the Val Lunga, and in spite of the weather, it did not disappoint. This long valley is hemmed in on both sides by tall cliffs, with screes at their feet. The floor of the valley, strewn with great boulders, is practically level at parts. Some strips of woodland helped to give even greater variety of plants. So we found among other usual alpines *Phyteuma comosum* and *Paederota bonarota* in the cliffs, with a few *Lilium croceum* growing safely on high ledges. The screes and boulders had *Potentilla nitida* (see Fig. 37), in varying colour forms, *Rhodothamnus chamaecistus*, *Linaria alpina*, *Papaver rhaeticum*, *Saxifraga caesia*, and a small form of *Primula auricula*, possibly starved. In the woodlands, *Pyrola uniflora* and *secunda*, and *Pinguicula alpina* revelled. *Rhododendron hirsutum*, the lime-loving form of the Alpen Rose, was also present in colour variation—some almost deep orange in tint, and appeared at various places, while *Primula farinosa*, *Globularia cordifolia*, and *Horminum pyrenaicum* turned up at all suitable places. And to think that all this was just a short walk across a meadow from our hotel !

The following day a service bus to the Sella Pass took us to more fields for discovery, but the weather was again most wet, blowing up from the Marmolata to begin with, and changing direction and blowing back what had missed us before. *Primula minima* was my first thrill here, there being still a few flowers left on north-facing slopes, where wide mats were growing. I could not see any evidence of there having been an abundance of bloom in any case, as cultivators at home expect. *Ranunculus seguieri* growing in what seemed to be a pure peaty soil, was very choice looking, perhaps the nicest of all the alpine *Ranunculus*, combining beautifully cut foliage with delightfully clean and shapely flowers. The scenery here is magnificent—the massive Sella Group to the east, Marmolata away to S.E., the deep valley below with Canazei, Rodella sticking up to the west, and the whole south frontage of Sasso Lungo to admire on the north.

The area is well provided with chair-lifts and at Ortisei there is a cable car to a hill on the south side of the Val Gardena, from which excellent views can be obtained for miles around. We went on Saturday, and after lunching and admiring the wonderful mountain groups, from Sella in the east, Sasso Lungo (see Fig. 38), to the south, and the Schlern away west across the Suisi Alp, we walked down and across the meadows and joined a woodland path which brought us back to Ortisei down the hillside. The Alp was a wonderful meadow of flowers, *Campanula barbata*, *Gentiana campestris*, *Crepis aurea*, and a host of other meadow flowers making it really gay. Outcrops of rock here and there were clothed with Sempervivums, *Saxifraga aizoon*, and *Aster alpinus* (see Fig. 39). In the woods *Pyrola uniflora* and *Viola biflora* (see Fig. 40), abounded, while *Atragene alpina* sprawled over undergrowth and trees. We were rewarded by seeing two good flowering clumps of *Cypripedium calceolus* and quite a lot of its foliage in the vicinity. *Saponaria ocymoides* and *Lilium croceum* were two others seen that day.

Next day, by privately hired car, we went to Passo Gardena, from

which we climbed a rather steep path to the pinnacles between the Pass and the Val Kedul, which valley shelves steeply down to the Val Lunga near to its start. This was a wonderful trip. Going up, the roadside was lined with masses of *Papaver rhaeticum* in colours from white to deep orange. These we were also to find again on the high steep screes before we went over the top into the Val Kedul. A fine blue *acaulis* type *Gentiana* was found on the way up, with Edelweiss, *Paederota* and Globularias on the big boulders. These boulders are a feature of the district and are usually worth inspecting for interesting plants. Near the top, on a little scree at a pinnacle, a gentian, identified as *Gentiana imbricata* was found, the blue being quite dark and the very short stem and long calyx tube being tinged with bronze. With its huddled short leaves, it was most attractive, seeming to thrive in the poor scree, whereas a *Pedicularis* nearby was having a thin time of it. The scree above, almost white, had *Papaver rhaeticum* and *Linaria alpina*, with an odd plant or so of *Thlaspi rotundifolia* in places with a little shade. After admiring the vistas (and they were exceptionally fine), and having lunch, the journey down was undertaken. The north-facing slopes provided much interest in plants which elsewhere had been past bloom. Here, for instance, were lovely patches of *Saxifraga oppositifolia* growing beside *Draba aizoides*, *Ranunculus alpestris*, *Soldanella minima*, *Thlaspi rotundifolia*, *Saxifraga caesia*, various *Salix*, and *Gentiana imbricata* again. Further down *Dryas octopetala*, also past its best at many other places, was still very lovely. *Potentilla nitida* appeared again, and *Rhododendron hirsutum*, and all the usual plants of the district. *Horminum* was always everywhere, from neat dwarf forms high up to lush ones lower down.

Practically all the party went by special bus to the Pordoi Pass on the Monday and this was a rewarding experience too, for only a pleasant walk was involved as the Bindel Weg (Vial del Pan) is more or less level going. Here were the usual selection again : a lovely clump of *Chrysanthemum alpinum* first attracted, then a large group of *Gentiana brachyphylla*, making a bigger clump than *Gentiana verna* does. One of the finest forms of *Anemone vernalis*, with beautifully shaded purple backs to its petals was discovered. There was a queue for photographs and we left it in all its glory—to discover on our return, and looking for it again, that some other visitor had bagged it. At the edge of the path some nice plants of *Androsace obtusifolia* were found. Coming to steep outcrops on a very steep grassy slope, we found them all dotted with the amazing blue of *Eritrichium nanum*. *Androsace haussmanni*, *Silene acaulis*, and *Saxifraga aizoon* were its companions at a number of places. These outcrops were of a conglomerate rock quite different from the other side of the valley. Further on *Eritrichium* was found in even more accessible places, and *Androsace alpina*, *Geum reptans*, and *Douglasia vitaliana* were found as well. From this path a fine view is had of the Marmolata Glacier and the dam at its foot. This is the highest of the Dolomites (10,855 ft.), but is not really typical in form, especially from this northern aspect. It will be observed also that this highest Dolomite falls far short of the

14,000-15,000 ft. of many of the Swiss mountains, but it is imposing and impressive for all that.

A trip by chair-lift to the north of Ortisei did not produce any further plants of interest, although the views were again worth while. A return visit was made in the afternoon to Val Lunga, some fine plants of *Phyteuma comosum* which we had missed before being worthwhile in themselves, especially as they were only 3 ft. up from the top of a short scree.

An expedition to the Firenze Hut in the valley to the north of the Val Lunga was pleasant after we got round the shoulder of the dividing hills. The most interesting find was *Viola pinnata*, but not in flower. The steep meadows yielded a number of white *Campanula barbata*. At other places were good-sized forms and colours of *Aster alpinus*, with a nice group of *Dianthus silvestris* beside them at one outcrop, the purple and pink looking well together. In the bit of woodland when we got to the valley I think *Atragene alpina* was even better than it appeared elsewhere.

On 10th July we moved to San Martino di Castrozza, stopping a short time at Canezei, and at the Passo Rolle which is dominated by the Cimone della Pala, the Matterhorn of the Dolomites. We arrived in time for lunch at Hotel Colbricon, where some of the party stayed, while others were housed across the road in Pensione Regina. While not of the standard we had at Selva, both were entirely satisfactory. A stroll in the afternoon to explore the village, and wander in the meadows filled with Martagon Lilies, completed another day.

Perhaps I will never be able to equal the wonders of the following day, when from quite near the hotel, by chair-lift, we were taken to the high scur at the foot of Cimone della Pala, an exciting journey which landed us within easy reach of some of the choicest flowers we were to see on this Tour. This promontory, on which we landed like birds, was not the dolomitic limestone, and was breaking off in little flat slabs, amongst which a tidy *Doronicum* was growing, possibly *clusii*. Further round, in the turf *Primula minima*, *Primula longiflora*, *Gentiana verna*, and an *acaulis* type *Gentiana* grew in good concentrations. The Gentians were particularly brilliant in colour. Turning another corner we then beheld the north-facing screes and boulder strewn bases of the Pala and its companion Cima Vezzana to the east. These boulders are quite big, the size of small cottages, and had a great variety of plants growing all over them. There was *Eritrichium nanum* growing in the crevices of these limestone rocks, accompanied by an amazing list of other choice plants, including *Androsace haussmani*, *Saxifraga caesia*, *Saxifraga squarrosa*, and their hybrid *Saxifraga tyrolensis*, *Rhodothamnus chamaecistus* in crevices, *Potentilla nitida*, *Petrocallis pyrenaica*, *Soldanella minima*, *Ranunculus alpestris*, *Primula auricula*, and what was identified as *Primula tirolensis*, and *Anemone baldensis* with its purple-backed petals. On grassy bits on the way back we found great clumps of *Rhododendron hirsutum*, and near by that spotted *Gentiana punctata*, which at first I took to be *Genziana*

lutea. Altogether a memorable day, and to crown it nicely—a white *Eritrichium nanum* as well !

Next day we journeyed back to the Rolle Pass, by bus this time, turning away west through woodlands where amongst other things we saw fine plants of *Pinguicula halleri* (at least that was a name given to it), a good purple flower with a white blotch on its lower lip. The plant we wanted most to see was *Silene pumilio*, which is a lime-hater and grows on the Colbricon range to the west of the Cismone valley. We found it first beside the little lake beyond the Rifugio Colbricon, but it was much better in crevices in a rough outcrop just before the path started to descend into the valley which led back to San Martino. A terrific thunderstorm, which went on for hours, then overtook us, and thoroughly soaked us before we got to the next refugio beside a farm. There we had the nicest coffee with cream we got anywhere on our tour.

A forenoon trip on the chair-lift to the Col Verde well up on the slopes of Rosetta, to the east of San Martino, rewarded us with fine forms of *Dryas octopetala* and *Rhodothamnus chamaecistus*, but the real choice plant on this expedition was *Campanula morettiana*, not in flower, but its hairy grey leaves were attractive themselves, filling the crevices of big boulders and outcrops. These were just above the cable car station for the summit of Rosetta, a journey we did not undertake, but we understand the view on a good day makes it very worth while.

We deserted the mountains and the flowers for a day in Venice. Those who did not go chaffed us about being tourists, but if I get within 100 miles of Venice again, I'll go touring once more.

A bus run to Fiera di Primiero, the next village down the valley from San Martino, was made in search of *Cyclamen europaeum*, which we found clothes the steep wooded slopes on the east side of the Val di Canali which joins the main valley here. A walk up the stream side soon brought us there, but we passed many holidaymakers with bunches of *Cyclamen* flowers, and so more foliage than flowers were found, even on quite high places. It was good to see this beautiful flower in its native place, growing in pure humus of quite an open texture and generally more than 6 ins. deep. The depth did depend on how deep the soil was above the rock.

The journey home came at last, and was by bus to Malpensa, stopping this time at Rovereto for dinner. We flew from Malpensa at 4.40 a.m. on 17th July and arrived at London Airport in three hours. So ended a memorable tour.

How I began my Rockery

By J. ROGERS

THE GARDEN of our new home in Moray sloped steeply down to the road below. From the level terrace in front of the house eight stone steps led to a level stretch, then eleven further stone steps descended to a narrow path. Between this path and the bottom of the garden lay the vegetable plot. The two top terraces and the slopes on either side of the stone steps were covered with coarse grass, gorse, hawkweed and dandelions. By use of a scythe, hand shears and lawn mower, I managed to reduce the level grass to some sort of order, but the steep slopes were heartbreaking as well as backbreaking. I tried to keep them tidy with hand shears but the task was far beyond me. I tried to pretend that hawkweed and dandelions were really very attractive flowers, but my wife spent hours picking off seed-heads which could have been more profitably spent elsewhere—hoeing the gravel paths, for example.

One evening when musing over the fireside my wife said to me, "Wouldn't it be a good idea to make a rockery of those grass slopes ?" I agreed that the mental picture of a rockery was a very pleasant dream, but the physical labour would be a nightmare. I like gardening, but am no Hercules, and the work involved seemed as great as any of the mythological tasks. I turned the pages of *Punch* for relaxation, and there before me was a picture of me with a wheelbarrow and a mountain of stones. My wife was in the picture too ; she was leaning over the fence telling her neighbour, "Of course, I think up all the ideas for him." (We found the cartoon later in the *Journal* Vol. 5, Pt. 1). We thought this a huge joke, but it seemed to fix the idea in our minds and soon I found myself with spade and fork hacking off the grass from one of the lower two slopes.

Our soil is very sandy, but below the grass it proved to be as yellow as our neighbouring sand quarry. No wonder the grass wouldn't flourish ! Henceforth, when we went out in the car, some nearby beech woods seemed to act as a lodestone. Here I would fill a sack with leaf mould, but it took a good number of sacks to make any appreciable improvement to my exposed sand quarry. As a one-time town dweller where you bought leaf-mould at the seedsman for 3/- a stone, I always had a guilty conscience about helping myself to leaf-mould from other peoples' woods, but the need of the sand for improvement quickly outweighed any such scruples.

From what I had seen of other rockeries the kind of stone I would like would cost a lot of money, and require tackle and labour to put into position. Fortunately in a nearby field was a mound of stones, some big enough to fill a wheelbarrow, but most of them much smaller. These were laboriously trundled home and the problem of how to place them arose. Books on rock gardens told me the theory, and I knew I had to avoid the "almond cake" effect, but with a site like the side of a steep railway cutting there was not much scope for making

a rockery like the picture books. Unfortunately a boundary wall at one side and the stone steps in the centre restricted any re-arrangement of the site. I decided that the job the stones had to do was to support the soil, so they were arranged in irregular terraces along the face of the slopes. These terraces were then planted with *Aubrieta*, dwarf lavender, *Dianthus* '*Rob Roy*,' double daisies, primroses and *Corydalis lutea* from my own garden. These were later augmented with a sprinkling of less common rockery plants from a well-known nursery.

I have now completed three of these slopes and still have the fourth to do. I have made further purchases and although there were a few casualties I must now have about one hundred different varieties. I find the "twelve plants for the beginner" type give a great deal of satisfaction, while the darlings of the catalogues are often very disappointing. The fault is no doubt in my inability to grow them well and I hope in time my disappointments will become the pride of the rockery. At present they include : *Primula marginata, Primula* "Garryarde," *Ramonda,* and dwarf rhododendrons. These have all been given ample leafmould and peat but all produce very poor flowers which soon die. Perhaps our Moray climate is too dry for them. *Gentiana acaulis* flowers freely but most of the flowers are enclosed in brown sheath and fail to open fully.

Fortunately many plants have given us a great deal of pleasure. A bed of common yellow primroses up against the wall with plenty of leafmould flowered continuously for five months. *Corydalis lutea* also has a very long flowering season. Its yellow flowers above the dainty green foliage are always neat and tidy and seem to die unnoticed. *Cistus* "Silver-Pink" is a small shrub with flowers like a cross between a wild rose and an Iceland poppy and a very pleasing habit. *Heuchera sanguinea* also flowers for many weeks, and although it is dainty in appearance it stands up to wind, and never seems upset by bad weather. Its lovely red sprays seem to glow in the distance and the marbled foliage is an attraction in itself. *Campanula muralis, turbinata,* and *raineri* all do well. *Campanula carpatica,* white and blue, flower freely but the foliage seems to grow too tall and floppy. Geraniums are our special delight and we have *farreri, subcaulescens, lancastriense, dalmaticum* and *endressi.* Various dianthus seem quite happy but their dead flowers are rather untidy, especially after rain. When she can spare time from hoeing gravel paths my wife cuts them off with a pair of scissors. I prefer the shears, but must admit that I thereby sacrifice a number of late buds. *Dianthus deltoides* "Bowles Variety" looks well ; the neat dark-coloured foliage and crimson flowers please us very much.

As I have a large area to clothe with plants, propagation is important, and I have found most cuttings take well in my cold frame. With seeds I have not been so successful. I am filled with admiration for the organisers of the seed distribution scheme and feel it a little unfair to them that a job so well begun should end in partial failure because of my incompetence. Still, from seeds sown in pans in the frame I now have healthy beds of *Aquilegia caerulea, Oenothera mis-*

souriensis, primula polyanthus, and *Zauschneria californica*. According to the book my failures were all easy to grow from seed. I must admit that I didn't keep the pans more than five months, but perhaps the slugs and snails in the frame were responsible for some of my failures. I am now armed with slug bait and hope to do full credit to the seed distribution next year.

I have gleaned most of my small knowledge of rock gardening from books, and have found "Alpines in Colour and Cultivation," by T. C. Mansfield, most helpful. Its eighty photographic plates show about four hundred different alpines, and all in true colour. The alphabetical glossary is packed with detailed information and never an unnecessary word. This book is always within arm's reach of my easy chair and rarely fails to give me the information I want. With this as my basic tutor, and the *Journal* to guide me, I may be able to succeed with the darlings of the catalogues in future. But I never will desert my "easy twelve." My rockery would be a dull place without them.

More about Dwarf Conifers

By ROGER F. WATSON

IN THE Club *Journal* of April 1955 there appeared Part I of my article on dwarf conifers, which was completed in the two succeeding numbers. There seems to be an increasing interest in these dwarf evergreen plants, as permanent features in the smaller gardens of today, and I am here recording some of the forms which have come into my possession since that article was published as a matter of interest to those members who may be interested in these miniature treasures.

Most of the forms described are very uncommon in commercial cultivation in this country, but are the type of plant which may reward one for visiting nurseries and looking around carefully. I have several good friends in different parts of the country who are also keen dwarf conifer "fans" and in many cases these plants are the results of their efforts on my behalf. It is good to know that some of the rare forms, which we had thought utterly lost, are still to be found in out-of-the-way places. All the forms described are actually in my own garden, and will be, I hope, evidence of the rich yield which can be had for the searching by a keen collector.

The *Abies* or Silver Firs are plants of great beauty, and their dwarf forms are no less striking. *Abies arizonica* v. *compacta* is a broadly conical bush of slow growth with thick branches and very silvery-blue foliage. *Abies concolor* v. *compacta* is an irregular, slow-growing bush of stiff ascending branches and very glaucous foliage. *Abies nobilis* v. *glauca prostrata* is a low-growing prostrate form with glaucous blue-grey foliage and the young growths of a dazzling silver-grey. These very colourful forms add a bright touch of colour to the rock

garden in winter. *Abies pinsapo* v. *nana* grows stiffly erect, with foliage which is deep green on the upper surface and silvery-white below. *Abies koreana* is perhaps not really a dwarf, but is so slow-growing that it may well find a place ; it produces its attractive, almost violet, cones as quite a small tree.

Chamaecyparis lawsoniana v. *erecta aurea* is a very upright-growing form, and the bright golden foliage colour is maintained throughout the year. It is very susceptible to cold winds and needs a sheltered place. *Chamaecyparis lawsoniana* v. *filiformis compacta* is an unusual form, making a bush of drooping thread-like branchlets and blue-green adpressed foliage. *Chamaecyparis lawsoniana* v. *lycopodioides* is even more unusual looking as it presents the appearance of a tangled bush of branchlets, turning and twisting every way, and blue-grey adpressed foliage. *Chamaecyparis lawsoniana* v. *thrandtensis caesia* is usually found masquerading as var. *forsteckensis*, but is actually quite distinct from it, being freer-growing and more glaucous-blue in colour. It is a very worth while plant in its own right. *Chamaecyparis pisifera* v. *cyano-viridis* is a comparatively new form, perhaps better regarded as a semi-dwarf, as in time it will reach a height of five feet or more, but it is worth planting on account of its very striking foliage colour, best described as a combination of blue-grey and vivid green.

Under the name *Chamaecyparis obtusa* v. *compacta* I have a plant which is a comparatively new form and which is very unusual, making a dense rounded bush, very slow-growing, of deep green foliage, the tips of which are the same as the large and looser form—*filicoides*. There is no valid description of this form available but it is a pretty and very useful plant. *Chamaecyparis obtusa* v. *lycopodioides* is by no means a new form, having been in British cultivation for many years, but it is still extremely rare. It is an abnormally branched form with dark blue-green scale-like foliage, and on many of the branches a cockscomb-like head formed at the tips. The form "*aurea*" is similar, save in colour, being a lighter green, with the young growths yellow. *Chamaecyparis obtusa* v. *nana argentea* is a very rare form with the foliage tips clearly white-variegated, and it would be a fine pan plant for the alpine house.

Cupressus macrocarpa v. *pygmaea*, a very rare form, would also be a good pan plant, as it is extremely slow-growing, making a mound of branchlets clothed in tiny deep green leaves. A good companion for it is the choice and rare *Juniperus communis* v. *echiniformis* with its very slow-growing habit and mound of prickly grey-green foliage. Both of these forms are especially good exhibition conifers.

The true *Picea abies* v. *maxwellii* is also very rare, and the form *pseudo-maxwellii* usually does duty for it but is quite distinct, as the true plant makes a mound wider than high with foliage terminating in a fine point. *Picea orientalis* v. *nana* is a slow-growing form, making a rather broad pyramid of very dark glossy green foliage ; it makes a good plant for pot culture on account of its very slow growth.

Pinus strobus v. *nana*, a dwarf form of the Lord Weymouth's Pine, is a striking form, growing into a dense little bush of drooping, very

thin, blue-grey, needle-like foliage. Under the name *Pinus sylvestris* v. *argentea* I have a dense dwarf plant with silvery foliage which looks very attractive. There seems to be no authority for the name, but it was obtained from a nursery as such and differs from any other *Pinus sylvestris* in my collection.

I shall probably be taken to task for including *Sciadopitys verticillata* as a dwarf conifer, as in its native Japan it forms a tree, but in this country it is so slow-growing and so striking in its Japanese effect that it always looks effective. My plant of this, said to be twenty years of age from seed, is now about fifteen inches high, and if the rate of growth continues at that pace it will be a long time before it outgrows even a small rock garden.

There have come into my hands several very uncommon dwarf forms of *Taxus baccata* which are very interesting. *Taxus baccata* v. *ericoides* is extremely slow-growing, forming a small bush of dark green, heath-like foliage as its varietal name implies. *Taxus baccata* v. *columnaris* is a narrowly erect form in which the branchlets grow erectly, parallel with the trunk, with small golden variegated foliage. It is recorded as a seedling from var. *fastigiata*, but is slower-growing than that form. *Taxus baccata* v. *repandens aurea* is a prostrate form with pretty golden foliage, rather spreading, and would be a good plant to cover a large rock. Another form, which I obtained as *Taxus baccata* v. *argentea minor*, is a choice upright plant, very slow-growing, with green and white-variegated foliage. It is strange that there are no records in Hornibrook's "Dwarf and Slow Growing Conifers," 2nd Edition, of white-variegated forms of *Taxus baccata*.

Thuja orientalis v. *filiformis stricta* is a very curiously habited form of the Oriental Thuja, with thread-like branchlets and green adpressed foliage. This form when young needs supporting until the main stem is strong enough to hold itself upright. *Thuja orientalis* 'Millard's Gold' is a fine form with adult foliage of the brightest gold, which colour is maintained all the year round. It is reputed to have originated in the famous Camla garden of the late Mr. F. W. Millard. *Thuja orientalis* v. *rowneri* is another adult-foliaged form with deep green scale-like foliage which turns brown in winter. It is interesting as it is reputed to have originated as a sporting branch on *Thuja orientalis* v. *meldensis*, which is a juvenile foliage form. These are some of the recent additions to my collection of these fascinating plants.

I have several very young plants of other rare forms of which it is too early to write, and this article is written with the idea of putting before members, who may be interested in these attractive miniatures, some of the forms which can be obtained. There are many more forms still to be obtained no doubt, tucked away in nurseries and gardens and no longer propagated. It is to be hoped that, wherever they may be, steps will be taken to preserve in cultivation these rare forms, because once a plant has become lost to horticulture it may never be replaced.

More Survivors

By D. M. MURRAY-LYON

IN THE September 1958 *Journal* was an article, "Survivors," detailing plants which survived seven years neglect in my Perthshire garden. First I must correct an error in the article ; *Douglasia vitaliana*, not *D. laevigata*, not only survived, but flourished and was smothered in flowers. *D. laevigata* had survived but not flourished.

Three Dianthus species I inadvertently left out of the list of survivors are *Dd. freynii*, *knappii*, and *noeanus*. The first, said to be not a species but a grey-leaved form of *D. glacialis*, was not a surprise, for it has the reputation of being long-lived. The flowers of an attractive soft pink are freely produced. It is growing in a scree with a good proportion of limestone chips in it. Close to it in the same scree is a plant of *D. noeanus*. Seven years ago it was a cushion three or four inches in diameter ; now it is a good eighteen or twenty inches across, During July and August it was simply covered with its sweet-scented, frilly white flowers on wiry six-inch stems. At one time known as *Acanthophyllum spinosum*, a native of the Balkans, the leaves are prickly. The surprising survivor of the three, however, is *D. knappii*, an unusual dianthus having yellow flowers, and not often seen in gardens, possibly because, as Will Ingwerson says in his book, "The Dianthus," "it is apt to disappear after flowering."

This particular plant, now nine or ten years old, is growing in the alpine meadow (rich scree if you prefer it), in a fairly deep, but well drained, rich soil. This year it produced six stems each with a terminal cluster of smallish yellow flowers. Rather leggy, the stems being up to ten or twelve inches in height, I still think it is worth its place both for the beauty of its flowers and for its rarity value. It comes from Hungary and Herzegovina and is, I understand, most averse to hybridising ; otherwise we might have had a nice yellow flowered dianthus. Someone may, of course, produce this yet.

Seed hunting in Nevada and Colorado

By C. R. WORTH, Groton, N.Y.

LAST AUGUST I interrupted my study of the unique delights of Nevada (floral and otherwise) to dash off, on an unpredictably crotchety typewriter, some nearly illegible and occasionally inaccurate notes concerning the seeds Jim Koenemann and I had harvested in the Rocky Mountains. After your patient Editor had unscrambled those comments, he revenged himself by announcing that the account would be completed in the Spring *Journal*. Long before this continuation reaches print, the seeds will have been distributed and sown, so that I shall dwell more on the places that were visited, while "the ones that got away" will be mentioned, as well as the ones that were bagged.

Through the kind assistance of Darwin Lambert, editor of the Ely "Daily Times," and several other influential citizens, Bill Wagner, manager of the White Pines County Chamber of Commerce, borrowed a jeep and took us on a wild ride into the high Snake Range, lying just west of the Nevada-Utah line, a spectacular region of high and little-known peaks. On the highest, Wheeler Peak, 13,061 ft., was recently discovered a glacier that is probably the most southerly in the United States. The trip was beset with complications, and we were forced to turn back just below timberline, which was perhaps just as well, for when we looked back from the desert the summits were engulfed in rain. Plants were few in that season of drought, and the only ones of note were *Primula parryi* in flower along a stream under spruce trees, and, in open places around a deserted mine, *Penstemon speciosus* (so far as I could diagnose it in the field, but the final verdict has not yet reached me), variable but always spectacular, here in a form less than a foot high, with magnificent blue trumpets. Next summer Bill Wagner and I hope to spend a few days camping in this scantily explored country, where are such treasures as *Aquilegia scopulorum* in a very good form, and a beautiful white-flowered alpine phlox. But these isolated desert ranges are surprisingly lacking in endemics, so that there seems little prospect of discovering new species ; it is on the lower ranges that they are of more frequent occurrence.

From Ely, we drove south for eighty miles to visit my friends Mr. and Mrs. James Sharp at their cattle ranch in Railroad Valley. Along the roadside, across the high desert, many interesting plants are to be found, including extremely compact *Phlox tumulosa*, *Penstemon miser* or *dolius*, and other fascinating miniatures, all parched and seedless in the drought. Shortly after our arrival at Blue Eagle Ranch, I found the first dodecatheon of the trip, on a flat white with alkali. The shrivelled plants, nearly eighteen inches high, were loaded with ripe seed, one of the most bountiful harvests of the entire trip. Mrs. Sharp told me that the flowers are purple, and that it had been determined as *D. pauciflorum*, but the genus is one which is difficult to identify, and I am inclined to think that it is another species.

The next day the two Jims and I drove as far as we could up a

canyon, then struggled up the steep slopes of 11,268 ft. Troy Peak to the base of its final limestone cliffs, where grow several extremely interesting plants. Most important is a small primula of Section Parryi, which Mrs. Crewdson flowered last summer, and to which Sir William Wright Smith refused to put a name when I sent him specimens in 1947. On what evidence I do not know, a western botanist has decided that it is *P. maguirei*, whose only other known station is some hundreds of miles to the north-east, near Logan, Utah. Clinging to the more shaded parts of the cliffs, it makes small clusters of rosettes a couple of inches across, with grey-green leaves, and two or three half-inch flowers ranging in colour from pink to light red-purple, on stems of two to four inches. A single plant growing in rubble at the base of the cliffs was somewhat more robust, but except for this specimen the plants seem exclusively saxatile. Its companions were a few extremely small plants of *Petrophytum caespitosum*, an eriogonum similar to *E. ovalifolium*, but still unidentified, an erigeron with lavender heads on stems of two or three inches, and *E. uncialis*, ssp. *conjugans*, perhaps the tiniest of the race, with a few inch-wide rosettes from a woody base, and half-inch pink daisies on stems of no more than an inch. Unfortunately there were few plants of this last, and very few seeds to a head, so that the distribution has been very limited.

We crept cautiously around the perilously steep slides at the base of the cliffs, for the least movement sent rocks clattering down for thousands of feet, and finding no further novelties, separated. Jim Koenemann returned to the foot of the mountain to examine some abandoned mines ; Jim Sharp continued along the cliffs in search of some reputedly enormous bristle-cone pines ; while I plunged into the often precipitous depths of Troy Canyon in search of a baffling columbine of which I had distributed seed in 1947, on the strength of a rather hesitant determination by Philip Munz, monographer of the genus, as *Aquilegia scopulorum* Troy form. Sliding down, or skirting, a number of small cliffs, at last I came upon a few plants, very scarce last season, and was even more mystified. The flowers may well be those of *A. scopulorum*, in vivid red, blues, and purples, but the leaves seem different, and the Troy plant not only lacks the tuft of basal leaves characteristic of the species, but grows on shady cliffs, whereas *A. scopulorum*, wherever I have seen it, adheres rigidly to sunny limestone screes. Further material was sent to Munz, but as yet there has been no reply from him. From this point on there was no way out of the canyon except to continue the descent to its mouth, over cliffs and deeply packed snowbanks, and the going was slow and hazardous. Near the lower end of the canyon I came upon *Dodecatheon jeffreyi* blooming and seeding at the edge of the snow : a foot-high, leafy plant reminiscent of *Primula parryi*, with shooting stars of pale pink. There were also a few plants of a tallish columbine, with long-spurred, brilliant red flowers that shattered as I attempted to take specimens, which must have been *A. shockleyi*, a rather rare but widely distributed and quite variable inhabitant of the mountains of south-eastern Nevada.

Jim Sharp and I discussed the possibility of approaching Troy Peak from the other side, over a rather dubious road on which, he believed, we could drive almost to the summit. But a serious accident to one of his children forced postponement of this venture to another season.

My companion and I continued south-west to Tonopah, crossing several low ranges that gave hints of many interesting plants if visited in spring or early summer, but that displayed only dessicated corpses in mid-August. The long drive from Tonopah to Las Vegas (it was 111° F. when we arrived at 6 p.m.) was through country in which the only plants of interest—and almost the only plants—were Joshua trees, although I looked longingly at the low range where a few years before Ripley and Barneby had found *Penstemon calcareus*, now part of the testing range for A. and H. bombs, and closed to visitors.

After a night assessing the delights of Las Vegas, I left Jim sleeping and drove south, amid most unseasonal showers, almost to the California line, where, after nearly abandoning the hunt as futile, I came upon a few thoroughly cooked plants of *Penstemon albomarginatus*, one of the rarest of the genus. It grows in tufts not more than a foot across, with foot-high stems that had shed most of their seed, and has a most appalling resemblance to ugly *P. deustus*, from which it is nearly as remote as is possible within the genus ; Dwight Ripley assures me that the flowers are no more beautiful, so here is a plant that for rarity, difficulty, and lack of beauty, will be sought eagerly by "B.I.O" specialists.

When I returned to the city, Jim was again ready for action, and over a magnificent paved road we drove to Charleston Park, at over 7,000 ft., in the Spring Mountains. Here, at our most southerly collecting point, plants were less advanced than they had been weeks earlier, hundreds of miles to the north, and at higher elevations. I searched long for a few ripe seeds of *Aquilegia shockleyi* and *Dodecatheon jeffreyi* var. *redolens*, but found *Oenothera caespitosa* var. *marginata* with wavy-edged grey leaves, growing here and there by the roadside, somewhat less niggardly. Most of the other interesting plants that I had noted years ago were conspicuously absent.

The next morning Jim, who has no love for horses, elected to remain behind while under a threatening sky I rode up the appallingly steep trail toward 11,910 ft. Charleston Peak. I met nothing of interest until near the top there were scattered specimens of *Penstemon thompsonii* ssp. *jaegeri*, a minute shrub making tiny domes of entrancing grey leaves, without flowers or seed. Soon it was joined by *P. keckii*, a dwarf member of the Glabri, with intense blue trumpets on stems of six inches or much less. When at last I gained the ridge leading to the peak, I found quantities of the dodecatheon growing in locations that could not have remained moist for more than a few days after the snow melted. The only other interesting plant in these high meadows was a small and rather attractive erigeron, until after several miles I reached the beginning of the great slides. Impatiently I sought, but did not find until some distance farther on, the plant for which I had made the trip, *Aquilegia scopulorum*, in Clokey's later cancelled ssp.

perplexans. It is exactly the same in appearance as the high-alpine forms in Utah, except that here it indulges in startling colour variations (and in the garden tends to remain under two inches in height, with smaller flowers). Many of the inflorescences had been eaten, by deer probably, and others were in seed, but in addition to the familiar blues I found yellows, pure pink, rich purples, and a single cardinal—but none of the brilliant scarlet which Clokey's specimens had led me to hope for. Other plants on the slides were few, but entrancing : the rare endemic *Tanacetum compactum*, looking like a mat of *Erigeron compositus* dredged with flour, and with golden knobs on two-inch stems ; an astragalus, a minute tuft of silky leaves two inches long, pinnately divided, with lavender pea-flowers a half-inch across, and inflated sausages of pods not less than an inch long, huge for so tiny a plant ; a similar species, with clusters of half-inch sausages, none in ripe seed. I rode on and on, expecting to reach the summit long before I did, and just as I finally started the descent, a loud thunderclap warned me of a violent storm over some peaks to the north. I pressed on frantically, hoping to reach timber before the storm engulfed me, but that awful trail wound, for at least five miles, along ledges on sheer cliffs, just below the summit, and revealed nothing new in plants except two specimens of *Oenothera caespitosa* var. *crinita*. After hours I arrived at the first timber, but by this time the storm had changed its mind, and was heading out across the desert. The final descent was dreary in the extreme, for not a single plant grew under the conifers, until at last I reached the valley.

The next part of our journey was long and profitless—three days of driving across northern Arizona and New Mexico, then across Colorado to Leadville. The only seeds collected were of *Penstemon clutei*, the most dwarf member of the Spectabiles, not over three feet high, with narrowly triangular grey leaves, and large wide-open flowers of a blend of rose and orange ; *P. linarioides compactifolius*, a gem of a shrub not over six inches high, with relatively large pure blue flowers, and an annual *Gilia* two feet high, with lavender phlox-like flowers on tubes two inches long.

We arrived at Leadville toward evening, in a downpour that blotted out the mountains. I attempted to make arrangements for a jeep to take me to high Mosquito Pass, but the driver, in addition to asking a prohibitive fee, decided that the trip, after so much rain, would be impossible. Next morning I set our on foot, finding, to my chagrin, that there was a perfectly good auto road to where I wished to go—at least to the foot of the pass ; in fact, I was given rides, both ways, by fishermen heading towards small lakes. I wandered for hours on the slopes of the range, unable to cover more than a limited sample of the possibilities, bewailing the drought which had burned *Dryas octopetala* and *Primula parryi* almost beyond recovery (for the rains had come too late to help plants in this season), and failing to find all three of the most desired plants reported from there, yet getting by far the largest harvest of the season—some very fine erigerons, of how many species I dare not guess, ranging from a mite of one inch to a

Fig. 30—INCARVILLEA GRANDIFLORA (see page 232)
(*By courtesy of Messrs. Jack Drake, Aviemore*)

J. C. Lawson

stalwart of eight, with two-inch heads, a variety of senecios, *Rydbergia grandiflora*, *Polemonium viscosum* (*confertum*) in forms that seemed predominantly pale-coloured, perhaps even white, *Aquilegia caerulea*, foot-high even at nearly 13,000 ft., and a host of lesser things. Clearly this region calls for thorough exploration in a decent season.

A brief stop at Loveland Pass, where the paved highway climbs to 11,992 ft., produced seed of lovely *Phacelia sericea*, a reputedly pink form of *Aquilegia caerulea*, a very few *Mertensia alpina*, but here too most plants were blasted by drought. We returned to the Snowy Range in south-eastern Wyoming, which had been our first stop of the trip, and where we hoped for a rich harvest, but drought and the devil—sheep—had taken their toll, and of most plants there remained not a trace. Apparently seedless capsules of a very fine deep blue form of *Polemonium viscosum* gave a surprisingly generous amount of seed, yet of *Eritrichium argenteum* long search produced only ninety seeds, and only a few plants, at the base of a small cliff, had seeds of the lovely lavender to deep violet form of *Phlox caespitosa* that is only one inch high. A lovely fringed gentian. *G. thermalis* I believe, *Elephantella groenlandica*, and one of the finest erigerons I have ever seen (No. 60)—those were the harvest.

One final dash—for clearly it was a waste of time and gas to revisit other localities—for *Polemonium mellitum* and *Aquilegia laramiensis* gave a few seeds of the former, but of the latter only a single plant remained of the stand I had found twenty years before. I paid my respects to the lonely columbine, and left it in peace—nor could I have reached it without ropes.

In mid-afternoon Jim and I looked at each other, decided we had done all that was possible in this appallingly bad season, and amid showers started east on the last leg of our 9,100 mile journey. The adventure was not a total loss, for not only did we have an interesting time and receive fervent invitations to return the next season, but the harvest consisted of about 250 seed lots, comprising around 200 species. Impressive figures, perhaps, but some lots yielded only one or two good seeds, and included were less than half the desirable species which I know and which I had hoped would prove fruitful.

A Plea for more Auriculas in Scotland

By R. B. PIKE

MY INTEREST in auriculas was first stimulated by a stand of show auriculas exhibited by Mr. Haysom at the Coronation Chelsea Flower Show (1953). The small table with its unbelievable-looking plants held me spellbound and so I obtained a catalogue and was disappointed to find the plants so expensive. It therefore seemed prudent to find out more about the plants and their requirements before buying any.

I therefore joined the National Auricula and Primula Society (Northern Section) and learnt much from their journal. This soon brought me in contact with that fascinating book, "The Auricula," by the late Professor Sir Rowland Biffen. The last chapter in "Primulas in the Garden" introduced me to Mr. Corsar, who demonstrated to me the characters of the various groups of Auriculas as staged at our Glasgow Spring Show. This was not easy, as the material exhibited was of a somewhat mongrel character and the judges must have had a difficult time deciding which plants were eligible for the section in which they were entered. I have since heard that this is indeed of usual occurrence, as many entries are of impure strain and misfits in any given class. We must, therefore, learn to distinguish those of true character and "rogue out" the crosses. The characters of the various sections will be dealt with in this article, as no such previous article has been written in the *Journal* of the S.R.G.C.

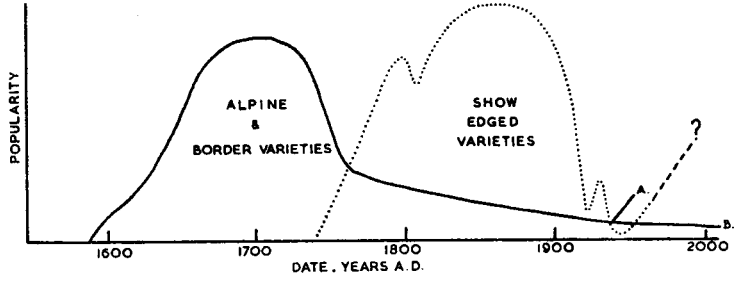

Fig. 1. Graphical representation of the rise and fall in popularity of the various groups of Auriculas. The Border and Alpine groups have been considered together. Since 1900 the Alpine group A is rising in popularity while the Border B remains stationary in popularity.

Before we become entangled in descriptions of these sections, let us first glance at the history of the auricula in cultivation, and see how the various sections have risen and fallen in popularity over the last 300 years (Fig. 1). This history is a fascinating story and is well told by Biffen. I have tried, in a crude graphical way, to show how the garden and alpine auriculas first became popular. It is not quite clear

when the two varieties were separated and it is probable that the alpines, as we know them today, did not become separated from the Border varieties until about 1800. These types were, however, to be eclipsed by the show auriculas, which became recognized about 1750, although they were probably originated some twenty-five years earlier. They rose quickly in popularity until by the early nineteenth century they had become a fashion. This fashion declined, although the quality was kept up, and improved, by an ever decreasing number of enthusiastic growers. Two world wars almost eclipsed the show auricula, but the enthusiasts held on and we owe much to M. Haysom, who, has spent some thirty years successfully improving the standard and vigour of the show auriculas, and to the many active members of the National Auricula Society.

The Border and Alpine varieties did not suffer to the same extent as the Shows during the world wars, as they are hardy enough to be grown in the open border all the year round. The Border variety is more nearly in the wild state, but because of their rather sombre colours they have never gained more than a weak place in our affections, although they have fine meal-covered foliage. There is much to be done here to improve the colour of this flower and make it a first rate garden plant.

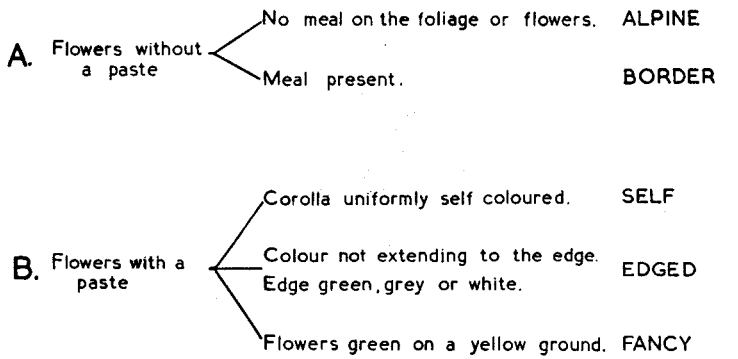

Fig. 2. A Key for the separation of the types of Auriculas in cultivation taken from Sir Rowland Biffen's book, p. 24.

The Alpine Auricula is a hybrid in origin with gorgeous colours and also beautifully shaped flowers. This combined with a fine constitution makes it a front-rank flower. You will see from the Key (Fig. 2) that these two A-group plants are separated from the B-group in that they lack paste on the flower. The paste is a circular band of dense meal surrounding the eye of the flower, or pip (Fig. 3). The texture of the paste is smooth and like a thin layer of flour rolled on a pastry board and a heavy coating of meal. The Alpines are separated from the Border auriculas by the character of the foliage, which in the former is always meal-free, although there may be some meal on the

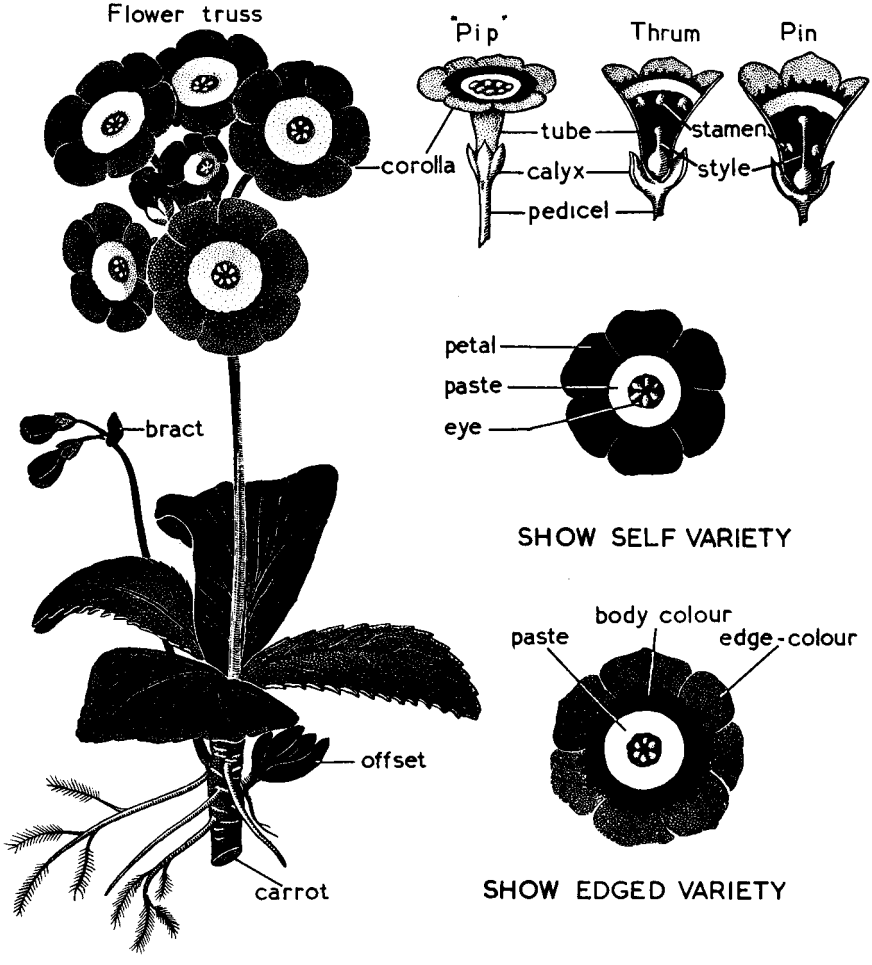

Fig. 3. Illustrates a composite plant with various types of foliage and a flower truss of the Alpine variety. Single flowers giving the proportions and parts of both Show Self and Show Edged varieties. Side view of a complete flower with the floral parts named and two cross sections illustrating the "thrum" and "pin" flowers. All the terms used in the culture of auriculas are given.

flower stalk. In the Border auricula there is meal on the foliage and also on the flower.

The colours of the alpine auriculas are best preserved if the plants are grown under glass, when they make a brilliant cold greenhouse plant and a delight in the sitting room where their perfume is an added pleasure. The flower centre can be either golden or off-white and this area is surrounded by the petal colour. Here the colour is graded from a darker inner area to a lighter outer margin (Fig. 3). As a rule those flowers with gold centres have red or brown colouring, while the light-centred types have purple or blue colouring.

In group B, there are two main varieties, the Selfs and the Edged, and they differ considerably in both appearance and botanically, for it is thought that in the edged variety the petal tissue has been replaced by leaf tissue (virescens) as in the green primroses, but this does not concern us now. In the Self variety (Fig. 3 shows Self variety) the eye is surrounded by a collar of white paste and this in turn is followed by the petal colour. The range of colour is very large, from black (really dark red) through red, to yellow, blue and white. In the Edged variety the paste instead of being followed by the petal colour has in its turn a border of dark colour called *body colour* (Fig. 3 shows Edged variety). This is about the same width as the paste, quite circular on its inner margin, but with tongues of the body colour penetrating the petal colour on the outer margin. The petal colour, on the outside of the body colour, is green, but this may be flecked with meal turning the green to grey, or the meal may be so dense as to mask the green completely. This may sound a drab flower, but in fact it is a refined flower with a considerable tone range and without any floral counterpart. No, they are not dull—they are startling.

The last section in the B-group is that of the Fancies, a section not much in favour, because it is an edged variety where the deep body colour has been replaced by a yellow ground colour. This definition of Biffen's is today probably too limited and the section can now accommodate almost any show auricula not conforming with the rest of type B. The flowers can be intriguing and beautiful.

Lastly there are the double varieties—a section that nearly vanished, but is now coming back. Good doubles have recently been raised in America from British seed and this will find its way back to the home country. America is taking up the cultivation of Auriculas in strength and this will give added security to the plants' future.

I am greatly indebted to Dr. Newton, President of the National Auricula & Primula Society, for reading through this article and pointing out the main factual errors of a novice.

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Taste and Colour in the Rock Garden

By J. ARCHIBALD

MANY GARDENERS are apt to be complacent and quite satisfied with their achievements, if they have succeeded in growing a diversity of plants fairly well, but to me it seems a pity and, to say the least, rather inadequate if the plants which they have grown are not shown off to their best advantage. In the rock garden particularly a greater number of plants must exist in closer proximity than anywhere else in the garden and the gardener must show himself to be an artist if a planting is to be successful. Rock garden planning differs from, say, the planning of a shrub border, in that, while cultural considerations come first in both cases, form, outline and leafage are to be regarded with less importance than the colour of the flowers. Nevertheless, natural combinations of plants, such as carpeters over bulbs and the underplanting of shrubs can often be exploited ; for instance the blue of muscari piercing a pink mat of *Phlox subulata* "Appleblossom," in addition to looking well, is culturally suitable. The position should be chosen first then to suit requirements of culture and, if the worst comes to the worst, the subject placed adjacent to plants which will be out of flower when it blooms ; however, if any nearby plants do flower at a similar time and are of a colour which will probably not blend or contrast, a new site must be looked for. Of course, many of the most striking colour combinations are accidental, but conversely two colours which clash will be a source of disappointment and annoyance for years, especially if the plants are difficult to grow or move.

An unexpected discord of tones is usually struck by two plants of a similar hue flowering close together at the same time. An excellent, albeit extremely regrettable, example was a slide, shown at a recent meeting, of a remarkably well-grown specimen of *Douglasia vitaliana* alongside some *Narcissus bulbocodium*, whose clear Portuguese sunshine had made the yellow of the former look quite mustardy. In the same way, when two blues flower together, the purple in the duller one is always accentuated. All this does not mean to say that a planned

association of shades will invariably be a success : on the contrary, many well thought out contrasts absolutely misfire often through failure of the flowering seasons to overlap, but there are a few fairly reliable criteria which may help in displaying a plant or preferably group of plants well. In the following paragraphs the examples given and the conclusions drawn from them certainly do not guarantee success but they have been effective in some gardens.

Blue and pink is usually a fairly reliable association, particularly if the blue is a pale one. The azure showers of *Omphalodes cappadocica* with the soft rose of *Saxifraga umbrosa primuloides* are delicately lovely in light, cool shade and again *Chionodoxa luciliae* in soft blue is delightful among the feet of carmine and cream-headed *Tulipa kaufmanniana* "The First." The complementary colours of blue and yellow are also an almost certainly successful contrast and never fail to emphasise each other's purity. I planted a sweep of *Scilla siberica's* gentian-blue under the branches of the brilliant variety of *Forsythia intermedia* "Lynwood," and a startling blue and gold splash resulted ; however, the brightness might have been too much if it had not been for the softening effect of several plants of the common primrose flowering nearby and among some of the scillas. These three plants provide a good example of satisfying both cultural and aesthetic requirements at once ; the forsythia, not a fastidious plant, gives a little shade to both the other subjects, while all three flower at the same time. Another easy and pleasant harmony of blue and yellow for those rock-gardeners who are not too fussy and strict can be obtained by sowing the two Californian, sun-loving annuals, *Lupinus nanus* and *Eschscholtzia californica*, near each other. The blue and white of the little lupin with the pale gold of the poppy could not be bettered. Similarly an equally good and less obtrusive couple of Californians are Baby Blue Eyes, *Nemophila menziesii insignis*, and Cream Cups, *Platystemon californicus*.

Bright reds are not common among alpines and are also rather difficult to place. Whereas blue and yellow, the two complementary colours, associate well, the complement of red is green. Consequently, reds frequently show up best against a dark emerald background, therefore plants with handsome foliage such as ferns and many of the taller *Ericaceae* can be made use of, as long as they do not flower at the same time and they like the same conditions. Bright blue sometimes goes well with red and I recollect reading of the two delphiniums, fluttering gentian-blue *D. tatsienense* and scarlet *D. nudicaule*, associating well together. Reginald Farrer mentioned a fine natural combination in "The English Rock Garden" on similar lines : electric blue *Aquilegia reuteri* (syn. *A. bertolonii*) covering the ground between the sealing-wax red Turk's caps of *Lilium pomponium*, both being backed and shaded by dark, little *Pinus montana*. If a companion cannot be found for a bright red or any other dazzling bloom, one can do no better than use a dark or silver-leaved shrub as a background.

The use of silver leaves or white flowers is always effective and is excellent for tempering garish colours. Bright *Crocus* species present

a good appearance when pushing their sparkling goblets through the silver quilt of *Antennaria dioica rosea*, in full spring sunshine. White and pale yellow flowers can give the same result ; for instance, the hard yet lovely tones of aubrieta can be modified by planting with pale *Alyssum saxatile citrinum* (not the type) or even biscuit-beige *A.s.* "Dudley Neville" in a limey, sunny place. A. T. Johnson, who always had a fine eye for colour, recommended placing the burnished scarlet of tall *Lilium chalcedonicum* against "the cool slate-green and white of *Senecio monroi.*"

The last combination gives rise to the fact that many associations of plants not only give pleasure to the onlooker but are essential to the health of the subjects. Lilies in particular must have ground-cover to protect the young shoots, so, plant the more slender lilies like *L. cernuum* and *L. concolor* among heaths and dwarf rhododendrons ; *L. rubellum* and the *Nomochares* are especially fit for growing among gaultherias, rhododendrons and allied plants in sandy peat or leaf-mould ; *L. maculatum alutaceum* with its apricot-orange cups would, I think, look well in front of the bronze-purple foliage of plump, little *Berberis thunbergii atropurpurea nana* and, as both plants are easily accommodated, do well in full sun.

Orange and purple provide one of the most arresting contrasts possible and their effectiveness together can be illustrated by looking at an individual flower-head of *Aster forrestii* where the brilliant violet rays stand out from the orange disc so strikingly. *Primula bulleyana*, with its buff flowers from deep-orange buds, would provide a fine backcloth for the royal purple spikes of *Orchis foliosa*, if the latter were readily available, but one catalogue mentions *Iris* "Mandarin Purple" as an apparently good substitute and these plants all do well in a similar damp position. I should rather like to try the brown-orange flowers of six-inch *Mimulus burnattii* as a ground-cover for the filigree foliage and airy, lilac sprays of *Thalictrum chelidonii* growing in cool, moist, half-shade, but this is only an imaginative prospect.

A group of plants "gleaming in purple and gold" like Byron's Assyrian cohorts cannot fail to catch the eye ; a clump of the deep-purple shaggy heads of *Phyteuma scheuchzeri* on their one-foot stems backed by a cascade of bright yellow *Genista pilosa procumbens*. Then, some yellow can be brought into a planting of purplish heaths by using shrubs like *Potentilla fruticosa, Rosa spinosissima lutea* and hypericums. Species of the last like *H. polyphyllum, H. coris* and *H. balearicum* are effective, putting out their golden salvers beside *Erica cinerea purpurea* and its like.

Up till now I have not mentioned magenta, as flowers of this colour seem to occupy a special place in the gardener's mind and have a rather unjust stigma attached to them. Magenta is in fact no more difficult to locate than any other shade as long as one isolates it from other colours and situates it adjacent to white flowers or silver foliage. In such circumstances the crudeness of magenta is modified and it becomes quite a telling hue. Occasionally the very harshness of the

colour itself can be exploited, rather than avoided, by planting with flowers of bright purple or deep red. One such association is that of the two larger geranium species, *G. ibericum* and *G. psilostemon* (syn. *G. armenum*), where the former's brilliant violet-purple is explosive with the vivid magenta of the black-eyed gipsy from Armenia. *Phlox subulata* "Temiscaming" in violent magenta-red can be planted by more daring gardeners along with deep-purple *Aubrieta* "Gurgedyke," or, as a later-flowering variety is preferable, with *A.* "Mrs. Rodewald's" red-velvet wallflowers, when both plants will burst into flower with a clash of Oriental cymbals.

Briefly, now, I shall attempt to illustrate the process that should be gone through in choosing a companion for a plant, using, in this instance, well-known *Gentiana sino-ornata*, with its sumptuous, rich blue trumpets. Culturally, the gentian must have a moist, acid soil with a fair amount of sun and its flowering period is spread over the late summer and autumn. Luckily, there are numerous fine subjects blooming at the same time and the choice is really a personal one. The bright, clear gold goblets of that fine Mediterranean bulb, *Sternbergia lutea*, are especially good and, in pink, the undulating carpet of Himalayan *Polygonum vacciniifolium* are excellent, although I have found that, if planted too nearby, the polygonum's rampant habit might swamp the gentian. The firey red-hot pokers of little orange-coloured *Kniphofia galpinii* are splendid companions, but I feel the South African would be happier in a hotter, drier place. A background of foliage, such as provided by *Calluna vulgaris cuprea*, just beginning to melt its summer-gold into the copper and bronze of winter, leads to my final selection. Ultimately, then, I think that the autumn tints of the two North American shrubs, *Vaccinium stamineum* and *V. caespitosum*, along with some scattered corms of *Cyclamen neapolitanum*, with their rich-pink, reflexed flowers and intricately patterned leaves, would be a good choice to grace the autumnal beauty of *Gentiana sino-ornata*.

On reading over the preceding paragraphs, I realise that I have listed quite a number of possible colour schemes using, however, only the more usual colours and, for the most part, easily grown plants. Nevertheless, it is these plants which must be responsible for providing the basic colour constituents for rock-garden planning, as the average gardener is never going to be able to provide a mass of colour with species like *Boykinia jamesii* or *Primula sonchifolia*, exquisite as their tones may be. It is to the latter group of plants that the gardener must look when it comes to providing interest and exercising horticultural skill, no less important considerations than taste and colour but perhaps easier to satisfy, initially, at any rate.

Purple Patches

By "PIERRE"

"AFTER SECRETLY observing the unstudied grace of her movements, the foremost picture-maker of his province burned the implements of his craft and began life anew as a trainer of performing elephants."
Ernest Bramah

"*Linum aretioides* : I have been longing for the unhurrying alphabet to bring me here, but now it has done so, I feel embarrassed and pen-tied." *Peter Davies*

When icicles hang by the wall, and Dick the shepherd blows his nail, when one's seed pans are all scrubbed but one's seeds have not arrived, when the rock-garden is frozen two feet deep and the rock-gardener cowers over the coal-fire that is adding its quota to the smog that kills his alpines, then is the time to draw the curtains upon grim reality and to browse in the enchanted pastures of one's books.

My own collection is a haphazard one, made up partly of presents from relatives who at Christmas-time gladly remember my mania and "send him a gardening book" and partly of weird treasures picked up by myself in the secondhand bookshops. I have not so far dared aspire to any of Farrer's volumes, although if the Editor publishes this article perhaps I might leave it lying about where it would be likely to come to the notice of some of my more opulent relatives. But I possess what I surmise to be just as entrancing a treasure—the first seven volumes of the *Alpine Garden Society Bulletin*, for my mother received them as they were published and now, knowing my mania, she has passed them on to me.

What varied and delightful treasure these volumes contain. What a deep mine of information about alpines and their treatment, what a treasury of purple patches and what extraordinary sagas of the heroic days of plant hunting ! As one dips into their pages one chances perhaps upon Captain Leschallas's 'rockpots' which he fashioned from small rocks and cement into the most admirable settings for saxifrages and other choice alpines, or one comes upon a photograph of *Daphne sericea* which suggests beauty justifying the Chinese picture-maker's despair :—"That bush beat all the Daphne of all continents added together, and might have been used as the background of a fairy story." Or one finds a description of *Campanula lactiflora* as one of the twelve best perennials for the herbaceous border and promptly applies for seed of it as I have done. Perhaps I may be able to say next year if I confirm the judgement.

One of my favourites among the contributors is Mrs. Gwendolyn Anley. I do not know Mrs. Anley, but it would appear that *Cc. carpatica* and *rotundifolia* are her two bêtes noires. (I might grant her *carpatica*—but *rotundifolia* ! It may be a weed, but it is a weed of which I can scarcely have enough). Of course, her gardening is on a much higher plane than anything I shall ever achieve, or even contemplate

achieving. "Human nature being what it is," she says, "alpine gardeners invariably arrive at that point where 'difficult' plants engage their attentions almost to the exclusion of all else." But I greatly enjoy her adventures among her plants, difficult or otherwise. "This afternoon I witnessed a miracle. A shaft of sunlight fell upon a pan of *Iris reticulata* 'Cantab.' As I looked a bud quivered, then slowly and deliberately opened, releasing as it did so its violent scent." Or again : "There is something uncannily human about *Calceolaria darwinii*. There it sits, smug and self-satisfied, smirking at me with the over-sweet smile of a benign old gentleman whose dentist has supplied him with a denture just a suspicion too perfect." Or again : "What I call the 'eye-wash' plants are still in full spate in the rock-garden. The prostrate lithospermums and the anomalously named *prostratum* var. *erectus* are an excellent foil for the cream and yellow of the smaller cytisus. The helianthemums bring all the colours of the sunset to the picture, and the mossy phloxes foam and tumble in cascades of soft shades over steps, walls and banks, an unusually rich violet form of *Phlox procumbens* arresting the eye here and there. Aubrieta 'Gurgedyke' (another gorgeous colour which cannot be overlooked), *Geum montanum*, violas, gay and airy as butterflies, all these and a score of other charming and pefectly easy things have flooded the rock garden in waves of colour. I sometimes fear I am not sufficiently grateful for all this generously bestowed beauty."

One of Mrs. Anley's articles describes a visit to Japan, and I cannot resist quoting part of her conversation with an old grower of miniature trees. "I asked one of them who had recently sold one of his older specimens if he was sorry when his trees found a purchaser. His hands fell idle, his eyes gazed unseeingly into the distance and a look of patient sorrow passed across his face. 'I miss them more than I can ever say,' he replied slowly, 'I grieve for them for months.' " When first I read that passage I confess that my reaction was to chortle sardonically to myself at the thought of all the grief and patient sorrow I have been causing to Jack Drake and others in the last year or two. But later when a friend came to beg some of my own propagations for a church bazaar, I suddenly realised how painful it is to part with any of one's children, even if one had so many that one doesn't know what to do !

But let us now change from Mrs. Anley's delicate, feminine and whimsical style to the plant-hunters, the heroes. Listen to Dr. Giuseppe on the trials of his hobby : "In spite of its difficulty it is essential to learn Shqyp if one intends to travel in the wilds of Shqypnia. . . . Here are but a few of the difficulties : the language, the wildness of the people, the rough and tiring tracks, the poor horses, the poor food, the heat, rain and storms, the steep climbs, the dangerous gorges, the difficult country, the accommodation, the fleas, bugs, mice and rats, the dirt of the houses ; all of these and many more make plant hunting very difficult, but there is another side of the picture—the kindness of the people, the beauty of the houses, and of the mountains and valleys, the blue sky and the wonderful plants make Shqypnia a plantsman's

heaven !'' But even after having supped full of that catalogue of horrors, I confess to a shock of surprise when I read Mr. W. E. Th. Ingwersen : ''I remember sitting over a shepherd's fire with him (Mr. Atchley) in the Pindus range one night, when after feeding us with sour milk and maize bread the shepherds told us of the decapitated body of a brigand which the gendarmes, after taking the head for the reward upon it, had left unburied. The shepherds were giving it burial and Atchley and I assisted at the simple rites.'' Or listen to Dr. Giuseppi again : ''Next day we had a tiring and wet walk over sheep-tracks and through wet beech-woods below the summit of the beautiful peak of Elbunit to the village of Gjemaj. Here we were received by a poor man who had bought his little cottage by selling his eldest daughter in marriage for eight Napoleons. I may mention that a cow cost twelve Napoleons.''

But you must not imagine that the male of the species does not go in for fine writing. Listen to Mr. Peter Davies on *Aristolochia cretica* : ''The large flowers loll about like bloated ogres among the cordate grey-green leaves. The colour is a mixture of clotted blood and maroon, and its surface is overlaid with snow-white hairs that fall off at the least inquisitive touch. The root is like that of a Mandrake, and if ever it stirs uneasily in its pot or lets out a blood-curdling shriek, I shall not be in the last surprised.'' At times, indeed, one feels that Mr. Davies is capable of rushing in where angels fear to tread—on eggshells, for example. ''*Crocus sieberi* var. *heterochromus* is one of those Cretan endemics which like *Anchusa caespitosa* is so superb that the power of writing anything adequately descriptive vanishes at the recollection of its loveliness. . . . When the goblet begins to open in the morning sunshine and you peer cautiously inside, it is like looking at the yolk of an angel's egg.''

I think on the whole I prefer the sparer but still picturesque style of Kingdom Ward : ''Then in a little wet, open glade, I saw a film of claret-red staining the green carpet ; and approaching found the pasture covered with one of the most bewitching little primulas I have ever seen. . . . A few hours later we camped in a two-acre marsh, reddened with tens of thousands of these ruby bells. Never have I seen so miniature a flower, or of such exquisite design, in such prodigious numbers as to colour the landscape. It seemed almost on a par with the phosphorescence of tropical seas.'' Or again : ''A long march up and down the ridge next day brought us within sight of the Orka La, and we camped as usual in a bog. Unless you actually squat on a rock like a baboon, it seems you *have* to camp in a bog in summer here. For three days and nights the wind blew violently out of Bhutan, whirling clouds and rain from every quarter in turn. . . . However, I went out into the storm most days. . . . Never shall I forget the placid colourful seas of primulas which spread over the pastures. The chief contributor to this galaxy was the chrome-yellow *P. dickieana* which occurred in astronomical numbers. You could tell where the turf oozed a mile away by the blazing yellow flames of this astonishing primula which licked up the hillsides.''

To quote from these volumes is to drink a heady wine, and before I reach for the bottle again I had better end this florilegium of purple patches, although I have not touched upon my other treaures, my Culpeper, or the volumes of Miss Jekyll that I came upon cheaply priced on a second-hand book shelf. What an atmosphere of days gone by for ever comes from her pages, what an atmosphere of some other planet where life is gracious, leisurely and cultivated. Then, too, there is my *Flore colorie de Pochée à l'usage du Touriste dans les Montagnes de la Suisse par H. Correvon.* It is a pleasantly old-fashioned volume. Monsieur Correvon's especial darlings make him burst from time to time into the most delightfully absurd verses. Alas ! His Muse is not inspired by our Club Emblem, but I would love to quote the verses on the Alpine Poppy which end :

Quoi ! De toi sortirait un malfaisant génie ?
Ce sont de sots dictions !
Non, je t'aime et ne puis croire à ta perfidie,
Petit pavot des Monts.[1]

or the verses on *Cypripedium calceolus* which begin : "Vénus, un soir d'été, par l'orage surprise . . .," or "J'àime a voir frissonner la pure soldanelle,"[2] or the even more charmingly absurd verses on *Pyrola uniflora* which end :

"Reste au fond de tes bois épais
Fleur des Monts, Pyrole uniflore,
Afin que nue ne te déflore
Et ne vienne troubler ta paix." [3]

but I content myself with the shortest one of all, the poem on *Eritrichium nanum* :

Petite fleur des cieux sur la terre oubliée,
Bijou, que pour Lui seul, semble avoir crée Dieu ;
Des rocs où tu fleuris, dirige ma pensée
Vers l'éternel auteur de ton vêtement bleu.[4]

But a truce to these winter pleasures. This morning as I lay in the grim crepuscular darkness trying to persuade myself to leave the comfort of the blankets, I heard the milkman engage in a whistling duello with a blackbird. Each would whistle a few notes and then listen to the other. Can Spring be far behind ?

[1] *What ! From you will an evil genius spring. These are foolish sayings ! No, I like you, and cannot believe that you are treacherous, little Poppy of the Mountains.*

[2] "*Venus, caught in a thunderstorm on a summer's evening. . . .*" "*I like to see the chaste 'Soldanelle' quiver.*"

[3] "*Stay deep in your thick woods, Flower of the Mountains, Pyrola uniflora, so that none may rob you of your bloom and interrupt your peace.*"

[4] *Little flower of heaven, forgotten on earth, gem which God seems to have created for Himself alone ; From the rocks where you blossom direct my thought towards the eternal author of your sky-blue gown.*

Floral Arrangements for a Beginner

By BERYL MUIR

HAVING SEEN, on the show benches, the increasing interest shown lately in the Floral Arrangement Sections, may I, as a Florist, add a few hints to those who may be contemplating entering another year ?

Floral Arrangers can really be divided into three sections : (1) those who use wire-netting to secure their flower stems ; (2) those who prefer a "pin-holder" ; and (3) those who base their flowers in a "moss" garden.

Wire-netting is best used for larger bowls or vases—crumple up a piece of large-mesh "chicken-wire" and secure in the bowl by tying underneath with string—this can be cut away after the arrangement is completed ; in the case of vases or baskets which have handles the string can be secured to these.

The "Pin-holders," which can be bought in various sizes from most florist shops, come in rubber-suction and lead-based types. I myself prefer the lead type as, although slightly more expensive, the weight prevents the arrangement from toppling over. Shallow bowls, or even plates, look charming with the "pin-holder" arranged daintily at one corner ; the flowers and twigs can take on an exotic and weird shape without becoming too heavy looking.

Lastly, the moss-garden. This is perhaps the easiest for the rock garden enthusiast, as it will hold firm the tiny stems which we have to use, besides giving the flowers ample water. Using a plate or low dish, fill with smallish stones, then arrange the moss (different kinds add to the effect), leaving some stone showing ; use a small handbag size mirror hidden under the moss to look like a pond, or a peculiar shaped twig, piece of cupressus or juniper, to make a tree, tucking in clumps of flowers between the moss. Fill this carefully with water—making sure the moss is not hanging over the side of the plate, as this will dribble on to your cloth or table.

I have not touched on actual shapes of arrangements, as these can be of many various designs (again mostly governed by the use of wire-netting or pin-holder) and, of course, there are such things as the Florist-bought "Flora-pac" and other different methods of securing flowers.

To ensure that your flower arrangements give the longest possible pleasure, never cut flowers in the heat of the day ; early morning or late evening are best. All flowers, foliage, and twigs should be given a good deep drink in cold water—preferably "up to their heads"—before being placed in a vase or bowl. Twigs and flowers with "woody stems" (i.e. roses, chrysanthemums, etc.) should be split up about 1 in. to 2 ins. from the base of the stem by hammering. Most of the Syringa family prefer to be stripped of all their green leaves (even if a twig of leaves only is used with the flowers).

Well, I hope these few hints will have helped to guide the beginner in her (or his !) efforts to arrange flowers and twigs more effectively, and will encourage even more entries in the Floral Arrangement classes in future Shows ! (See Fig. 36).

Flora is a Fickle Mistress

By D. B. MARSHALL

"To THE Steens Mountains ? I have never been there and I would give anything to get in there." So said Mrs. A. C. U. Berry, the outstanding Portland alpine and rhododendron gardener. That remark during a conversation in May dropped the seed of an idea into my head. My husband and I had visited the Steens Mountains a couple of times with our son, who is biologist with the U.S. Fish and Wildlife Service in that vicinity. Again last spring we had attempted to drive up, but much to my disappointment a heavy rain made the road too precarious. I had felt cheated, as I find the place enchanting. I knew I should spend neither time nor money for another trip across the state this year, but just perhaps Mrs. Berry might be willing to make it a partnership trip. As to the stolen time, it would be worth it if we could get well up onto the mountain.

The Steens Mountains or Mountain is not a major range. It is in the south-eastern part of Oregon, where on maps that are put out for advertising purposes is likely to be printed a trademark insignia, "Sigfield Oil." But it is not a vacant space. It is a wide sweep of sagebrush plain with an altitude of around 4000 feet, from which rise plateaux formed by great lava flows, their edges rimmed with broken rocks. Here and there are mountains or "buttes," perhaps a couple of thousand feet higher, across which in broken sunshine race lovely cloud shadows. The streams crossing this are crystal clear and if not in deep canyons are bordered with hay fields. The Steens are part of a great geological "fault," where a great crack in the earth's surface, at least 100 miles long, runs roughly north and south, even into Nevada. In the Steens area, the west side of the crack has risen to over a mile above the plain. As a result the east side is made up of jumbled cliffs, while the west is like a shed roof. In several places this comparatively gentle slope is broken by great U canyons leading down from the crest. In decent weather one may stand at the head or precipitous rim of one of these canyons and with good vision see the deer in the meadows below, and with imagination count the trout in the stream. Some work in the botany line has been done in this area, but such is its remoteness that it really has not been completely explored for plants.

This country is just beginning to be found by tourists. If you see what appears to be a cowboy, he isn't a movie actor or a dude ranch visitor ; he is most likely a "buckaroo" or possibly a sheepherder. There is now a tolerable dirt road put in by the county for the benefit of fishermen to Fish Lake, a lovely little mountain lake. Beyond that to the rim of the mountain runs a road for perhaps six or seven miles, which, like Topsy, I suspicion just grew, as I doubt if anyone but ranchers tending their herds and perhaps, in necessity, hunters, have worked on it. The bones of the old mountain often come up into the centre of the road as the wheeltrack is worn down. Ordinary touring

cars *may* manoeuvre it, but the result is likely to be expensive and perhaps disastrous to the car.

When I made my proposition to Mrs. Berry she accepted it, though I tried to impress her that she might find nothing of interest. We decided to take the trip on a long week-end in the middle of July. My son, David, phoned that the snow was going off so we probably could get to the crest. Also the local mountaineering club, the Mazamas, had a trip scheduled at that time there, the ostensible object of which was to look over the potential recreational interest. The leader was a very old friend, and I knew we would have a better chance to reach our objective then. So we started off bright and early on the 17th in our car. Driving across the Cascade Mountains I watched for the spires of *Lilium washingtonium* and, seeing none, was concerned that we were somewhat late. After we were out on the near-desert, we made a stop at a spot which a month before I had found sprinkled with charming little desert flowers. Where was a garden before we could scarcely find the plants of a tiny lupin from which I hoped to reap seeds. It probably is *L. aridus* ; the diminutive foliage so very silky, and the furry little seedpods which were forming while the plant was still in bloom, were not the least of its charms. One may drive for miles through the sage-covered country and see not a flower, then come to an acre, or two or three, where by some favour of Nature little desert plants thrive : *Phlox douglasii*, tiny erigerons, pale yellow *Eriogonum*, *Eriophyllum* about six inches high, perhaps small dark blue larkspur, *Clarkia* and possibly *Phlox longifolia* or *Penstemon*, and always the cheerful little white annual, which I understand had dumped on it the name of *Blepharipappus*. If there is a rocky area near, look for the pearly flowers of *Lewisia rediviva* (see Fig. 41).

As we drove east mile after mile, I watched with dread the thunderheads forming, first to the north, then the east. In this country of wide spaces, it is fascinating to see the clouds accumulate in one part of the great bowl above, darken and then drop grey rays of rain. Perhaps the shower may cover only an acre, perhaps miles. As we approached the county town of Burns (named for the poet, incidentally) so much of the sky ahead had become blue-black that Mrs. Berry decided she would buy a raincoat. At home our season had been so dry she had concluded a raincoat among her gear would be superfluous. In the Burns store they laughed at her. They never stocked raincoats ! It didn't rain there. (It did in the next few minutes !).

At Burns we left our fine highway for a dirt road leading directly south. This road leads through what is called the Harney Valley. In this are two lakes, Malheur and Harney, all that remains of what was a large body of water in an earlier and wetter era. During dry years Harney especially may become dry, and they are always shallow. Here and up the Blitzen River (see Fig. 42), which drains the west side of the Steens the Federal Government has established the Malheur Wildlife Refuge, a haven for waterfowl, deer and antelope.

The rain hindered us little, but by the time we reached Refuge Headquarters, around five o'clock, the clouds were so heavy that one

D. Wilkie.

Fig. 31.—Gentiana ornata (see page 226).

D. Wilkie.

Fig. 32.—Pteridophyllum racemosum (see page 228).

D. Wilkie.

Fig. 33.—Ranunculus traunfellneri (see page 229).

D. Wilkie.

Fig. 34.—Orphanidesia gaultherioides (see page 230).

C. E. Davidson.

Fig. 43.—Seventh Lake of Triglav (see page 281).

C. E. Davidson.

Fig. 44.—Terrain en route to Mount Triglav (see page 282).

W. Schacht.

Fig. 45.—Schizocodon soldanelloides v. alpinus (see page 292).

D. M. P. Holford.

Fig. 46.—Geum montanum (see page 296).

D. Wilkie.

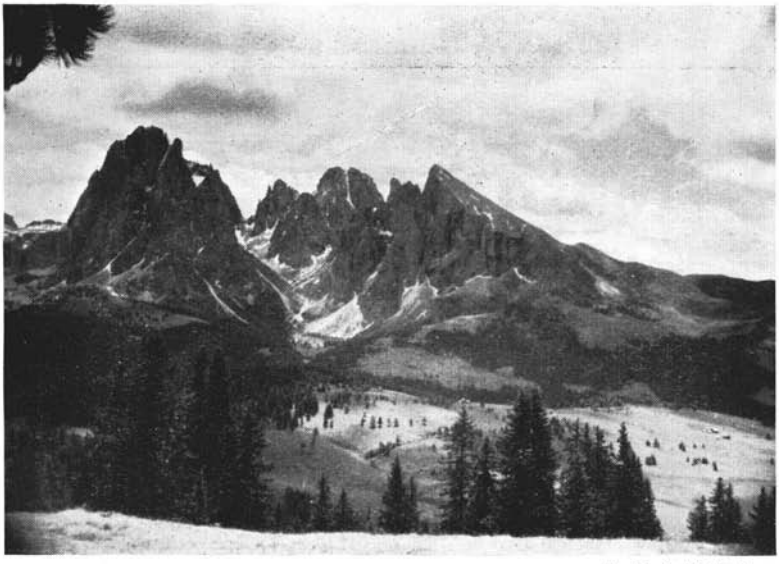
Fig. 35.—Milligania densifiora (see page 227).

B. Muir.

Fig. 36.—A miniature arrangement (see page 262).

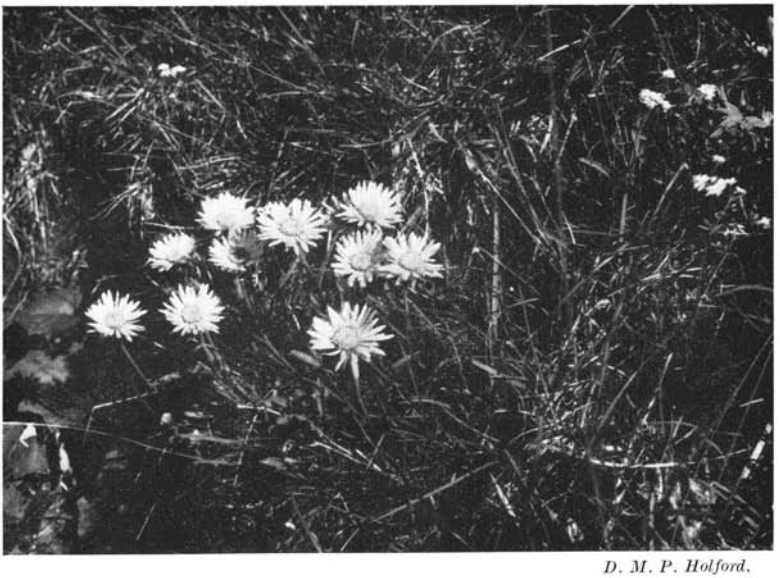
D. M P. Holford.

Fig. 37.—Potentilla nitida (see page 235).



D. M. P. Holford.

Fig. 38.—Sasso Lungo from Alpe de Suisi (see page 235).

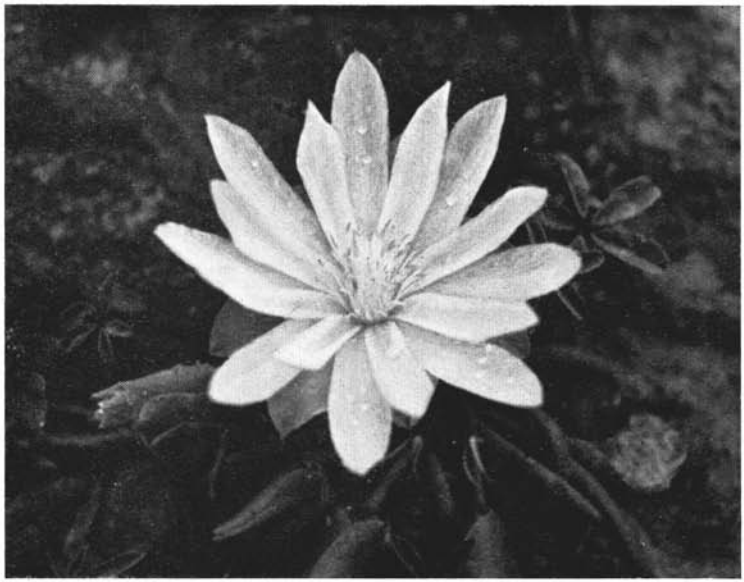


D. M. P. Holford.

Fig. 39.—Aster alpinus (see page 235).

D. M. P. Holford.

Fig. 40.—Viola biflora (see page 235).



E. A. Marshall.

Fig. 41.—Lewisia rediviva (see page 264).

E. A. Marshall.

Fig. 42.—From Canyon Rim, Little Blitzen River (see page 264).

had the impression it must be at least seven. My son declared that there was fresh snow on the mountain. At the insistence of my daughter-in-law we stopped for supper, then drove another thirty miles to where we planned to stay the night, the small country hotel of Frenchglen. It was an eerie drive. There are almost no ranch-houses along the road to show a glimmer of light, and we met just one car. It was not completely dark, and in a sort of ghostly near-darkness one could vaguely see the ridge of the Steens in the east, with patches of snow. Great owls swooped across our way, and sometimes a night hawk (night jar) dipped near, and of course the usual hares and rabbits zigzagged down the road. One felt completely remote, yet completely peaceful.

The community of Frenchglen consists, besides the hotel, of a one-room department store with a filling station for cars nearby, a schoolhouse and two or three dwellings and barns. Upon our arrival we were promptly made welcome and comfortable by our hostess, Eleanor Pruitt. She makes this little hostel a pleasant memory for all her guests: clean rooms, lots of good home food ("homemade bread is so much better") and, more than anything else, her hospitable interest in all comers—fishermen, ranchers and tourists. "Did you make out any better with the fish above the dam?" "Have they started haying on Jackass Creek yet?"

I had hoped the next morning to drive at least part way up the mountain, but the weather still looked very doubtful and I recalled how slippery the road had been in the Spring when we tried to go up. If a hard storm came on, we might be stranded and have to wait several hours or a day or two until it dried out. So we drove a couple of miles to the headquarters of the old P-Ranch, a picturesque spot, shaded by great poplars, with the Blitzen River bordered with willows and wild rose thickets flowing past. This is where the old cattle baron, Pete French, sixty years ago ruled before he was killed by a "nester." The big white house has been burned, leaving the great chimney, but the huge "horse barn" with giant juniper pillars still stands. The P-Ranch now is a patrol station for the south end of the Refuge. Opposite is a lookout tower where roosting buzzards amuse the tourists. In the meadow behind I could hear the raucous call of the great sandhill crane.

From here we drove several miles along the road on the dike which borders the river. I had hoped to find deer in the willows, but the largest creatures we flushed were small flocks of Canada Geese which rose squawking from the stream. Huge families of little quail scurried across into the weeds, and now and then a stately pheasant. Mrs. Berry was especially amused by the sage grouse which casually strolled down the road, disdaining to give us right-of-way. Back at the hotel Mrs. Berry read the newspaper of the previous day for about the fourth time, while I scraped acquaintance with all the varied cats, dogs, small boys and a colt before the Mazamas under the escort of my son arrived for lunch. By the time we had finished this the corner of blue we had been watching spread across the sky so far that we decided we should drive on up and see what we should see.

After driving back by the P-Ranch and across the Blitzen River, our route led directly east up the sage-covered slope. Here in season one may find scattered blooms of the *Calochortus macrocarpus*, a lovely contrast to their dry habitat. One feels so frustrated when they refuse to be domesticated—at least I have heard of no one having luck with them to any extent. Their soft colour and classical form would put garish cultivated tulips to shame. A couple of miles up we stopped where flowers flourished, and I saw for sure that we were late for the big show, as all the sheets of buttercups in the damp places had disappeared, though the clarkia lingered. I never can comprehend why the propagators wanted to change the form of this flower so completely, as while the colour may border a bit on the despised rose, there is such lovely grace in the deep-lobed petals when the winds set the flowers to dancing. Well may it be *C. pulchella.* Here also lingered blooms of pink onion, *Allium acuminatum*, and a little white borage flower. Soon we were a bit higher and into the forest of scattered juniper. The *Artemisia* here is more vigorous, and a large purple *Lupinus*, yellow *Senecio* and bright red *Castilleja* show a daring colour contrast. In a little dip in the road, which no doubt stayed damp later from snow drainage, grew a lovely little yellow dwarf *Oenothera.* (I must try that sometime in the garden ! When we were in this area in June I found plants of what I thought to be a promising *Mertensia*, and remains of what probably were *Sisyrinchium idahoensis.* I do hope I can some Spring go here when these and *Fritillaria pudica* and the *Lomatium* are in flower. Near here one year David found enormous flowers of *Lewisia rediviva*, but we found none this year.

Above the narrow belt of the junipers we climbed ; then up a bit steeper pitch, and the swell of the mountainside flattens to a little bench, in the dip of which lies a lovely little pond, pond-lily dappled, and on the far border of the pond is the first groves of quaking aspen. Here in the Spring the whole landscape is yellow with *Helenium hoopesii.* Among the Helenium one may find in the lush grass a charming little blue *Penstemon*—I wouldn't dare venture the species. To me nothing typifies the Steens as much as the fields of *Helenium* and the lovely groves of great *Populus tremuloides*, their white trunks often almost prone in the exposed places from the heavy winter snows. In the groves are beds of tall *Mertensia paniculata*, attractive here, but hardly a garden subject ; also scarlet *Aquilegia formosa*, *Lithophragma*, sometimes *Arnica* and usually *Thalictrum occidentale.* This western thalictrum may not be as popular for naturalizing, though I think it one of the most interesting, with its cunning brown-fringed blooms and dainty foliage. I am told this country is most beautiful in the fall, when the leaves have turned gold and scarlet and, as one looks upward through this twinkling foliage to a blue-blue sky, it is magnificent.

On this occasion the *Helenium* appeared bedraggled, and there was none of the usual white *Balsamorrhiza* to be seen. From Lily Lake it is a short way to Fish Lake, now a state park. It certainly is a natural park, which for years has served as a picnic spot for the local people for miles around, who have been wont to gather here on holiday

occasions. It is now frequented by fishermen, who at times come from a considerable distance. Here ended our decent road.

Since the party were more interested in nature than in the society of their fellow-men, and since there was a whole mountainside above, and since the sun still shone, after a short stop we decided to continue on as far as we could. We had not gone far when a hail from the rear car halted our leader. Their fuel tank, which had suffered considerable damage earlier on their trip, had finally collapsed. During the halt to reorganize the transportation, Mrs. Berry and I prowled the hillside trying to discover some plant of interest. I recalled here on a previous occasion when we had found *Lewisia nevadensis*. We found not a thing. I began to take notice that under each *Artemisia* shrub was a light layer of green leaves, while the ground generally was sprinkled with green coin-sized leaves of the aspens. A quarter of a mile above is a field of outcropping rock, a wonderful natural rockery. It was with much regret that I noted the lively little *Penstemon davidsoni* were bereft of flowers, only ragged blossoms were left on the snowy white *Leptodactylon nuttallii*, and the velvety *Arenaria* showed few flowers. Through David and Mr. Scharff, the refuge manager, we heard the tale of the scattered leaves and ravished flowers. The day before there had been a tremendous hail storm. That was the new snow Dave had noticed on the mountain. What would the morrow bring, I thought !

Our caravan was again ready to move, and it was an easy distance to a lovely meadow border where David had suggested that we camp. This country was opened for homesteading after the First World War, I am told, and apparently from the markings cut on the huge tree trunks, this was an old camp spot. In fact, from tradition and from the name the local people have for it, this spot had a vulgar past. Now it is all peaceful and fresh. A tiny rivulet spreads across the field before us, with occasional clumps of willows to add to the landscaping effect. The meadow is sprinkled with *Polygonum bistortoides* —a really attractive form of this. In season there is also Grass-of-Parnassus and a showy red bed of large *Pedicularis attolens*. At the far side and at the head of the glen is a low cliff or ledge. Before starting on domestic duties I again hunted for *Lewisia* without success, but found only a few blooms of the *Viola praemorsa* which frequents the open spots. There was a tower of clouds in the south-west, and we hastened to prepare supper and the camp for the night.

And in the morning the sun suggested improved conditions, if not settled sunshine. It was agreed that the touring cars should be left here, while a heavy carry-all and Mr. Scharff—he had appeared in time for breakfast—with a pickup truck should take up those who wished to climb to the summit of the mountain, which is several miles along the crest from where the road ends. Then the carry-all was to return for the rest of the party, including Mrs. Berry and me. While we awaited our transportation we walked on up the road, and on a hillside where snow had probably lingered we found plants of the *Lewisia*, mostly out of bloom ; not that I cared for the *Lewisia*, but

the lack of it had come to signify the barrenness of this expedition. Still no *Hesperichiron*, which I was sure was plentiful. Then our car came, and higher and higher we went. Several miles up we turned over to an old homesteader's cabin, called the El Sandro place. This is a paradise of a camp spot. A lovely tumbling creek is at hand, fed by a big snowbank not far away. Along this grow flowers of all colours and kinds : *Erigeron*, *Sidalcea*, *Camassia*, *Lupinus*, *Potentilla*, *Dodecatheon*, *Mimulus*, both yellow and pink. Earlier the mellower hillsides are spread with sheets of golden buttercups. Across the creek and below is another lovely meadow full of mountain flowers, including a giant *Swertia*, which gives the impression of being a false hellebore. Even on the hillside approaching the cabin are many flowers among the *Artemisia* : *Castilleja*, *Lupinus*, *Penstemons*, and *Horkelia*—or is it *Ivesia baileyi* ? As the car moves through this, the flower viewers hang from the windows. "What was that ?" "Oh, is that larkspur ?" "What is that white ?"

They said there was not time to explore for long, so I led Mrs. Berry to a hillside above, now almost bare, where the snow had only recently left. "If I can only find *it* at least ! So many flowers are spoiled, but surely there must be some of it here. No, that is a *Phacelia* coming ; that is lupin." Mrs. B. looked, David searched, and I scanned the slope. Just as the group called to us to come, I shouted. There, just below a rock was the foliage of *Dicentra uniflora*. No blooms or seedpods, but there was no mistaking it. With a bit more looking we found several clumps. I hope Mrs. Berry has success with growing it. She probably will.

From the El Sandro place the road is a series of crises ; muddy hillsides, high rocks in the centre and steep pitches. We were swayed, jolted and jerked. As we were well up a particularly sharp bump stopped the driver. "Now I wonder if that jolt could have been a spring breaking !" And, as if the weather and the off season hadn't been enough to distress me, with a guest on hand, so it was. There was nothing to do but return. "Well, we can take our time. If you see anything you want to investigate, just say so." There was a hillside I wanted to look over, along the old route into the El Sandro place. By this time the sky had become overcast, and we could hear thunder rolling around the summit, but we were spared any downpour, so we took a leisurely walk around the old trace. It leads along a west slope where one can look down the valley of the little stream and far across to the mountains many, many miles away in the blue hazy west. Near at hand are rocky outcroppings, sandy slopes and little swampy dips just free of the snow. Here I first had found *Dicentra uniflora*. Here also grow many other species, perhaps not precious, but what might not be found ? Of course in the damper spots are remains of *Dodecatheon* and *Ranunculus*. We had found *Hesperichiron* above, though not in its prime, and on this spot it was a profusion of little yellowing leaves. With it were lots of *Lewisia*, whether *pygmaea* or *nevadensis*, who cared, and of course *Allium*. The rocks were most attractive, where grew most interesting plants of *Grossularia lobbii*, and the

dwarf *Holodiscus glabrescens*, as well as the usual penstemons. But noting an especially pathetic little plant of larkspur, with its pretty blue petals scattered on the ground, I concluded one might as well consider it hopeless.

The morning had been glowering, but as we drove down gingerly with the damaged auto, the sun began to show through the clouds. About a mile before we reached our camp I decided to walk in, taking a route which would give me an opportunity to investigate the picturesque cliffs on the east, as well as the meadow itself. These outcroppings are somewhat shaded, and while I found nothing unusual, the sight of little plants flourishing in the cracks is pleasant—even yellow sedum. The meadow I found practically a marsh, but as a reward for wet feet I found plants of the sweet little *Mimulus primuloides.*

We set to work to strike camp, and were only fairly started when Mr. Scharff drove in. He was going back to the crest, and it was suggested that we drive up with him to see the flowers. My daughter-in-law, true to her usual character, urged us to go, saying they would pack for us. At first Mrs. Berry declined, no doubt thinking of the rugged drive, but when Mr. Scharff said it would take only about an hour, she said she would go also. That was about three o'clock. I think it was almost six when we returned here.

Mr. Scharff has been Refuge manager there for over twenty years, and he is always interesting to talk with. So our drive up, though rough, was pleasant through the golden afternoon sunshine. Once he remarked : "See that little stream there ? That was bright pink with *Mimulus lewisii* when I was here a day or two ago." Such was the fury of the storm that there was not a vestige of pink left. He pointed to a cliff in the distance, the lip of one of the big canyons. The dwarf willow *S. saximontana* grew there. We ascended above where our car had broken down in the morning, and then before us was a field, shaded at the hill angle a lovely blue with low lupin. Now while the sun at our backs was bright, above and beyond the mountain dark clouds gave out ominous thunder. As we neared our goal, lightning flashed and almost simultaneously was a great crash. "One couldn't count far between on that," remarked Mr. Scharff. Then we were really in the flower fields. Apparently the hail had not extended to this height, for there were acres and acres of *Lupinus lyalli*, while between were little plants of *Aplopappus* and a low *Eriogonum* that put me onto my knees for its soft white flower clusters which appeared to have been dipped in red paint. I think it is *E. ovalifolium.* And *Astragalus* pods were tempting us to step upon them to hear them pop ; and of course there were dwarf *Phlox* and *Spraguea.*

Mr. Scharff left the trail and drove towards the east, then dramatically set the brake about twenty feet from the brink of that abyss with several thousand feet drop below us. The cliff still harboured snow in the crannies, but mostly it was crag after crag below. Then dimly through the storm we could see the fields quite level and, horizontally, not far away. Mostly the view was obliterated by one of the darkest clouds I ever saw, so black it was blue. Mr. Scharff assured us that

from here one can see four states on a clear day. "I wouldn't have missed this for worlds !" cried my guest, which surely cheered me.

But we left this to return to the flower fields. Mrs. Berry scurried about, making little discoveries. "There is a pure white flowered lupin !" And then, "There is a true pink !" As she started to collect, Mrs. Scharff would take over her pick, while she looked farther. "Now we won't take more of these special coloured plants. We will leave some to propagate themselves. Always leave some good plants." Alas ! If only others were as charitable, especially those not as clever at gardening of wild things as Mrs. Berry.

We realized we must begin our long journey back, as we had far to go. Feeling somewhat consoled by good flowers on the crest, we started down. On our way we met a group on horseback. Not far away a local guide had a camp for teen-age girls, and he was out looking for several horses which had strayed. We were able to report that his stock was above. In fact they had followed us about, apparently eager for attention. I said I had been tempted to mount and ride down. "They have never been ridden," said the owner, which of course raised a shout of laughter at my expense. We also met a state trooper in his car. There was a long conference between him and Mr. Scharff. He made no explanation after he rejoined us, but the gossip afterwards was something about poachers they were laying for. I wonder if the trip with us to the crest was completely for our benefit, but also perhaps partly made as an official duty.

At our camp we found our car ready to roll, and the others already on their way. We had an uneventful trip down, passing in sight of a great herd of sheep with the herder. These are often Basque boys, good sheepmen and intelligent, usually speaking only broken English. Lower down we found cattle feeding, and we knew a "buckaroo" camp was near, headquarters for a rancher who took his cattle on to the mountain for summer feed. We arrived in time to join the party in finishing off one of Mrs. Pruitt's good meals, then drove to Refuge Headquarters for the night. Next day we were home again. Our gardens might be needing water, but at least they hadn't had the fury of hail !

Seeds

By J. M. WALDIE

A NIGHT IN JANUARY 1958. I spent a happy evening browsing over the S.R.G.C. Seed List. What a choice to choose from ! The impossible-to-pronounce-names intrigue me, but on seeking information they too often turn out to be things not suitable for this garden. Then there are less known varieties of well known names. I fancied *Salvia bulleyana*, but could find little about it, except according to Sampson Clay it may be too big for a small rock garden. Still, the colour sounds attractive—"pale or deep or orange-yellow purple marked flowers"—and it can go into the herbaceous border. *Romanzoffia sitchensis* was another item I asked for and received. It is a dainty thing.

JANUARY 31st, 1958. The seeds from the S.R.G.C. were sown today.

APRIL 19th, 1958. Today I pricked out *Salvia bulleyana*, and I never saw a *Salvia* look less like one ! I think I have a nice healthy pan of *Dianthus*. Time will tell. I was surprised to see a good show of seedlings in the *Romanzoffia sitchensis* pan, as I did not think it was all that easy. By the time they were large enough to prick out I saw they were not *Romanzoffia*.

JANUARY, 1959. "*Romanzoffia sitchensis*" grew apace, and was planted in the rock garden in autumn. It is *Dianthus deltoides*, a dark-leaved form. "*Salvia bulleyana*" is still in pots waiting suitable weather for planting. It also is a *Dianthus*, one of the grey cushion forms.

JANUARY 28th, 1959. S.R.G.C. seeds received yesterday, and sown today. I wonder what surprises are in store this year ! "Blue Tiger Lily," N.Z. ? Seed of this I got from the S.R.G.C. in 1957. There are two seedlings with leaves rather like Gladioli. I can find nothing under this name. Could the member who contributed the seed (or someone else) give any information ?

Lymington, Hants. J. M. WALDIE

The Basket

By "LOCUM TENENS"

PERHAPS I am a criminal. I do not really know, but this is what happened.

We were in London. I do not go there very often, because I like being at home in Scotland better. On the other hand, I am sure that it is a good thing to get away from the garden sometimes. I ought to do so more often. Moreover, I find that I get ignorant of the ways of big cities. But that has not got much to do with this little story.

It was shortly before Christmas and I had need of a small cardboard box for sending away a present. I could not find one, but my wife

said that a certain multiple store not far away was just the place to buy such a thing.

I went there. Inside the swinging glass doors was a pile of attractive-looking openwork plastic baskets with a notice above them saying "Please Take One," so I did. I went all round the store and, though there were many charming articles for sale, there was no empty box of the size I wanted. Thereupon I took my leave, clutching the attractive basket in my hand. Arrived back, I displayed it to my wife and suggested that she too might go to that store in the afternoon and get another of these wonderful baskets.

Though I went with her, I stayed outside and watched proceedings from there. I saw her take a basket and then walk round picking up one or two things to put in it.

When she came out she was carrying the one or two things but no basket. Cross-questioned, she told me that on the way out she had handed the basket to the man at the cash desk and paid for its contents, but he had not returned the basket. Since then I have consoled my conscience with the memory of that notice saying "Please Take One."

And so back to Scotland, where a walk round the garden makes me realise that Nature is a far better gardener that I shall ever be. All the same, I am at the moment busily engaged in planting up an attractive open-work plastic basket to hang over our front door.

A Selection of Dwarf Shrubs (continued)

By A. EVANS

Ribes (Saxifragaceae). The family to which this genus belongs embraces a great many rock garden plants, and *Saxifraga*, from which this natural order takes its name, is well known and widely cultivated. *Ribes*, on the other hand, contribute very little to the rock garden and practically all the species are only suitable for growing in shrub borders (The Flowering Currants) or in the fruit plot (Gooseberries). In keeping with other genera, however, the *Ribes* have their exception and this species can be considered a suitable inhabitant for certain rock gardens.

Ribes laurifolium is a dwarf evergreen shrub native to China and was introduced into cultivation at the beginning of this century. The ovate leaves are coarsely toothed, leathery in texture, glabrous, and in colour they are dark green. Its flowering period is February and March, a time when few other plants are in bloom, and the greenish yellow flowers produced on pendulous racemes average 9-10 flowers on each inflorescence. Planted in a soil of good texture and in a sheltered position, *Ribes laurifolium* can be expected to thrive.

Rosa (Rosaceae). This genus is one of a very large family of plants. Included in it are numerous colourful and attractive species, varieties, and hybrids, the most universally grown being the Hybrid Teas and

the Floribunda (Polyantha) types. These, of course, are totally unsuitable for planting in the rock garden, but there are one or two species of dwarf habit that can be used there by the collector. These low-growing species require the same sort of treatment as their more robust relations and should be planted in full sun. Pruning consists of cutting out all dead wood in spring and removing spent shoots.

Rosa chinensis minima can be accurately described as a miniature H.T. rose. It blooms all summer and the tiny, perfectly formed flowers are proportionate to the size of the bush. They measure up to 1 in. across and may vary in colour from light to deep pink. The maximum height of the bush is approximately twelve inches, but severe pruning is necessary to retain vigour in the plants and ensure reasonably large-sized flowers.

Rosa nitida is a North American species of low stature. In July, the bright red flowers are formed on the side shoots which arise on the sucker shoots of the previous year. This habit of annually producing fresh shoots from the base ensures that the plant does not exceed the desired height. However, the suckers may travel a little way before appearing above the soil and then it becomes necessary to remove all those which have travelled too far. Propagation is simple done here, for new plants can be obtained by lifting these rooted suckers and planting them directly into their new quarters.

Rosmarinus (Labiatae). This shrub may be a trifle large for the normal rock garden, being a plant which will ultimately reach 4 feet. On the other hand, if placed on a dry sunny bank which might easily adjoin the rock garden, the 'Rosemary' will thrive, flower, and scent the air in the vicinity. It will not grow satisfactorily in shade, but must be planted in an open situation free of any overhead canopy.

Rosmarinus officinalis (The Common Rosemary), is the only hardy species. It flowers during May and June, when the plant is smothered with light violet flowers. The evergreen leaves are themselves attractive and are $1\frac{1}{2}$ inches long by approximately $\frac{1}{8}$ inch wide. The upper surface of the leaf is dark glossy green, while the white underside is an ideal contrast. *Rosmarinus officinalis* is to be found growing wild in many areas of South Europe and Asia Minor, where it is not an uncommon plant. It is indeed fortunate, therefore, that this Mediterranean species has proved to be hardy here.

Rubus (Rosaceae). The knowledge that the Raspberry and Bramble belong to this genus should not deter rock gardeners from including some of the smaller-growing species in their gardens. Well cultivated loose soil which will never be allowed to dry out in summer is sure to suit these plants. A site in full sun or partial shade will produce almost similar results, for it is the moisture content of the soil which is the most important factor.

Rubus arcticus has a shrubby root stock from which shoots arise annually and on these the flowers are borne. It may not be correct to classify this plant as a true shrub, but as it is a Rubus of dwarf habit it is included here. In summer, the 6 in. high stems carry at their tips one or two fairly large rose-coloured flowers. This plant is

spineless and pruning back in spring just before growth starts encourages strong shoots, and in addition it is recommended that it be grown in rich soil.

Rubus parvus is a dwarf evergreen shrub with a prostrate habit. The leaves are firm and lanceolate and measure up to 3 inches long with sharply serrated margins. The trailing shoots are armed with a few spines, and where these branches are in close contact with the soil roots will develop at the nodes. This species is a New Zealand native and said to be doubtfully hardy, but if planted in full sun where the shoots will not be too soft when the frost comes in winter, it will survive. The large white flowers appear in May and June.

Ruscus (Liliaceae). This is a dwarf evergreen, shrub-like, liliaceous plant which, although bearing only the smallest of flowers, is useful as an inhabitant of shady places. It will grow almost anywhere, but, in exposed places, the leaves tend to dry out and turn brown immaturely. Healthy plants, however, are decorative and when planted in shady corners they grow much more vigorously and become established more easily. Division of large plants is the method employed to increase stocks and this operation is best done in the spring. Some fine compost should be prepared prior to transplanting as the roots of this genus are entwined with each other and a coarser mixture would not penetrate the root ball sufficiently to exclude the large air spaces.

Ruscus aculeatus (The Butcher's Broom), is the species most widely grown. It will reach two feet in height and, due to its suckering habit, will eventually form a thicket of shoots. The leaves, or—to be more accurate—the modified branches, are sharply pointed so that the shrub takes on a defensive character. The flowers are insignificant but it is interesting to note that they appear in the centre of the modified branches. *Ruscus aculeatus* is a European native with a natural habitat which includes Southern England.

Ruscus hypoglossum is native to South Europe but like the previous species it thrives well in Britain. Because of its much larger, softer branches, which without doubt are more handsome than *Ruscus aculeatus*, *Ruscus hypoglossum* is much more desirable. In size the average modified shoot is 4 inches × 2 inches and both surfaces of these light green shoots are polished. This species will also respond to shelter from strong sun and drying winds and can be greatly recommended as a useful shade bearing plant.

Salix (Salicaceae). To the rock gardener some of our native willow species and hybrids are exceedingly useful as specimen shrubs or carpeting plants. They are plants of character and their twiggy, twisted branches give an air of solidarity and age and provide the rock garden with a permanent, settled appearance. Those willows recommended for the rock garden are all low-growing and, regardless of the aspect, they will spread over the surface of the soil, in some cases rooting as they go or following the shape of a rock which happens to be in their path. In fact, the ultimate shape of the plant is greatly enhanced where a rugged rock has become embedded in the plant so that even more character is given to an already attractive dwarf shrub. The catkins

are a well known feature of the willows, and in some instances they can be quite large and woolly, but in others the sharply defined venation, or the thick felt covering on the leaves, are additional attractions.

Salix apoda is a dwarf creeping alien species which, during late March, can be exceedingly handsome with its numerous upright reddish catkins. These are produced in great numbers on the sprawling, ground-hugging stems. There are male and female forms, both of which are desirable. It is a Caucasian native.

Salix herbacea rarely exceeds three inches in height, always remaining exceedingly dwarf. The stems form an uninterrupted carpet, rooting as they go and then they in time are effectively hidden beneath the close covering of the numerous tiny glossy leaves. April is the month the catkins are to be seen, when any doubts of its value to the rock gardener will be dispelled.

Salix lanata can only be recommended as suitable for the larger rock garden, as plants three feet high and four to five feet through are not uncommon. Nevertheless, where space can be found, this outstanding willow should be considered before many other shrubs. The leaves during spring, just as they are unfolding and developing, are covered with a dense woolly layer which makes the plant conspicuous. Plants are of separate sexes, the female having the larger catkins, but when in flower in early May few shrubs attract more attention. It is found wild in Asia and North Europe, with Scotland listed as one of its stations.

Salix myrsinites is another of the dwarfer-growing species with a stature of scarcely twelve inches. Due to this, it is useful as a permanent inhabitant of character for the smallest of rock gardens. The bright green leaves are glossy on their upper surfaces.

Salix repens, as the name suggests, has a creeping habit and, once established, will soon cover a reasonable area of ground. Although barely two feet high, its rapid spread restricts the gardener in his choice of neighbour for this species, as only plants which are themselves vigorous can compete with it. The leaves are quite tiny and are silky on both sides and are distributed along the slender arching branches.

Salix reticulata is perhaps the best of all the dwarf species and is readily identified by its low procumbent habit. Also its large ovate leaves, which have their veins so beautifully and delicately defined, are quite distinctive. Its rate of growth is slow, but even the smallest specimens are desirable. The shoots are short and twiggy, and in winter, after the leaves have fallen, they can be seen hugging the contours of the rock as though in desperation for a secure hold. All this is hidden, however, once the large leaves blanket the shoots and ground. The narrow catkins are approximately one inch high and give the plant a spiky appearance during its flowering period, but on the whole one cannot visualise anything which would improve the character of *Salix reticulata* once it has donned its leafy mantle. Fortunately Scotland is amongst the European countries which claim it as a native.

Santolina (Compositae) is a genus of few species and these are native

to the Mediterranean region. They are more or less hardy, but, like most plants from that area, they should not be grown in too rich soil lest the shoots fail to ripen. Therefore, to guard against this, they should be planted in full sun in a soil which is poor and sandy. In fact it is only in dry sandy sun-baked situations that their real beauty is fully developed. Furthermore, where drainage is bad, root rot is not uncommon. This could result in the death of the plants, or at best badly developed ones. Propagation is a simple matter and consists of taking cuttings of the side shoots in July. If placed in an outside frame in a sandy mixture and kept closed and shaded, they will root quickly. Included in *Santolina* are two species which can be recommended to the rock gardener, although the first mentioned may spread more widely than some may wish.

Santolina chamaecyparissus (Lavender Cotton) is completely hardy in this country. It has been known for more than three centuries and is a native of Southern Europe. It forms a dense spreading shrub which can be held in check by pruning just before the growth starts in spring. It is evergreen, if that is the correct term, for here the foliage is almost pure white, so that a plant of this species is a spot plant or foil the whole year round. The leaves and shoots are covered in a white silky down which is permanent and does not wear off with time. Unfortunately, in the town, the colour may become a dingy grey due to soot deposits, but one can hardly condemn the plant for this. Its flowering months are July and August, when the whole plant becomes a dome of yellow. Although belonging to the "Daisy" family, *Santolina* has only disc florets, but so numerous and bright are these yellow flowers that the lack of ray florets is only noticed by those inspecting the erect flower heads and not because there is a shortage of colour. Two feet is the ultimate height of *Santolina chamaecyparissus*, but its lateral spread can be much greater.

Santolina virens, as the name implies, has green foliage, and in addition the plant is quite glabrous. The leaves and stems are a good strong shade of green and like the previous species the flowers are yellow. In Edinburgh, however, this species has not had a long life and care must be taken with the choice of situation if it is to survive. Sharp drainage is essential if plants reaching eighteen inches in height are to be cultivated.

Sarcococca (Buxaceae) is a race of evergreens native to Asia. They are related to the well known "Boxwood" but their habit of growth is entirely different. These species spread by means of sucker growths and, in time, can make compact colonies of shoots. One great advantage is that the *Sarcococca* will grow in shady places, in fact it prefers partial shade to full sunlight. If, in addition, the soil is open and contains ample humus and moisture in summer, the conditions will be ideal. There is such a demand for plants which will tolerate shade that it is surprising the shade-bearing ability of the *Sarcococca* species has not been more fully publicised. Plants may be increased by division of the colonies in April and September, working fine soil into the roots

as transplanting is carried out. On no account must drought be allowed after this operation.

Sarcococca humilis was introduced from China by Wilson more than fifty years ago. It flowers during January and February, when the numerous but not too brightly coloured flowers impart their delightful scent, although naturally this is not so obvious in the open as indoors. The elliptic leaves which measure up to two and a half inches long, are bereft of pubescence and are quite polished, although the shoots are downy. Eventually a stature of two feet may be reached, but a few years must pass ere this is fact.

Sarcococca ruscifolia is neater and smaller than *S. humilis*, growing to scarcely eighteen inches. Flowers may be seen any time during January, February, or March. These are pure white and delightfully fragrant, and the shrub is further enhanced by the glossy, dark green, ovate leaves. Fruit when produced is deep red, although fruiting is not a strong point in the north. Without doubt the main beauty lies in the handsome evergreen foliage and the compact habit, while the ability to flourish in partial shade is a capacity none too frequently met.

The American Rock Garden Society

Probably most members are aware of the existence in the U.S.A. of a Society comparable with our own. Some members may have wished to join this Society, but have been deterred by the apparent difficulty of transmitting their subscription.

We understand that this difficulty is not insuperable. Permission has to be obtained from the Exchange Control in the first place and evidence has to be supplied of the existence of the Society and its membership fees. Having secured sanction, the member obtains a draft from his Bank and forwards it to the Society. In practice it would probably be best first to consult one's Bank, which could supply advice and the appropriate forms.

The annual subscription is 3½ dollars, or 10 dollars for three years if paid in advance, and the Secretary, who will send further particulars, is Edgar L. Totten, 238 Sheridan Avenue, Ho-Ho-Kus, N.J., U.S.A.

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

Another Beginner's Story

By J. E. L. MURRAY

I SUPPOSE it all began with a short holiday in Switzerland, when I was delighted by the alpine flowers, and could not resist bringing back pieces of some of the commonest. At that time I was already definitely a gardener, but the garden was not my own and I knew that I would soon have to leave it. So I gave my Swiss spoil to a friend who had better facilities, but the only success was an unintentional one, a campanula seedling, which came back to me as a neat little plant.

When my husband and I came to Scotland, with a permanent home, this plant came too. Perhaps it was just as well that there was no rockery for it, because the neat little plant soon ramped, and had to be dug out from one position after another. I firmly identify it now as *Campanula cochleariifolia* (*pusilla* if you prefer) and it still delights us, but relegated to a stony no-man's land where it is very effective against annual weeds.

I was in no doubt that there would be a rockery eventually, but first it was necessary to turn a wilderness into a vegetable garden. In places the second spit yielded sizeable chunks of sandstone, which were left out to weather. The site of the rock garden chose itself, where the slope of the lawn sudddenly sharpened enough to make mowing difficult. So a few square yards were trenched, the turf being buried, except that the dandelion roots were carefully picked out. Then I got hold of Mansfield's "Alpines in Colour and Cultivation," and began to lay the stones according to his rules. Many of these chunks of sandstone were so amorphous that it was a puzzle to know which way to lay them, but I created some effect of stratification. The stone is rather a harsh red when wet, but a growth of moss has improved the look of what is still visible between the plants. A later enlargement used stone hand-picked from the beach for shape and colour—and why shouldn't a natural outcrop have strata of different stone laid conformably ? Then, still with Mansfield as my only guide, I ordered some plants, from the catalogue of an English nursery. The small scale of the rockery made me rule out most of the things I could remember from my mother's garden—*Aubrieta*, *Alyssum*, *Helianthemum*, etc.—but some of my choices have proved quite as greedy of space, having far exceeded the scope given in the book. I tried to spread the flowering season, from *Saxifraga apiculata* to *Polygonum vacciniifolium*, with *Erodium reichardii* v. *roseum* for most of the months between, and so on, while restricting myself to those in the cheapest range, as likely to be easy. Before getting a second batch of plants, I made enquiries and learnt of a nursery in this county, specialising in alpines. It was much more satisfactory to visit this and see what I was buying, and I also got most helpful advice.

Before mentioning successes or failures, I should explain about situation and soil. The site is about 100 yards from the sea, with a south-east slope. After a gale off the sea we often wonder why we grow anything but alpines, which don't need staking and don't get

blasted. The soil is light and rich, and strongly alkaline from shell fragments. The natural drainage is rather too good, and the average rainfall less than 30 inches here in the East Neuk of Fife. An early failure was a sunny scree, constructed according to formula. After several plants had quickly died there, I worked in more and more soil until it no longer got washed through by the rain, and piled up more at the head of the slope, with much better results. This was before reading "Too Much Drainage" in No. 22 of the *Journal*. With Mrs. Boyd-Harvey's moral support, I now grow my "scree" plants on the top of the rockery, or with surface chips or both. But the stony mixture that resulted from the unsuccessful scree seems to suit *Potentilla nitida*, which flowered well this year and might find our natural soil too rich.

Among the plants which we find particularly successful are *Saxifragas* various (and I can never have enough of the Kabschia group); also *Geraniums* and *Oxalis*. I did not know that *Oxalis inops* was doubtfully hardy until reading the President's article in the April *Journal*, and so grew it with no special attention. After that we were worried and looked daily for signs of life, and were almost despairing before the first leaf appeared on May 20th. In fact, our position near the sea saves us from the worst frost, and winter wet is probably more of a danger to alpines here.

Although the rockery proper is definitely mine, my husband shares my interest in it, and has had many ideas for enlarging our scope. These include a dry-stone retaining wall which has been built to level up the lawn and provide new habitats for rock plants. Then came a special bed near the house, for *Erica carnea* in variety. We have so far avoided real lime-haters, but are considering a small trough for Asiatic gentians. We also have a steep sunny bank, where surplus creeping plants have been put to hold up the soil, and this is sometimes the showiest part of the garden. Incidentally, *Oxalis chrysantha* survived the winter of 1957-58 in this bank, with no protecting stones, and started into growth sooner than in the rockery proper.

I joined the S.R.G.C. rather over a year ago. My husband wondered whether the 10/- subscription would not be better spent on new plants. Admittedly membership adds to the expense of this hobby, with the cost of getting to meetings and shows, and the constant incentive to grow more ambitious, choicer, and rarer plants. But I find it good value for money all round, and particularly the seed distribution, which gives amazing opportunities for experiments and dreams. I have had a fair measure of success with my first year's seed, and am hoping for more after frost treatment. I also had some success at the Dunfermline Show, and gained some experience, the hard way, of what will or won't stand being lifted from the open ground in June. (No fatalities, I'm glad to say).

I've learnt something in four and a half years of rock gardening, but I don't suppose I can teach you anything. However, I got some pleasure from recalling it all as I wrote, the day after reading No. 23 of the *Journal*. If you want a moral, it is this : if you can write anything, do it while the Editor's appeal is fresh in your mind !

The Julian Alps, 1958

KTANJSKA GORA & TRIGLAV DISTRICTS

By C. E. DAVIDSON

KOMNA DISTRICT by B. B. CORMACK

THE JULIAN ALPS lie in N.W. Slovenia, most northerly province of Yugoslavia. They are composed largely of Dolomitic limestone, and possess a flora similar to that of the Eastern Alps. They are also one of the few stations of the rare *Campanula zoysii.*

Last summer, with Dr. and Mrs. Cormack, we arranged to spend two weeks in these mountains, dividing the time between the north and south slopes of the range. The last stage of the journey was by coach through Carinthia, and, early in the morning of 1st July, we crossed the frontier by a pass in the Karawankens, and had our first view of the Julians. They are certainly impressive—range upon range of pale grey precipices sweeping up to jagged, towering peaks. The intersecting valleys are deep and densely wooded.

Dropping down to the valley of the River Save, we soon came to the little town of Kranjska Gora, where we turned south up a side valley, and, after climbing gently for about a mile, reached our destination, the Hotel Erika. This hotel is most comfortable, and ideally situated, with a background of woodland and views of the mountains in every direction.

We spent a week in the valley, and left it with regret. The woods themselves were an enchantment. One could wander for miles along winding paths, where filtered sunlight lit up groups of *Cyclamen europaeum*, or the delicate spikes of the Red Helleborine, the Butterfly Orchis, and a host of woodland plants. In more open ground, we were astonished to see *Saxifraga caesia, Dryas octopetala* and other high alpines growing in walls by the roadside at little more than 2000 ft. above sea level. *Campanula zoysii* was discovered within two hours of our arrival. It was plentiful at low levels, but invariably grew in rocks, or among stones, and was extremely difficult to collect. Nowhere did we find it above 5000 ft.

Often in company with *C. zoysii*, and always on stony ground, grew *Aquilegia einseleana*, a dainty plant some 10 ins. high, with flowers of a deep, warm purple. Other plants of interest were *Rhododendron hirsutum*, which was abundant everywhere, even in light woodland ; *Genista sagittalis* ; and *Primula auricula albo-cincta*, which has a farinose margin on its leaves, and flowers of a clear, soft yellow. It is common throughout these ranges and usually, but not always, a rock-dweller.

Many pleasant and profitable days were spent on screes above the tree-line, where, amongst *Thlaspi rotundifolia, Petrocallis pyrenaica* and other plants associated with limestome scree, we were delighted to discover *Soldanella minima.* This tiny plant has round leaves, and flowers of white or palest mauve, streaked inside with purple.

The happiest hunting ground, however, proved to be the Vrsic Pass. We had explored in this direction, but, caught in the inevitable afternoon thunderstorm, have never reached the top. Early one morning we set off in the hotel car, driven by the Director himself, and took the steep road out of the valley on the west side which leads to the Pass. Instead of panting up on foot, it was pleasant to sit back and watch sunshine lighting up the high peaks, or admire the gold of laburnum trees on the cliffs contrasting with the dark green of conifers. *Aconitum, Verbascum, Helleborus* and *Digitalis* (*lutea*) grew by the roadside. Continuing over the Pass and down into the Trenta valley, we stopped to look at the statue by Mestrovic of Dr. Lulius Kugy, national hero and a mountaineer of great repute. A little rock garden encircles the base, planted with alpines of the district. Further down the valley we came to the Juliana Alpine Garden, built by Albert de Bois Chesne, friend of Dr. Kugy. In this garden there is a complete collection of plants of the Julian Alps. It is now well-tended, and a memorial to the founder was to be unveiled that day. We spent the afternoon on the Vrsic Pass. Here grew great drifts of *Rhodothamnus chamaecistus* and *Potentilla nitida*. Side by side with *Myosotis alpestris, Alyssum wulfenianum* (*ovirense*) rambled amongst scree. This is a prostrate plant, the flowers an attractive shade of yellow. In short turf, the orange of *Crepis aureus* contrasted well with the bright blue of *Gentiana tergestina*.

Two days later we left the Erika by charabanc and, stopping at Bled for lunch, arrived in the later afternoon at the Zlatorog Hotel on the west shore of Lake Bohinj. The lake and surrounding scenery are magnificent, but we were somewhat depressed to see that this end of the valley is completely shut in by an amphitheatre of cliffs 3000 ft. high. Clearly, to get anywhere near our main objective, the Triglav, highest mountain in Yugoslavia, and nearly twenty miles distant, we should have to spend at least two nights in mountain huts. A day or two later we climbed the cliffs by a zig-zag path through woods to the Komna, a vast undulating plateau thickly covered with *Pinus montana*. Here we parted from the Cormacks, and started on our long trek. The going was rough and tedious, and apart from *Gentiana clusii* and *G. tergestina* there was little of botanical interest. Towards evening we reached the Seventh Lake of Triglav (see Fig. 43), the lowest of a chain of lakes which extend along the route. The lake was a brilliant emerald green, and on the grassy banks were quantities of *Gentiana clusii. Ranunculus traunfellneri* and *Potentilla clusiana* were growing nearby.

We had comfortable bunks for the night in the Seventh Lake hut, and were off before 6 a.m. the next morning. Soon we were above the tree line in a world of screes and boulders. Many plants grew in the screes—everything, in fact, that we had seen in the Kranjska Gora screes, and more, notably *Anemone baldensis* and *Papaver alpinum*, both white and yellow forms. Four hours' walking brought us to the next hut. These huts can be recommended. Run by the state, and often staffed by girl university students during the holiday months,

travellers are assured of a welcome, hot food, a clean bunk and plenty to drink—an important item in this arid country. Supplies are brought up by donkeys or ponies. As we reached this particular hut, we witnessed the arrival of a donkey, laden with meat and bottles of beer. His behaviour caused great amusement. Relieved of his load, he heaved a sigh, stepped into the hut and brayed deafeningly for nourishment —which was promptly forthcoming.

Beyond this hut the climbing became really steep. On the top of a pass at about 8000 ft. we saw an amazing sight. On a small patch of scree were concentrated no less than 12 species of alpines, including *Eritrichium nanum*. It was a blaze of blue, pink, mauve, white and yellow. Why they should have become established in such force on this particular scree is a puzzle, and *E. nanum* on limestone is still more puzzling. The Triglav should have been visible from here, but it was shrouded in thick mist. Another three hours' hard going and we arrived at the hut which stands on a plateau 900 ft. below the summit. This was also in mist, and it was very cold. Numerous tuffets of *Eritrichium nanum* grew round about (see Fig. 44).

Next morning the sky was cloudless, and we gazed with interest at the route to the summit, but time did not permit of going further. In spite of frequent stops for photography, lunch at the "Donkey Hut" and a dip in the Third Lake, we were back at the Seventh Lake by 5 p.m. While having a drink in the hut, the manageress told us we need not go back to the Komna—there was a much quicker route. and a short-cut down the cliffs, which would take us to our hotel in three hours. We had misgivings about the short-cut, but decided to risk it, and congratulated ourselves as we walked along an infinitely more pleasant path through woods ; and here we came upon one of the loveliest sights we have ever seen. At the top of a grass bank, against a background of grey rock, were hundreds of *Lilium carniolicum* in full bloom, the orange-scarlet flowers dazzling in the rays of the setting sun. His last film was unfortunately finished, but J. remarked that he would return next day and take photographs. Soon we came to the Short Cut. From the top of the cliffs it looked terrifying, and the thought occurred that one slip would make a very short cut indeed ; but there was no turning back. Plastered against the sheer face of the rocks, it was appallingly steep and narrow, and in a shocking state of disrepair. While stepping across a large crack, we had, literally between our feet, a stupefying view of the valley floor some 2000 ft. below. Tired, and with dusk falling, we were mighty glad to get off that path.

Next morning there was a marked lack of enthusiasm about *Lilium carniolicum* ! We spent the day—our last in Slovenia—sunbathing and swimming in the warm waters of Lake Bohinj. If anyone who reads this feels an urge to photograph these wonderful lilies, we will gladly explain exactly how to get there—but don't ask us to come too.

C. E. D.

KOMNA

WE PARTED from our energetic companions and made our headquarters for a couple of nights at the Dom na Komni and explored some of the range to the south-west of the Komna plateau. The Dom is a very large mountain "hut," really a hotel, simple and spotlessly clean, accommodating about 90 visitors. An austere three-storey building, it is a welcome sight after the long tedious zig-zag path up the cliffs.

After booking a room—by sign language—we set off towards the mountains. Within a short distance of the Dom we came upon a few *Lilium carniolicum* and near by *Lilium martagon*. The path wound up and down through scrubby growth of *Pinus montana*. In many places *Clematis* (*Atragene*) *alpina* was climbing among the branches and growing beside the brilliant pink *Rosa alpina* ; it made a lovely picture. *Homogyne discolor* has a dull flower, but its shining dark green leaves, purplish-red on the underside, were very attractive. The plateau ended in a grassy valley, where cattle were grazing. A number of ruinous buildings, probably barracks used in World War I, were used as cowsheds. *Myosotis alpestris* was growing all round the buildings and *Linum alpinum* in many shades of blue, as well as a charming white form. Among the lush grass in a hollow, which must have been a well, were the bright yellow flowers of *Viola biflora*. In damp ground at the foot of the cliffs there was an attractive *Primula veris* and the dainty white flowers of *Pinguicula alpina*. *Armeria alpina* was everywhere in every shade from palest pink to deep rose. It was getting late, so we decided to return the next day and follow the main path towards Bogantin.

We woke early next morning and looked down from our bedroom window on Lake Bohinj far below, shrouded in fleecy mist, while we were in brilliant sunshine. We followed the same route to the green valley, where we found the path flanked by tall spears of *Gentiana lutea*. Before long we climbed into another little valley, pink with a carpet of *Silene acaulis*, sheltered on three sides by hills and to the north a wonderful view towards the Triglav. The distant mountains were hidden by mist and we wondered how C. and J. were faring. We had not seen much variation of colour in *Gentiana clusii*, but here we found one of delicate sky blue and beside it was a clump of *Silene acaulis* with deep crimson flowers. Further up, the ground was covered with dwarf willows.

Bogantin is one of the range of mountains which form the southern limit of the Julian Alps, falling away very steeply to the valley of the Soca. Except for the Krn, none of these mountains rise much above 6000 ft., but nevertheless there is a wealth of interesting plants to be seen and we missed the expert eyes of C. and J. to help with identifying many things. On this ridge was the only *Androsace* we found, *A. villosa*, and here it was plentiful, growing among a very dwarf form of *Leontopodium alpinum*, *Silene acaulis* and a dwarf *Phyteuma*. Great mats of *Potentilla nitida* in full flower in many shades of pink as well as a lovely plant with white petals and deep pink stamens.

Looking over the almost sheer drop to the south, we were surprised to see the flat roof of a building about 100 ft. below us. On somewhat timid investigation—it was too steep to approach close—it appeared to be quite a large concrete gun emplacement. Not so surprising when one realises that this ridge had formed part of the Italian-Slavonian frontier. On the way down, on a damp slope we came across a large expanse of a *Primula* which, judging by the number of withered flowers must have been a mass of colour earlier, but now there were only a few pinkish-mauve flowers left. It has since been identified as *Primula clusiana*. Growing nearby were *Saxifraga aizoides*, *Polygonum viviparum*, *Dryas octopetala*, dwarf willow and thyme, reminiscent of Scottish mountain flora. On lower slopes were some good plants of *Daphne striata* and *Rhododendron hirsutum*. And so back to the Dom and an excellent dinner.

Next day we decided to try to get to some inviting-looking screes east of our previous day's walk. Not wanting to face the inevitable sardines again for lunch, we tried to convey to the cheerful little waitress—all smiles and good humour at 6 a.m.—that we would like hard boiled eggs. E. drew an egg, which conveyed nothing, so he drew a little hen in front of the egg and at once she went into fits of laughter. "Yachka," said she, and rushed off to the kitchen, still laughing. We got our "yachka" and set out. We took a path which led up and down through hot little valleys, always hoping that round the next bend the way would open to the screes. Many lovely plants were seen. A large pink compositae, probably an *Adenostyles*, was beautiful against the dark green of *Pinus montana*. We saw quite a lot of *Lilium carniolicum* and *Aquilegias* were prolific all over the area. In one place only we found a big clump of *Aster alpinus* and near by were several of the dark crimson *Nigritella nigra*. There were many small *Gentians*, pale lilac *Erigeron alpinus*, *Viola biflora*, *Crepis aurea*, and the fluffy seed heads of a *Pulsatilla*, but no flowers.

Leaving the valleys for more open country, we found we were still a long way from our objective. *Sedum roseum* was growing on the cliffs, the leaves more serrated than those we see on the hills in Scotland. We did not find any outstanding new plants in this area, but there were several *Pedicularis* ; one very deep maroon was a particularly attractive plant. It is a pity that it is impossible to bring these *Pedicularis* into cultivation. *Horminum pyrenaicum* was growing in crevices in the rocks, the flat rosettes looking like *Ramonda*, and there the flower stalk was only 3-4 inches high, making a much more interesting form than when it was growing in turf. A gathering storm made us abandon hope of reaching the high screes and reluctantly we made our way back to the Dom. The laughing waitress greeted us with "yachka" and drew a hen on our bill ! And so down the zig-zag path to the Hotel Zlatarog, eager to hear of the Triglav adventures.

B. B. C.

"If only I had known" . . .

By J. G. COLLEE

THIS IS a phrase used by all gardeners who have had the experience of laying out a garden, and the older the gardener is, the more often this phrase is used !

If we could alter the general layout of our gardens, experience gained throughout the years would prevent many mistakes we made in the early days. Perhaps these mistakes were not so much due to inexperience as to impatience. We desired to have the finished article in next to no time and, having this idea uppermost in our minds, we planted in masses in order to create as quickly as possible something which we could show to our friends. Mats of *Aubrieta, Iberis, Phlox* and *Alyssum,* to mention only a few, quickly covered the area where they were planted and they spread so rapidly that any tiny treasures planted near them were completely overrun. For years we toyed with the idea of uprooting these rampagious growers, but this never took place, because we could not bear to denude our rockery of that lovely blaze of colour in spring, knowing full well that some day we WOULD have to apply ourselves to this task. Strange to say, our mind was made up for us, leaving no alternative. The heavy rains experienced last year washed away a great part of the banking and then and there a "Council of Restoration" was formed !

It is absolutely impossible for two or more gardeners to agree as to the formation of a garden plan, and the best plants to use in any scheme of improvement so that many days—and nights—were spent before an actual plan of campaign was arranged.

The background of Veronicas, Rhododendrons, Azaleas, Fuchsias, and Conifers was left as it was, having fortunately not been affected by the landslide. The damaged rockery was repaired and all the masses of plants involved were removed to another part of the garden. Now came the actual work of replanting and renovation.

A prominent place was found for that harbinger of spring, *Anemone hepatica.* Its bright blue flowers in February make it a worth-while subject for any rockery, even though its foliage later in the season becomes rather untidy. A small, north-facing drystone dyke formed an excellent position for some *Lewisia brachycalyx,* and their long succession of almost sessile white flowers should enhance the appearance of this part of the rockery. *Dianthus* "La Bourbrille" and *D. neglectus* were also used for this wall, and that magnificent *Campanula poscharskyana* with its red prostrate stems covered with blue starry flowers. That lovely saxifrage, *S. oppositifolia v. retusa,* with its tiny glossy green leaves and glowing ruby flowers, was planted at the base of the wall where it could get moisture. *Rhododendron repens* was given a place of honour and lifted easily from its previous position, as did that beautiful and much admired veronica—*v. Kellereri.* This is a really fine species of this huge family, and bears bright blue flowers in profusion. Near it was planted that tiny miniature lilac—*Syringa palibiniana*—which seldom exceeds a foot in height.

Two varieties of *Lithospermum* were accommodated, the lovely dark blue *L.* "Heavenly Blue," with its beautiful dark green foliage, and *L. oleifolium*, having hoary foliage and violet-blue flowers. This variety is supposed to be rather difficult to grow, but this has not been our experience. A lovely small *Ilex crenata* was placed near a large rock and this miniature holly, although at least ten years old, is still only about nine inches high. A gamble was taken in moving *Daphne blagayana*, as it was already covered with buds. Fortunately, it seems to have shifted well and it looks as if its large creamy sweet-scented flowers are ready to open at the first touch of sun and heat.

All gardeners are agreed that Brooms should not be moved once they are established, but once again we took a chance and shifted *Genista tinctoria v. flore pleno*, the rock shrub with the long lasting brilliant double yellow flowers. Some of the Helianthemums were planted on the rockery edge, but as all these are seedlings they should be well established when flowering time comes round. Various Primulas were planted here and there—*P. allionii* with its soft rose flowers, "Ethel Barker" with its almost stemless large reddish violet flowers, and also a few "Dean's hybrid Primroses." The latter make a beautiful bright show in the most varied and vivid colourings. They are not as well known as they deserve to be.

The Gentians in many varieties were planted in suitable positions and although *G. septemfida* is rated rather poorly, it was planted where its clustered large blue flowers would show up to advantage. *Cyclamen neapolitanum v. album* with its pure white flowers was planted in the shade of a conifer. In a slightly damp situation we have planted a large clump of *Astilbe crispa*, which is a most attractive miniature having lovely crisped foliage and spires of pink flowers in July. *Geranium dalmaticum* has been placed almost on the path, as the dark grey flints make a lovely foil to the deep rose pink flowers. *Iris rubra marginata* with its red-margined foliage and outstanding red flowers has also been planted near this area. So many more plants were added that it would take a volume to enumerate them all, but every plant was given sufficient growing space and the knowledge of the habits and peculiarities of the various plants gained throughout the years has been put to good use. All we need now is good growing weather, more attention to details, and above all, even more patience ! The temptation to add—just one more—will always be there.

Garden Warfare

A. B. CONNELLY

SPRING BRINGS new life, whether wanted or unwanted, to the garden. To enjoy the 'wanted' life to the full steps have to be taken to rid the garden of the unwanted.

Nowadays the Chemical Industry plays a large part in horticultural production and so its products can be used to help the rock gardener.

Troubles can be divided under suitable headings, such as Pests and Diseases, the pests being :—

(1) Uninitiated humans, for which unfortunately there is no chemical control ;

(2) Rats and Mice, which can easily be controlled by leaving little heaps of poison in frames, for protection from rain, and other suitable places which are inaccessible to stray dogs and cats ;

(3) Slugs and snails, for which excellent weather-resisting pellets are available and are easily scattered without fear of damaging pets ;

(4) Insects, such as aphids, leaf miner and mealy bugs, can be controlled by spraying the plants with Malathion, an excellent product which is used extensively in this country. In the alpine house most pests can be got rid of by one or two fumigations at ten day intervals, using D.D.T./Lindane Smoke Generators. All one has to do is to ensure that no pots or plants are in a dry state or scorching may result, that the temperature by sundown is 60-70°F., and that there are no leaks when ventilators and doors are shut. Otherwise low-pressure aerosols can be used to produce a fine atomised mist of the same material. Some flowers are susceptible to the materials and care should be taken with Lewisias and some Kabschia saxifrages.

Diseases appear to be uncommon in rock gardens and those that do appear are practically all caused by fungi. The two that frequently cause trouble are the rust and mildew fungi. The rusts are so called by the orange-brown appearance of the fungus on the plant tissue, causing disfiguration. This and fungal black spots can be controlled by spraying with Captan (Orthocide Garden Fungicide) which should be carefully prepared according to the manufacturer's instructions.

The mildews need no description, as most garden enthuasists will have had some prize specimen spoiled on some occasion by the grey mouldy or white powdery spots on the leaves. Once again we have to thank America for the production of Karathane, a powder for wet spraying with swift results. Again care must be taken to follow the manufacturer's instructions. It goes without saying that whenever chemicals are used this should be borne in mind.

A few moments, a few shillings, and a few degrees of patience, are all that one needs in a season to have a healthy rock garden.

The writer will be pleased to inform any interested reader, on receipt of a stamped addressed envelope, where they can obtain any of the material mentioned.

Gardens in Trust

The Highland garden of Inverewe in Wester Ross was the only property in the care of the National Trust for Scotland which showed a marked increase in visitors last year. In the month of June, when other parts of the country were suffering from floods, Inverewe was experiencing drought conditions and although the garden had to be watered regularly the weather was ideal for touring holidaymakers. The visiting season continued to thrive until the beginning of November and in all during the year more than 34,000 people came to see the garden.

One of Inverewe's many remarkable attributes is that it offers a continuous procession of colour the whole year round. From early Spring many species of rhododendron flower in profusion. These are followed by azaleas and then later hybrids which maintain a magnificent display until the end of July. From June to September the extended plantings of Primulas, Meconopsis, lilies and various perennials in the herbaceous border and elsewhere, and some of the newer rhododendron hybrids provide another colour sequence. Hydrangeas, yellow Hypericum, Eucryphias and heaths and heathers, in full bloom in the early days of September, continue to flourish as the fruits of rose and rowan ripen and the autumn colouring comes into its own. Even at Christmas and New Year colour can be found to excite interest and wonder.

On the other side of the country, in north Aberdeenshire, the garden of Leith Hall does not enjoy such an unbroken season, but last year it raised more than any other Trust garden for the funds of Scotland's Gardens Scheme. Here the outstanding attraction is the rock garden, which is highly regarded by many enthusiasts, and which should certainly be seen by those who do not know it.

The reconstructed 17th-century garden of Pitmedden House, also in Aberdeenshire, can be conveniently linked with a visit to Leith Hall. The layout of traditional designs in four parterres of box hedge has now been completed and the plantings of annuals in this formal framework make a glorious show of colour in summer. Plans are in hand for renewing the herbaceous borders at Falkland Palace in Fife—a Royal property in the Trust's care—with a view to enhancing still further the setting of this ancient seat of Scottish kings. The introduction of more colour in the formal Fountain Court at Culzean Castle is being continued, and much development is contemplated in the newly acquired garden of Brodick Castle on Arran.

To ensure that these plans for the future of its gardens receive proper attention the Trust has recently appointed a Technical Assistant (Gardens), who will be free to devote all his time to this work and to co-ordinate the Trust garden affairs in general.

Further information of Trust work and properties can be obtained from The Secretary, 5 Charlotte Square, Edinburgh.

Plants, Problems and Letters

A LETTER IN REPLY TO MR. R. A. DAW

Dear Mr. Editor,

Ref. R. A. Daw's letter to you published in the September 1958 *Journal*. I shall try to answer his questions.

(1) *Linaria alpina* : a second blooming may be got by cutting back, but it is not long-lived, so do not cut back all plants or all branches, but try to ensure self-sown seedlings.

(2) *Lewisia cotyledon* hybrid : I would not risk digging up and dividing in autumn. Raise from seed, or strike offsets as cuttings in summer. Cuttings do not strike too easily. I find they seed themselves in scree.

(3) *Aethionema coridifolium* : cut back immediately after flowering.

(4) *Ramonda pyrenaica* (syn. *myconi*) : seed germinates fairly well, but rather erratically, coming up in successive batches. Seed comes up in a few weeks if well frozen, especially if given a little warmth afterwards. I have not tried it in a polythene bag, but it should do all right in one, I think—after freezing. As seedlings are tiny, use coal dust, or rather fine coal chips, for the top half inch and covering—to prevent the growth of moss. Why not take leaf cuttings, though ? They are much quicker and easier.

(5) *Rhodohypoxis* : sow in March in leaf-mould or peaty soil, again with coal grit covering as in (4).

(6) *Cyclamen* : Plant with not more than an inch or so of leaf-mouldy soil above them. For preference buy plants in growth, not dried corms. The latter may remain dormant for a whole year or more.

(7) *Phlox subulata* : This *may* (not *should*) be pruned hard back like aubrieta ; it depends on the space you are prepared to give it. I have a plant covering two or three square feet.

(8) *Daboecia polifolia* (syn. *cantabrica*) : "Cutting well back" can mean to within an inch or two of the roots and it will break away alright. How far you cut it back again depends on what spread and height you want.

Perthshire. M.-L.

"PLANT ASSOCIATIONS"

ONE THING which I think we rock gardeners might make much more of than we do is the art of associating plants together. Perhaps most of us are inclined to be too tidy ; we like to keep our individual plants on their own, not allowing them to invade each other's territory or get mixed up together. Of course, some plants may perhaps show up best grown thus as specimens. On the other hand, many seem to

show each other off if allowed to grow together or even to get completely interwoven. Then of course there are plants which in nature seem normally to grow in turf, or with a ground cover of some low-growing plant. Some of these seem to do better in cultivation also if a similar provision is made for them. In some cases, e.g., *Primula scotica*, a good layer of gravel seems to act as quite a satisfactory substitute.

Blues and yellows seem to show each other off and combine well. A common association in the Alps is *Gentiana verna* and *Geum montanum*, quite often *Gentiana kochiana* (very like *G. acaulis*) and *Viola calcarata* are in the combine too. In cultivation *Gentiana verna* and *Douglasia vitaliana* make an equally pleasant association.

Plants to be associated need not, however, necessarily flower at the same time. You might have a group of a spring flowering bulb interplanted with an autumn flowering one, thus saving ground space. Examples of this are the interplanting of spring and autumn flowering crocuses, or of, say, *Narcissus asturiensis* and an autumn crocus such as *C. medius*. You might also associate a spring-flowering crocus species with a plant which dies down in the winter and comes into growth rather late in the spring. One such association which I have found very satisfactory is *Gentiana septemfida* with *Crocus chrysantha* planted round it. By the time the crocus "grass' is getting untidy, the procumbent shoots of the gentian are growing right out over it. *Cyananthus integer* might be substituted for the gentian.

Some of the autumn crocuses, e.g., *C. speciosus*, are rather tall and slender and so rather apt to be blown over and spoilt. If they were planted among the spring crocuses of the last mentioned association, they would have the support of the gentian or cyananthus shoots to support their flowers. One of the geraniums or a strong-growing campanula would be equally suitable for giving support to autumn crocuses. One risk, of course, incurred if another plant is given ground cover for bulbs is that it also provides cover for slugs. Bulbs growing through "cushion" plants do not as a rule, in my opinion, give a pleasing effect. The cushion is spoilt by the untidy-looking dying leaves of the bulbs.

It would, I think, be interesting and instructive if members who have had successful and pleasing plant associations in their gardens, or who have seen such associations in the wild, would write a note about it for the *Journal*.

Perthshire. D. M. MURRAY-LYON

MENDING BROKEN PANS

AFTER THE winter a number of pots and pans are usually found to have been broken by frost. The smaller sizes of pots may, of course, be further smashed and used as pot-crocks ; one seldom seems to have enough of these when seed-sowing time comes round. The larger

sizes of pans are expensive and not too easy to obtain, and if they are of pleasing proportions, it is a pity to waste them for pot-crocking purposes. If they are merely cracked or flaking round the top rim, they may very easily be repaired with concrete.

If there are only a few, it is not worth while to buy a whole bag of cement. The larger branches of Woolworth's sell small quantities in 1/6d tins. The contents are tipped out on to a large paving stone or concrete yard and the empty tin used for measuring out two or three parts of sharp sand and, if liked, some sifted peat or sawdust may also be added. These give a softer texture and the finished product is then dignified by the name of "Hyper-tufa," a word which is not in the dictionary but freely circulates amongst rock gardeners. The dry cement, sand and peat must be well and truly mixed by turning sides-to-middle with a mortar trowel. A well is made in the centre into which water is poured, a little at a time, while continuing the sides-to-middle movement. The finished mixture should err on the side of being too crumbly rather than too sloppy.

The pans are scrubbed clean and then while still wet a half-inch layer of concrete or hyper-tufa is pressed and patted on to the outside. Large pans with sloping sides are most easily done by standing them upside down on a pad of newspaper. After a few days this first application ought to have set sufficiently for the pan to be turned right way up for the top rim to be done. The concrete should be continued down inside the pan for an inch or so, but there is no need to take it down any further because the weight would thereby be increased and the planting space diminished. There is no need to do the bottom of the pan either inside or outside, except in those cases where the frost damage extends from the sides across the bottom.

It is a matter of personal taste whether the outside of the pan is smoothed over with the mortar trowel or left uneven to resemble stone. The inexpert "concreter" will find that a rough finish is easier to manage than geometrical accuracy. A round file is a useful tool for smoothing off imperfections and simulating the weathering of centuries. The age-old appearance may be hastened by brushing the surface with a mixture of milk and soot, some cow-manure or slushy mud. The pan is then left to mature in a moist and shady place (at the foot of a slimy, moss-covered north wall is ideal) until it loses its bleak, 'concretey' appearance. It may take several weeks.

These "stone" pans make attractive containers for single specimens or collections of saxifrages, sedums or sempervivums. The larger sizes may be made into scale-model gardens with a dwarf conifer, or a nice specimen of *Crassula sarcocaulis* and such tiny things as *Raoulia lutescens*, *Thlaspi rotundifolia*, *Lysimachia japonica minutissima*, or *Calceolaria tenella*.

L. C. BOYD-HARVEY

CYANANTHUS LOBATUS INSIGNIS

ONE OF the finest members of a fine Himalayan genus belonging to the *Campanulaceae, Cyananthus lobatus insignis*, is a comparatively easily grown plant. It annually forms a wide, quick-growing, almost rampant mat of dark, wiry stems, prostrate, and clothed with small, pale green, lobed leaves just verging on hairy whiteness, and bearing from the tip of each shoot and subsequently from almost every leaf axil the huge blue flowers, beginning about June and continuing until the damp and frost of late September turn the mat into a tangle of straw-brown stems. The flower buds balloon out from the dusky, bristly bladders of calyces and burst into large, sumptuous "Vincas" of steely sky-blue shot with a luminescent violet and palely hairy in the throat.

The parsnip-like root to which the stems die back in autumn likes a well-drained, perhaps sandy, soil with a good few trowelfuls of peat worked in around it and the plant does not mind some shade, maybe preferring it in moderation. The cluster of purplish-green buds at the top of the dormant root each year break into tender shoots which are rated among the most delicious of vernal fare by the discriminating gourmets of the slug-world, so the usual defences are necessary. The dark, shiny seeds contained in the firm stubby beaks of pods provide a means of increase. The plant was originally introduced by Kingdon Ward under the number KW4,549 and used to be called *C. lobatus* "Ward's variety."

This Cyananthus is neither among the choicest of plants, like *C. sherriffii*, nor among the neatest, like *C. microphyllus*, but the time over which it produces its specious and beautifully shaded flowers, rivalling the rest of the genus in size, form and colour, coupled with the simplicity of its cultivation, make it an altogether desirable rock garden plant.

Midlothian. J. ARCHIBALD

SCHIZOCODON SOLDANELLOIDES V. ALPINUS

THIS DELIGHTFUL member of the family Diapensiaceae is endemic to Japan, there known as the 'Mirror of the Mountain,' and is a very compact, neat plant up to about six or eight inches high when in flower. The leaves, a dark glossy green, of leathery texture, colouring dark red in the autumn (this being a distinguishing feature from the type), are orbicular with slightly serrated margins. The habit of flowering is racemose on stems up to four or five inches in height from April to May, and the fused petals of the pendant silvery pink, somewhat bell-shaped flowers up to one inch wide have a laciniated margin.

This plant is very difficult to get started into good growth, but once it is planted in well-drained, gritty soil containing humus, in a rather shaded position, it grows quite freely, though in wetter parts of the country a sunny position would be preferable. If grown in a sunny position the leaves develop a much better colour in autumn, but the plants tend to be stunted. Propagation is effected by the division

of well-established plants in the spring, though seed when procurable is recommended to be sown when fresh or in March. Another method is to take rooted offsets in late summer, and place them in sharp sand under glass. The plant in Fig. 45 is growing in a mixture of two-thirds peat and one-third loam in a semi-shaded position.

St. Andrews. H. WILSON

NEW ZEALAND FLOWERS

WE GROW in our rock gardens quite a number of New Zealand plants. Judging by articles I have read about visits to the mountains of that country, however, I think there are many others which would thrive in, and be ornaments in our rock gardens. What started off this note was my finding a note of mine on a scrap of paper about an orchid called *Earina autumnalis*. Where I extracted my note from I do not remember, but the plant sounds interesting and "possible."

I wonder if any of our New Zealand members could give us more information about it, and possibly send seed home for the next distribution. In my extract I see it says that this *Earina* is "widely cultivated in New Zealand." Seeds of other rock garden New Zealand plants likely to succeed here would be most welcome, I am sure.

Perthshire. D. M. MURRAY-LYON

Discussion Week-end in Perth, 1958

IT IS BECOMING customary for the outsider to give his impressions of these week-ends, but from the start I must say that such was the friendly atmosphere and the welcome given to the visitor that "outsider" was the last thing he felt himself to be. Indeed, it was for the gathering of people from distant parts that the Perth week-end was conspicuously successful. Visitors from over the border were to be expected, but from further South, and from Belfast—No ! Their enjoyment was self-evident, not the least for the sight of the autumn colour and the gentians in the gardens at Keillour Castle and for the refreshments so generously provided by Major and Mrs. Knox Finlay. The subjects discussed and the slides shown were excellent, thanks to the post-war evolution of the 35 mm. camera and of colour film. It always grieves me that so little progress has been made in improving the cultivation of alpine plants by scientific means. It struck me during the week-end that the S.R.G.C. were singularly fortunate in having, in the person of Dr. Henry Tod, one of the few persons who are devoting a certain amount of time to the necessary research. If one may be permitted a few words of constructive criticism. It is a golden rule for lecturers not to exceed their allotted time, but rather to fall short of it, and for organisers not to fill in time with further items that are not in the programme. These things happen so often, with the best of intentions, but the brain of the average audience just cannot take in too much at a time.

C. H. HAMMER

The first paper given in the Discussion Week-end was by Mr. James Keenan, of the Herbarium, The Royal Botanic Garden, Edinburgh. In introducing him, the Chairman remarked that botanists only too often were the bane of gardeners' lives on account of their apparently incurable habit of changing plants' names. He hoped that Mr. Keenan might be able to explain the "wherefore and the why" of their activities.

This was exactly what Mr. Kennan did by taking several species from the genus Buddleia on which he had been working. He showed the progress of a specimen from the field to the herbarium sheet and explained how confusion can—and does—arise through several names being given to one single species, or else the same name to several different species. He dealt with the problem of variation within a good species and demonstrated very clearly the difficulties which occur when what appears to be a species from the wild turns out to be a natural hybrid. He showed how frequently the confusion can only be solved by growing on the various plants in the botanic garden and private gardens and then comparing the material so obtained with the type sheets from the herbarium or, often, herbaria possibly in other countries or continents.

By the end of his lecture, which was excellently illustrated by colour slides showing the whole sequence of processes from field to "type" sheet, most of the members present probably felt, as the writer certainly did, more sympathetic to the botanist's point of view than they were before. Mr. Keenan quoted and explained very clearly the rules of priority in nomenclature and showed that, though irritating to gardeners, they helped ultimately to ensure that the gardener got the plant he wanted and not something else masquerading under the same name.

The paper was followed by a very lively discussion in which the lecturer was bombarded with questions and arguments, with all of which he dealt most capably—and also very fairly !

H. TOD

ALPINES IN THEIR NATIVE HABITATS

MR. STEWART MITCHELL, in introducing his subject, emphasised that though he was speaking on the strength of two A.G.S. Tours—one in 1957 and another in 1958—he fully realised his limitations and proposed to deal with his subject in a simple, straightforward manner. He hoped that his talk might serve, however, as an introduction to the lecture to follow later from the President of the Alpine Garden Society, and said a few words in introduction of his subject before showing the slides themselves.

Certain plants do have a definite partiality for particular rock formations in nature, and there are closely allied species which have developed in a slightly different way, depending whether they are on limestone or on primary rocks. The limestone districts do tend to have a richer flora. Apart from that, much variation exists within a single species, depending on where it happens to grow, such as on shallow rocky soil, or deep soil rich in humus, etc. The aspect and the altitude, as well as these other conditions, influence growth, and some plants with a considerable altitude range vary greatly as we find them higher up. *Horminum pyrenaicum*, which grows all over the place in the Dolomites, competed for attention with *Salvia pratensis* in the lower meadows, but when it climbed up to 6000 feet or even higher, it grew as neatly as *Calamintha alpina*.

In addition to preference for different rock formations, some plants are almost invariably found in moist places, or places where they are screened from the hottest sun, either by rocks or trees. Such might include *Viola biflora*, and *Cypripedium calceolus*. Rocky places have their distinctive flora, where *Sempervivum*, *Saxifraga*, *Primula* and *Globularia* are found.

On the highest rocky outcrops and ridges, and in the glacier moraines, there are also distinctive inhabitants, such as *Geum reptans*, *Androsace glacialis*, *Ranunculus glacialis*, and of course *Eritrichium nanum*. Cliff dwellers such as *Paederota bonarota* and *Phyteuma comosum* grow in narrow crevices, often high above human reach.

The very choice few such as *Androsace glacialis* and *Eritrichium nanum*, which inhabit the highest alpine places, do not seem to spread downwards, even where conditions seem suitable. The air and the climatic conditions at the higher altitudes have something to do with it. These are the plants which try the skill of the ablest cultivators. They seem easy, and good roots are often obtained when collecting plants, but they seldom live long in captivity. On the other hand, *Phyteuma comosum* is never seen in the splendid forms we see on our Show benches, and there are others too which take quite kindly to cultivation.

These few remarks served to introduce the slides, which were shown in groups, with one habitat and some of its flowers at a time, the speaker giving a few comments about each as he proceeded.

SLIDES

Saas Fee : Hannigalp

Saas Fee from Glacier
Hannigalp from Glacier
Linaria alpina
Chrysanthemum alpinum
Polygala chamaebuxus
Schmarzh Horn (9000 ft.)
Silene acaulis exscapa (in turf)
Silene acaulis exscapa (in crevice)
Gentiana verna
Rocks where *A. argentea* grows
Androsace argentea (group)
Androsace argentea (with *Primula rubra*)
Androsace argentea (with *Semp.* & *Asplen. septentrionale*)

Glacier

Glacier from Plattjen Hutte
Soldanella in snow
Soldanella alpina
Anemone sulphurea
Bank with *A. sulphurea*
Gentiana verna
Ranunculus pyrenaeus
Salix
Primula longiflora (*Halleri*)

Plattjen Hutte

Viola biflora
Rhododendron ferruginium
Primula rubra
Banks with *A. sulph.*, etc.
Loiseleuria procumbens
Loiseleuria procumbens (in bud)
Eritrichium nanum and *G. verna*
Eritrichium nanum (dark colour)
Lloydia serotina
Primula rubra (very good form)
Anemone vernalis
Eritrichium nanum (group)

Pontresina—Val Minor

Looking back to Berina Group
Gentiana acaulis
Primula integrifolia
Primula viscosa
Where *Sax. caesia* grows
Soldanella pusilla (group)
Soldanella pusilla (14 in.)
Ranunculus glacialis
Path to Val Minor
Ranunculus glacialis
Androsace glacialis
Sax. androsacea
Papaver rhaeticum
Potentilla aurea
Semps., etc.
Helianthemum alpestre
Geum montanum
Geum montanum (see Fig. 46).
Aster alpinus
Erigeron and *Daphne striata*
Globularia bellidifolia
Horminum pyrenaicum
Phyteuma hemisphaericum
Meadow
Nigritella nigra
Thistle and *Polemonium*
Gentiana lutea
Campanula thyrsoides
Campanula cochlearifolia (*pusilla*)

Dolomites : Val Lunga (Selva)

Val Lunga with meadow
Polygonum bistorta
Val Lunga pink cliffs
Horminum pyrenaicum
Pinguicula alpina
Potentilla nitida
Rhododendron hirsutum
Linaria alpina
Gentiana verna, Silene and *Dryas*

SELLA PASS

Sella Group from Hotel
Sella Pass with Sasso Lungo
Ranunculus seguieri
Primula minima
Trollius europaeus
Papaver rhaeticum
Gentiana verna

GARDENA PASS

Gardena Pass
Gentiana acaulis type
Globularia cordifolia
Gentiana imbricata
Gentiana imbricata (habitat)
Looking back to Pass
Pinnacles and Screes
Papaver rhaeticum
Looking down Kedul Tal
Monte de Soura

PORDOI PASS

Sasso Lungo from ridge
Marmolata glacier, from Bindel Weg
Bindel Weg
Marmolata glacier and dam
Eritrichium on outcrop
Androsace alpina
Geum reptans
Sax. aizoon

SUISI ALP

View of Sasso Lungo
Schlern
Val Gardena from above Ortisei
Sax. aizoon and *Aster alpinus*
Viola biflora
Atragene alpina

ROLLE PASS
(S. Martino di Castrozza)

View of Cimone de la Pala
Pala Group from Hotel
Silene acaulis
Rhodothamnus chamaecistus
Gentiana verna
Gentiana acaulis group
Primula auricula
Eritrichium nanum

COLBRICON

View of Colbricon from Rosetta
Silene pumilo

"SPAIN—THE PYRENEES AND BEYOND"

By C. H. HAMMER

THE COLOUR slides shown by the President of the Alpine Garden Society covered two separate tours in Spain made in successive years. Crossing the frontier by the coastal road, we were taken direct to Riaño, a village which stands in a high valley on the south side of Picos de Europa. This is a range of snow-capped mountains of great beauty which rise about half way along the north coast of Spain. There is an abundance of flowers throughout the district, where the rainfall is obviously higher than in many other parts of Spain. Half a dozen valleys converge on Riaño from all directions, making it an excellent centre for the botanist. To the north-east and north-west the hills were, at the end of May, covered with golden genistas in large quantities. Looking more closely at the limestone rocks, one found a miniature *Phlox*, completely saxatile, a perfect plant for the alpine house if it could be established. Many unfamiliar plants clothed the rocks, among them a very charming *Linaria*—probably *Linaria viscosa*—and a prostrate white rose. In a shady corner grew a fine red *Paeonia*, believed to be *P. broteri*; but the most striking sight was the masses of *Lithospermum prostratum*, which in those parts spreads all over the limestone.

Spain is the home of the *Narcissus*, and Riaño was no exception. Here and there on the grassy slopes, but more frequently in the hedgerows, the last *Narcissus triandus* v. *albus* were still in flower. *N. bulbo-*

codium was long since over, but with practice fair quantities could be detected by their seed pods. *N. asturiensis*, also out of flower, was more difficult to spot. The real sight at the end of May was the quantities of *N. nobilis* massed in the water meadows. *N. nobilis* is the largest of the wild daffodils, the flowers frequently being three or more inches long.

To the south-east of Riaño the flora changes considerably, the pass known as the Puerto de Vieija being an unforgettable sight for its endless vistas of tree heaths. To the south-west the road runs rapidly down to an arid plain which for hundreds of miles occupies the centre of Spain. From this plain rise the Guadarramas, enclosing Madrid from the north ; but our own visit was to the Sierra de Gredos, some fifty miles further west. Here the hills were covered with seas of cytisus in all shades of white, yellow and cream, and where there were no cytisus their place was taken by sheets of the dwarf and fragrant *Lavandula stoechas*. Ascending to greater heights, we reached a moor where, on stony ground, grew *Narcissus rupicola* in two such distinct forms that they could hardly be taken as the same species. The better form has overlapping petals, while in the other form the petals are quite separate. In damp places there were a few remaining flowers of *N. bulbocodium* v. *nivalis*—marvels in miniature. Here and there, too, was a graceful red fritillary, probably *Fritillaria hispanica*.

The second year's tour commenced on the low but historically interesting Pass of Roncesvalles. At the foot of this pass the Spanish desert soon begins, and the greater part of the flora is found on the banks of the roadside ditches. Here, for example, was found an interesting dwarf *Iris*, probably *Iris graminea*. The object of this expedition was to proceed as far as possible along the south side of the Pyrenees in an easterly direction, to see how far the flora differed from that of the more familiar French side. The first centre of exploration was Ordesa, a vast and deep valley which runs parallel to and behind the Cirque de Gavarnie. Here were quantities of *Ramonda myconi*, *Saxifraga longifolia*, and other familiar Pyrenean flowers. *Leontopodium alpinum* was also abundant, since there were notices on all sides forbidding it to be picked. The real prize was *Campanula speciosa*, whose vivid Canterbury Bells were visible in the screes from some distance away.

Journeying further east, the roadside ditches were clothed with the fine red *Antirrhinum majus* and other flowers. No direct west-east road can be followed, as on the French side, but a northerly circuit was made through the famous Val d'Aran until the little known mountains of the Sierra dos Eneantados were reached. The mountains here are granite and very jagged and severe. It is the meeting place of the flora of the Eastern and Western Pyrenees. Here is *Androsace imbricata*, the form of *Daphne cneorum* so commonly misnamed "Verlotii," *Lilium pyrenaicum*, and a quantity of crocuses and narcissi, not yet seen in flower.

Show Report

NORTH BERWICK—SEPTEMBER 1958

THE AUTUMN SHOW of the Club was held at North Berwick on 11th September and, as usual, was notable for the display of autumn-flowering plants. As in most flower shows throughout the country, certain classes had few entries, but considering the season most of the usual genera were well represented.

The Forrest Medal was awarded to *Gentiana gilvostriata*, shown by Mrs. Cawley of Alnwick, a well-deserved award, because the plant was in excellent condition, and to me at least this is one of the finest species in the genus. For the Best entry in Class 1, for which the East Lothian Trophy is awarded, the three plants exhibited by Major Knox Finlay of Keillour won prior place. These plants were *Cyananthus microphyllus*, the late-flowering species from the Himalayas, with metallic blue flowers covering the many shoots of small grey leaves ; *Astilbe glaberrima*, a dainty dwarf species from Japan, and *Gaultheria merrilliana*, a dwarf evergreen bush of dark green foliage and large white berries. This last plant is one of a group of dwarf evergreen bushes, of only a few inches in height, and spreading by underground stolons, of immense value in autumn and early winter with their display of white or white-tinged pink fruits ; there is also one of the group with blue fruits. Needless to say they are all peat-lovers. The Peel Trophy for the best entry in Class 9, for three pan Gentians, was won by Mrs. Cawley of Alnwick. These three were *Gentiana* x 'Inverleith,' as usual in fine condition, *G. saxosa*, that dainty species from New Zealand, and another hybrid, namely *G. x carolii*, a pretty plant but not so vigorous a grower as most of the other hybrids.

Miniature Rock Gardens always occupy an important place in our Shows and the Logan Home Trophy for the best was won by Mr. and Mrs. R. Baillie of Longniddry, whose entry was well planted with ideal plants for the purpose. When this side-line of rock gardening started, I do not know, but there appears to be an increasing number coming into Shows. Many are planted with really miniature plants that will never get too large, but other plants are used just because they are young and therefore small, but must be far too large when they reach their maximum height. Class 24, for a "table decoration of cut flowers and foliage of Rock Garden Plants," is also increasing in the number of entries. There were many tastefully arranged containers, some of them unique, and in passing it might be recorded that the prize was won by one of our younger members. In Section 2, *Calluna vulgaris* 'H. E. Beale' was again ahead of the other exhibits and the Silver Cup was gained by Mrs. G. S. Burrows of Dirleton. In the same section Mr. Burrows also won the Club's Bronze Medal (for the highest aggregate of points), his excellent exhibits gaining several first prizes.

The genus *Gentiana* is always well represented at this Show with many autumn-flowering species and hybrids. The outstanding plant

was *G. gilvostriata*, a species which many people find difficult, the finest hybrid for colour being *G.* x 'Inverleith,' although, it must be admitted, not for habit. The other hybrid that is always attractive is *G.* x 'Glendevon,' a *G. ornata* cross with the compact habit and shorter flowers of the seed parent combining with the deeper blue of *G. sino-ornata*. Making very attractive exhibits were *Cyclamen neapolitanum* and the var. *album*, several many years old and covered in bloom.

As at most of the Club Shows, the many genera in Crassulaceae such as *Crassula*, *Sedum* and *Sempervivum*, are well exhibited. Two Sedums, *S. cauticola*, and *S. ewersii* (previously named *S. pleuricaule*) were in full flower, as also was *Crassula sarcocaulis*. The Sempervivums were represented by *S. arachnoideum* and some of the forms of that species, and among the more uncommon ones, *S. ornatum* and *S. borisii*. The Autumn Tints Class is always thin in entries, in spite of the fact that it is September, probably because many of the rock garden plants that are deciduous and colour nicely do not do so until much later. There was a very nice pan of *Cornus canadensis* in this Class. If the Autumn Tints Class lacked entries, that for Dwarf Conifers made up for it, as there were twelve entries here covering a wide range of species and varieties. Among the New Plants exhibited there was a nice plant of *Origanum amanum*, a Labiate from Eastern Europe, and in many places considered a tender plant.

At this time of year there are few bulbous plants in flower and it was pleasing to see *Leucojum autumnale* there. This is the Autumn Snowflake, and is one of three closely allied species, the other two are *L. roseum* and *L. tricophyllum*, three dainty dwarfs. Unfortunately space does not allow mention of all the plants exhibited, but I have attempted to select the rarer or at least the more uncommon and perhaps I had better admit, those that I find most attractive. In conclusion, I must mention the Trade Awards were as follows :—

Large Gold Medal to Edrom Nurseries.
Gold Medal to J. Robb, Pathhead.

C. W. SANDERSON,
Show Secretary.

Book Reviews

"MODERN SHRUBS," by E. H. M. Cox and P. A. Cox. Published by Thomas Nelson & Sons, Ltd., price 25/-

Two years ago this able team of father and son presented to all interested in gardens that fine work—"Modern Rhododendrons." This they have now followed up with an equally acceptable companion book entitled "Modern Shrubs."

The writers stress in the introduction that the word 'modern' in the title does not mean plants of recent introduction only, but those of sufficient merit to deserve a place in modern gardens. It is good, particularly for garden lovers in those less genial climatic parts of Britain, to find a book devoted to shrubs of proved hardiness in one of the admittedly more difficult parts of the country, insteading of having our appetites whetted and our discretion undermined by glowing eulogies of plants reasonably practicable only in the most favoured parts of south and west. If there is any criticism to be made it could be that the authors have played too much on the safe side in this matter of hardiness; but that is perhaps a good fault. (In this matter I cannot help remembering a full-sized and perfect specimen of *Desfontainea spinosa* which flowers freely and regularly in a garden looking north across the Tay).

The opening chapter on cultivation impressed me as particularly useful and full of sound commonsense, and the following chapter on propagation should prove equally useful and interesting to all with the urge to try their hand at increasing their stock.

In the 750 or so shrubs described or mentioned are a wide range of old tried favourites and many fine shrubs of comparatively recent introduction. While confining themselves strictly to shrubs—as opposed to species which could be classed as dwarf trees—the items range from dwarfs of a few inches like *Arctostaphylos, Daboecia, Epigaea, Erica, Phyllodoce*, etc., of rock garden size, to the larger-growing species and varieties of *Berberis, Buddleia, Camellia, Ceanothus, Magnolia, Philadelphus, Rosa*, and many others. All through runs the thread of personal experience with the plants discussed, with many personal likes and dislikes, some of which are sure to provoke disagreement. For my own part I find it hard to condemn *Choisya ternata* on account of its smell, or *Buddleia weyeriana* v. "Golden Glow" for its colour.

Following on the sections of shrubs in alphabetical order comes an interesting chapter devoted to climbing shrubs, and then a number of lists of shrubs suitable for various situations, and a very useful glossary for those readers unacquainted with technical terms. In both colour and line illustrations Miss Margaret Stones does her subjects full justice, attaining fine detail without loss of artistry, while the set up and printing are all that one has learned to expect from the publishers. Throughout the book I noted only two trifling errors, both in the index—a mis-spelling of *B. subcaulialata* and a reversal of figures for page '60.' Altogether this is a worthy companion to its predecessor—"Modern Rhododendron."

J. L. MOWAT

"MINIATURE TREES AND SHRUBS," by Anne Ashberry. Published by Nicholas Kaye, Ltd., 194-200 Bishopgate, London, E.C.2, price 25/-

This most recent book by Anne Ashberry, author of "Minature Gardens," ought to be the answer to most of the wants of the rapidly increasing number of devotees of trough gardening and the cultivation of dwarf conifers, miniature roses, and other dwarf shrubs. One might really say with justification that no lover of dwarf shrubs should be without it,

with its wealth of valuable detailed information. Miss Ashberry's extensive practical experience in growing these interesting plants is evident in the methodical way in which she deals with all essential details in the genera and species she describes.

The first part of the book is devoted to a selection of some sixty-five of the most attractive or interesting dwarf conifers. (Obviously to deal with all would demand a much larger book devoted to them alone). The descriptions are detailed and vivid, and include origin (where known), annual rate of growth and ultimate height, with particulars of stem, branches and branchlets, shoots, and adult or juvenile leaves. Propagation, care, and soils are also considered.

The second part deals with miniature roses and, after mention of some of the pioneers among the raisers and breeders of these delightful midgets, goes on to describe them individually, classing them in groups, according to the heights they attain. The descriptions are supplemented by very fine half-tone, actual size photographs of the blooms themselves, and this part ends with paragraphs on their pests and diseases, pruning, propagation, and so on.

The last part deals with some attractive and interesting dwarf shrubs other than conifers and roses, with again notes on their various requirements as regards composts and potting, pests, diseases, and propagation.

The line drawings by Creina Gregg are beautifully done and exceedingly helpful, explaining identification details, and the many photographs are also very adequate and generally of a high standard except for one or two not quite up to the others technically.

Scottish readers should not be misled by " rather like a heather " on page 15, which really means what in Scotland we know as " heath," and I fear that " concave " on page 38 should really read " convex."

The publishers deserve the highest praise for the high standard of the publication, with its clear, well-spaced type, wide margins, and the very attractive layout generally ; the only printer's error noted was a misplaced " s " at the bottom of page 35.

In all, a book worthy of the bookshelf of many other than rock gardeners, and one not likely to be left idle on the shelf for long at a time !

J. L. MOWAT

" CAMPANULAS AND BELLFLOWERS IN CULTIVATION," by H. Clifford Crook. Pp. 60. Illustrated. Published by Blandford Press, Ltd., 16 West Central Street, London. Price 10s 6d.

The author's previous comprehensive work on this subject—Campanulas, their Cultivation and Classification, a work of more than 250 pages published in 1951—has been regarded horticulturally as the most up-to-date and authoritative book on Campanulas, and practically indispensable to all who take more than a casual interest in the genus. Now we have this shorter, popular work which briefly covers a selection of 100 or more of the most garden-worthy species and hybrids and then in the latter part of the book goes on to describe representatives of the other genera in the family. Campanulas which are of botanical interest only, and those not in cultivation in this country, have been omitted, so that the reader is left with the assurance that those discussed are among the most worthy of the family and are generally obtainable somewhere in the country even though some may require search through catalogues and seed lists.

After a brief introductory chapter containing some very useful advice on cultivation and propagation the following chapters treat in turn plants for the herbaceous border, the rock garden, wild garden, and alpine house. Chapter VI, commencing with a very simplified key to the identification

of the various genera in the family, covers in alphabetical sequence those members, from *Adenophora* to *Wahlenbergia*, including both small genera like *Michauxia* and *Ostrowskia* and those of 100 and 200 species respectively —*Phyteuma* and *Wahlenbergia* ; readers will find this section particularly interesting and useful. The preceding chapter—" Under Cover "—should likewise prove very useful to all rock-gardeners possessing either an alpine house or cold frames.

The 24 photographic illustrations by the author, some of them showing plants in their natural habitat, are satisfactorily helpful in showing distinctive characters of the plants they illustrate, while the whole set-up of the book is very pleasing and with a good firm binding. Trifling errors noted are "beech" for "birch" on p. 37, "as" in place of "are" on p. 39, and C. grandis referred to "p. 30" instead of "p. 20" in the index.

This little book is very good value, sound, and a useful reference for all Club members, either beinners or more advanced, who are interested in these delightful little plants.

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Index to Advertisers

	PAGE
AITKEN, JAMES R., Orchardbank Nursery, Perth	300
ALPINE GARDEN SOCIETY	231
AMERICAN PRIMROSE SOCIETY	224
AMERICAN ROCK GARDEN SOCIETY	277
ASCOT WOOD NURSERY, Berks.	311
BAILLIE, RICHARD & SONS, LTD., Haddington	311
BOOTHMAN, STUART, Nightingale Nursery, Maidenhead	319
DAVENPORT JONES, Miss H., Washfield Nurseries, Hawkhurst	318
DRAKE, JACK, Inshriach Nursery, Aviemore	314
EDROM NURSERIES, Coldingham	315
ELLIOTT, JOE, Broadwell Nursery, Moreton-in-Marsh	316
FIELD, C., Tufa Merchant, Denbigh	317
FIFE REDSTONE QUARRY CO., LTD., Leuchars	308
FORBES, JOHN (HAWICK) LTD., Nurserymen	270
GOODWIN, ARTHUR, Stocklands Nursery, Bewdley	320
GRAND HOTEL ALPES ET LAC, Valais, Switzerland	303
GRANT, Compost Specialists, West Calder	317
JACKMAN, GEORGE & SON (WOKING NURSERIES) LTD.	Back Cover
DE JAGER, P. & SONS (LONDON) LTD.	312
KAYE, REGINALD, LTD., Silverdale Nursery, Carnforth	315
KING & PATON, Barnbarroch Nurseries, Dalbeattie	312
KNOCKDOLIAN GARDENS & NURSERIES, Girvan	313
LAING, Mrs. J. K., Viewfield Nursery, Hawick	317
LAURIE, JAMES & SON, Blackness Nursery, Dundee	318
LOW, ERNA, TRAVEL SERVICE, LTD., London	320
MACKENZIE & MONCUR, LTD., Greenhouses, Edinburgh	Inside Front Cover
MARYFIELD NURSERIES, Leslie	316
MURPHY CHEMICAL CO. LTD., St. Albans	304
NATIONAL PRIMULA & AURICULA SOCIETY	244
NATIONAL TRUST FOR SCOTLAND	288
NELSON, THOMAS & SONS, LTD., Publishers, London	307
PATERSON, JOHN & CO., LTD., Clensel Works, Glasgow	309
PONTON, The Gardens, Kirknewton	249
ROBB, JAMES, Nurseryman, Pathhead, Ford	316
SCOTTISH ROCK GARDEN CLUB ADVERTISING	318
SERPENT LABELS, SUTTON & SONS, LTD., Reading	293
SMITH, JOHN & SON (GLASGOW) LTD., Booksellers	313
STITT, Lt.-Colonel J. H., Drumcairn Nursery, Blairgowrie	319
SMALL ADVERTISEMENTS	306
THOMSON, JAMES, LTD., Contractors, Edinburgh	314
WATERPERRY HORTICULTURAL SCHOOL, Wheatley	319
WARD, EDWARD (PUBLISHERS) LTD., London	320
WILSON, JAMES A., Garden Contractors, Glasgow	310

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