The Journal
OF
The Scottish Rock Garden Club

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The Journal

OF

The Scottish Rock Garden Club

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

Chief Contents

VOL. V. PART 3 No. 20—April 1957

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Editor's Notes

THIS ISSUE of the *Journal* stands out from previous ones in the many members contributing to its pages for the first time ; and with its several new overseas contributors, and the wide field covered by their articles, it might almost lay claim to be called an 'international number.' When an editor has had to plead year after year for members to contribute to their own Club *Journal* it is particularly gratifying to find such a fine response. We feel that the thanks of all members are due to our President who has, we know, missed no opportunity of driving home the fact that most of the success or otherwise of the *Journals* depends on members themselves.

More than a dozen new names appear among our writers and we extend to all of them a warm welcome and sincere thanks—both on our own behalf and that of all fellow members—and express the earnest hope that in each case these will be only the first of many notes and articles equally interesting, and that their example will inspire others to emulate them by submitting contributions, no matter how brief, so long as they are of topical interest.

We hope their writers will not take it amiss that some exceedingly interesting contributions have been held over till our next publication. Matters of finance impose a limit on the extent of each issue, and in one case the article is held over in the hope that illustrations for it may be forthcoming before September. On no account should this hold-over be taken as a reason for any slackening off on the part of writers to our *Journals* ; such a happening could easily lead to a serious collapse in Club publications.

By the time that this *Journal* reaches Club members some of the earlier shows will have come and gone, but others will still be to come ; in particular, there are to be late shows (in September) at both Perth and North Berwick this year. We would suggest that all members should do their utmost to support Club shows by competing where they can, and at least by their attendance and interest where they are unable to take a more active part. This *Journal* contains two articles which should be of special interest to all members during the season of our shows—one on the experience of a member showing for the first time, and the other on growing plants for exhibition.

Another article which should concern many is that on harvesting seeds. The Seed Distribution could be greatly improved, and the work and worries of its Hon. Manager greatly reduced, if all members made themselves conversant with the correct methods of collecting and cleaning seeds, knowing when it is good seed, and making sure that only good well-cleaned seed, correctly named, is sent for distribution. It will be found that a little extra attention to plants' methods of seeding, and a study of the seeds themselves, can be of great interest as well as coming in useful in seed-harvesting. The Seed Distribution

Scheme is one of the great assets of Club membership and anything that can be done to improve it and lighten the load of those who operate it is worth every effort.

A keen old rock gardener once said : "If ye gae tae any garden with your e'en open ye'll aye see something worth learning." We were reminded of this remark recently after a series of visits to several extensive gardens, culminating with a visit to a most interesting, but not extensive, garden in central Scotland.

Perhaps the speaker should have added an open mind to open eyes ; but how true it is that there is so often something of interest in the smallest garden, or even in the trough or window-box of a real enthusiast. Size of garden or horticultural attainments of the owner have little to do with its appeal to plant lovers ; the best of 'experts' can learn from the successes and failures of comparative novices. The only gardens that always strike us as lacking in real personal interest are those—no matter how perfect they may be—laid out 'regardless of expense' by highly skilled landscape architects or garden designers and rigidly maintained in their original design without deviation or addition. These are not the gardens for plant lovers, because the plants must all fit into the general scheme of things, and only those which do so are admitted.

The garden of the true plantsman is a different matter altogether. He may call in professional advice and assistance to start with, but even then he will ensure that the design provides suitable sites for the various plants he intends to grow. From then onwards the garden is his, or hers, and each new plant as acquired is given the place most likely to fulfil its needs. Sometimes plants may not do as well as expected in the apparently correct places, and then the plantsman tries them here and there till he finds the situation which suits them. Some may say that such a garden cannot have the aesthetic appeal of the perfectly laid-out. Perhaps so, but it has, however, the appeal of well-grown plants obviously happy in their settings, and the added interest of the unexpected—as when one finds some temperamental little plant nestling under the protecting shadow of a strong-growing plant or shrub in a most unorthodox way but quite obviously happy and healthy in its situation.

April 1957.

Club Christmas Cards

THESE ATTRACTIVE and inexpensive cards will be made this year from the four colour plates in this *Journal*, i.e. Figs. 25, 26, 27 and 28.

They will be supplied in lots of not less than one dozen, which may be either all of one kind, or mixed, as you desire. It will be sufficient to give figure numbers when ordering. The price is 9/- per dozen, including envelopes.

Please order early from the Hon. Treasurer, Mr. STEWART MITCHELL, 1 Muirfield Crescent, Dundee, enclosing remittance.

The steady rise in costs makes production of the *Journal* increasingly difficult. By your active participation in this Christmas Card scheme you can help to maintain the standard of our publications.

Joint Rock Garden Plant Committee

WE WISH to draw attention to an alteration in time in connection with plants submitted at Chelsea Show. Instead of "By 10 a.m. on Tuesday, 21st May," as stated on page 8 of *Year Book*, please read now "By 4.30 p.m. on Monday, 20th May. The Joint Awards Committee will meet at 5 p.m. on Monday, 20th May."

R. H. S. Awards

ON THE occasion of the Annual General Meeting of the Royal Horticultural Society at Vincent Square on 19th February the Victoria Medal of Honour was awarded to Dr. Harold R. Fletcher, Assistant Regius Keeper of the Royal Botanic Garden, Edinburgh, and to Mr. J. S. L. Gilmour, Director of the University Botanic Garden, Cambridge, both members of our Club. To Major and Mrs. W. G. Knox Finlay of Keillour Castle, Perthshire, also Club members, the Holford Medal (for the best exhibit of plants and/or flowers by an amateur during the year) was awarded for their amazing display of Nomocharis last year. Club members take this opportunity of conveying their congratulations to all the above.

As the editor cannot very well congratulate himself, I wish to offer him congratulations on behalf of all members of the Club on his well deserved award of the silver Veitch Memorial Medal by the Royal Horticultural Society.

D. M. MURRAY-LYON

A Correction

HELICHRYSUM MARGINATUM

Journal 19, Page 134

Helichrysum marginatum grows south of the Equator, where everything is back-to-front and upside-down. Please, therefore, in the last paragraph of the note delete "*south* slopes in full sun" and substitute "*north* slopes in full sun."

My apologies to our members in the Southern Hemisphere.

L. C. B-H.

Gardens' Tour (Steamer and Coach)

THE NATIONAL TRUST FOR SCOTLAND

Gardens' Coach Tour

SCOTLAND'S GARDENS SCHEME

MANY WILL be pleased to know that, though the "Lady Killarney" has been taken out of commission this year, one gardens tour has been arranged by the National Trust for Scotland and two arranged by Scotland's Gardens Scheme.

For the 'Gardens Tour by Steamer and Coach' the National Trust for Scotland have reserved Turnberry Hotel for the week 11th to 18th May 1957, and gardens visited will include those of Culzean Castle, Glenarn, Lochinch, Crarae, Stonefield, Brodick Castle, Benmore, and Logan. Full particulars may be had on enquiry to Mrs. C. W. Smith, Organising Secretary, The National Trust for Scotland, 5 Charlotte Square, Edinburgh, 2.

The Coach Tours arranged by Scotland's Gardens Scheme are respectively 17th to 22nd June 1957 and 8th to 13th July 1957, the first tour visiting Kinross House, Branklyn, Ascreavie, Cortachy Castle, Drummond Castle, Keillour Castle, Glamis Castle, Guthrie Castle, Drumkilbo, Glendoick, and Falkland Palace, and the second visiting Cowie, Craigievar, Kildrummy Castle, Leith Hall, Balmoral Castle, Moine na Vey, Inchmarlo, Crathes Castle, Provost Skene's House, and Provost Ross's House in Aberdeen, Castle Fraser, Pitmedden, and Tolquhon. Further information and application forms may be had from The General Organizer, Scotland's Garden Scheme, 26 Castle Terrace, Edinburgh, 1.

Seed Distribution

A CURIOUS misapprehension seems to have arisen in some quarters concerning the state of the Seed Exchange. The following figures may therefore be of interest :—

Donors						*Applications*		
1955-56	Overseas	15	1956-57	Overseas	38			
	Home	97		Home	80	1956	..	502
						1957	..	621
	Total	112		Total	118			

It will be seen that, in spite of valiant efforts on the part of Overseas members, the amount of seed coming in is NOT keeping pace with the heavy increase in the demand, and I appeal for more seed, especially of uncommon alpines. There is never enough of this. WILL NEW ZEALAND MEMBERS PLEASE NOTE that we should be glad

to see the names of more New Zealand alpine plants on the Seed List. Here are a few suggestions : *Veronica pulvinaris, V. canescens, Raoulia eximia* and *Ranunculus lyallii.* If any member could supply seed of these, or any other of the rare and beautiful alpines of New Zealand, we should be very grateful.

I should like to express my appreciation of, and thanks to, the members who kindly took the trouble to send seed for distribution ; and to the members who, in spite of petrol difficulties, gave invaluable and never-failing help during the long period of packeting and distribution.

C. E. DAVIDSON

Obituary

SIR WILLIAM WRIGHT SMITH, F.R.S., F.R.S.E., D.èsSc., LL.D., F.L.S., V.M.H.

ALL MEMBERS of the Club, along with the wider field of botanists and many other scientists the world over, must have learned with sorrow and regret of the death of Sir William Wright Smith, for thirty-five years Regius Keeper of the Royal Botanic Garden, Edinburgh, and Hon. President of the Scottish Rock Garden Club since its inception in 1933.

Born at Lochmaben, and educated at Dumfries Academy, Sir William entered Edinburgh University in 1891 at the age of sixteen to take an Arts course, and at the same time a teacher's training course at Moray House Training College. In 1896 he graduated and commenced teaching, but his keenness for biological subjects attracted the attention of Sir Isaac Bayley Balfour, who in 1902 persuaded him to join the staff of the Botany Department of Edinburgh University.

There, except for four years in India, was to be the scene of his long life's work in the advancement of botany and horticulture. While in India he held responsible posts in Calcutta Botanic Garden and also made botanical explorations into regions of the Himalayas in Sikkim and on the borders of Nepal, Tibet, and Bhutan. The experiences of these four years in India were to stand him in good stead on his return to the Royal Botanic Garden, Edinburgh, in 1911 as Deputy Regius Keeper.

At this time the herbareum material and seeds collected by George Forrest in his second expedition to Western China were being unpacked. The abundant quantities of seeds of plants entirely new to cultivation introduced by Forrest's expeditions pointed to a coming change in gardening fashions in Britain. The great masses of material meant long years of constant analysis and classifying for Wright Smith and his chief, Sir Isaac Bayley Balfour.

When Sir William succeeded to the dual post of Regius Keeper of the Royal Botanic Garden and Professor of Botany in 1922, this work still went on and grew with each successive expedition of George

Forrest and other collectors to West China and the Himalayas. As the flood of new introductions grew Sir William found it necessary to concentrate chiefly on the two great families of Primula and Rhododendron (without losing interest in other genera too), and under his leadership the Royal Botanic Garden, Edinburgh, became the recognised seat of authority on these families.

When at a Club show we see the great array and diversity of Primula, Rhododendron, Gentian, Saxifraga, Meconopsis and hosts of other genera and species introduced over recent years, most of them from the hills of West China, Tibet, and Himalayan regions generally, we cannot help but realise how indebted we are to the work of Sir William Wright Smith. His gracious acceptance of the Hon. Presidency of the Scottish Rock Garden Club at its inception conferred on the Club a most noteworthy honour, and his unfailing enthusiasm and interest in all Club matters will be greatly missed by us all. The deep and sincere sympathy of members goes to Lady Smith and family in their great loss.

COLONEL D. G. LOWNDES

IN THE death of Donald Lowndes the Club has lost one of its distinguished members. Owing to his living in the south of England, he was not so well known to most of our members as I am sure he would otherwise have been. Many, however, met him when he paid his almost annual visits to the Edinburgh Show, and when he gave us a lecture on the Tilman Expedition to Nepal in 1950.

It was on this expedition that he found a most attractive dwarf Rhododendron with yellow flowers which is now in cultivation in a number of gardens under the name *Rhododendron lowndesii*. This was the last of his many plant-hunting expeditions, for the state of his health compelled him to decline the leadership of a later R.H.S. Nepal Expedition.

Belonging, as he did, to the Royal Garhwal Rifles, he lived for many years on the foothills of the Himalayas, and it was quite natural that he should have made for the heights whenever he could get leave. He was responsible for the introduction into cultivation in 1932 and 1934 of two well-known primulas, *Pp. scapigera* and *sessilis*. He also sent home from Waziristan two most attractive plants, *Gentiana lowndesii* and *Sophora griffithii*. The former was later renamed *G. Kurroo var. lowndesii*, and has unfortunately since been lost to cultivation. The latter, a shrub which takes the place of "broom" in many parts of the North West Frontier of India, has not proved too hardy in this country in spite of flourishing at 7000 or 8000 ft. in Baluchistan and Waziristan.

He was keenly interested in plants from boyhood, in fact one might almost say that gardening in his case was hereditary. In addition to looking after his own large garden in Hampshire, which was full of

interesting and uncommon plants, he found time for many other activities.

He served on both the R.H.S. Lily and Joint Rock Garden Committees. He was also a member of the A.G.S. Committee, and ran their seed distribution for two years. In addition to that he served as a member of the Committee which organized the successful 1953 Everest Expedition. He also acted as editor of the Regimental Magazine, and of the second volume of the history of his regiment. In spite of his many preoccupations, he could always find time to show friends and strangers round his garden. He was always willing to give advice and help to less knowledgeable gardeners, and he was most generous in giving away plants and seeds.

M-L.

★ ★ ★

TO THE BIRDS

My garden can supply an ample diet
Of earthworms, wire worms and luscious slugs,
Of woodlice, earwigs and caterpillars
With simply myriads of the lesser bugs.

With all this meaty sustenance provided,
Why do you long for vegetarian food ?
(I only hope that none of you decided
My treasured saxifrages tasted good.)

I take dim views of all your depredations—
The way you drag up alpines by the roots ;
The sparrow hordes that flock to my carnations,
And greedily devour the tender shoots.

You make short work of seeds that I've been sowing ;
You tear my golden crocuses to shreds ;
And, when the early primrose buds are showing,
You wantonly rip off their lovely heads.

Because the place has had to be protected
From rain-drips, frost, and you—I see (alas !)
Spring's ecstasy, so eagerly expected,
Through jam-pots, wire, and mud-bespattered glass.

I love your singing, but these faults are mentioned
In case you may be ready to atone,
And (if you should be really well-intentioned),
Decide to leave my rockery alone.

R. M. H.

The Scottish Mountain Flora

By J. GRANT ROGER

APART FROM many species of flowering plants which are common to both the Lowlands and Highlands of Scotland there are over a hundred species, besides microspecies, which may be considered fairly strictly as mountain plants since they are mainly found at elevations over 2000 ft. within the Central Highlands. Several of these species do occur locally, however, on the sea coasts of our northern and western counties. The various habitats of our mountain flora include high peaty moors, grassy hillsides, steep screes, rock ledges and severely exposed areas of mountain-top detritus ; and each habitat has its distinctive plant communities determined largely by local geological conditions, climate, and the effects of grazing animals. Thus a great variety of plant associations has developed on the many different rock formations of the Highlands, but it is noteworthy that given adequate moisture, the greatest wealth of species may be found on calcareous rocks, and in particular the remarkably fertile Ben Lawers Calcareous Schists which are exposed on several of the Grampian Mountains, but most prominently on Ben Lawers itself.

Most of our mountain species are widely distributed over the boreal and montane regions of both the Old World and the New, but the distinctly northern and circumpolar distribution of many of them is very striking. Only some six species of flowering plants in the Scottish flora may be considered as strictly alpine since they are present on the mountains of West, Central and North-West Europe, but absent from northern and arctic regions. These are :—

*Alchemilla conjuncta**—a close relative of *Alchemilla alpina*, occurring extremely locally in N.W. Angus and in Arran, *Cherleria sedoides*—widespread in the Highlands, often well over 3000 ft., but usually avoiding acidic rocks : sometimes forming remarkably large cushions, as on the ultra-basic rocks of Rhum, *Homogyne alpina*—extremely local and rare on a rocky mountainside in N.W. Angus (very common on the alps of Continental Europe), *Oxytropis halleri*—occurring locally in several counties, usually in basic rocky and grassy places, but is coastal (notably in N. Sutherland) rather than montane, although it is found on a mountain of N. Perthshire at about 2000 ft., *Rhinanthus spadiceus*—most probably a microspecies very closely related to *Rhinanthus minor*, but decidedly alpine, rather than northern, in its distribution : widespread, although local, on Scottish hills and mountains, and *Thlaspi alpestre*—known on one mountain in Central Perthshire, on another in N.W. Angus, and on Rhum : always on basic rocks and ranging from about 1000 ft. (on Rhum) to 3000 ft. (in Angus) : very rare.

*The nomenclature used throughout corresponds with that adopted by Drs. A. R. Clapham, T. G. Tutin and E. F. Warburg in their "Flora of the British Isles" (Cambridge, 1952).

In contrast to these strictly alpine plants are the species with a definitely northern distribution, ranging in the arctic and sub-arctic regions, but absent from the mountains of central Europe. This geographical group includes twenty-five species which occur on the mountains of Scotland. Among these are :—

Alchemilla wichurae—occurring locally on basic rocks of the Central Highlands and well established on the calcareous schists of the Breadalbane mountains, to over 3000 ft., *Arenaria norvegica*—present in only four widely separated areas : in N.W. Argyll, on Rhum, in the Assynt district of Sutherland, and in Unst, Shetland : favouring certain strongly basic rocks, *Artemisia norvegica*—on one mountain in Wester Ross, at well over 2000 ft., where it was first discovered in 1950. (Remarkably restricted in range elsewhere, being confined to one region in Norway and to the northern Ural Mountains), *Cerastium edmondstonii*—rare and local, but fairly widely distributed on high rocky slopes and ledges, reaching nearly 4000 ft. on the Cairngorms and Ben Nevis, *Chamaepericlymenum suecicum*, (Cornus suecica)—local on peaty moorlands, ascending to over 3000 ft., *Diapensia lapponica* (see Fig. 25)—a markedly circumpolar species, discovered in 1951 on a severely exposed rocky area, well over 2000 ft., in W. Inverness-shire, and not known elsewhere in the British Isles : flowering between mid-May and mid-June, *Draba rupestris*—very local and rare on a few high mountains from Perthshire to N. Sutherland, ranging from 2000 ft. to over 3900 ft., *Erigeron borealis*—one of our rarest plants of rocky ledges on the Grampians, usually from 2500 ft. to 3500 ft., favouring the calcareous schists, and perhaps most prominent on Ben Lawers.

Koenigia islandica is rather inconspicuous, but of special interest in having in Skye and Mull its most southerly stations in Europe : very rare. *Minuartia rubella*, confined to basic rocks on a few mountains from Perthshire to Sutherland, is very rare, and usually near, or over, 3000 ft., *Rhinanthus borealis*—widespread, but local, in mountain pastures and grassy ledges, reaching over 3000 ft., *Rubus chamaemorus*—on high peaty moors, widely distributed and plentiful locally, usually between 1000 ft. and 3000 ft., but ascending to 3800 ft. on the Cairngorms, *Sagina intermedia*—an inconscpicuous species of rocky places at great elevations on the Grampians, but extremely rare : ascending to over 3900 ft., *Salix lanata*—an extremely rare willow, although prominent on several mountain ledges of the central and eastern Grampians, mainly between 2000 ft. and 3000 ft. (only a few dozen plants of this beautiful species survive in Britain). *Saxifraga caespitosa* (see Fig. 26) is very rare, on four high mountains in the Central Highlands, favouring calcareous rocks over 3000 ft. (each small tuft may bear from 30 to 40 flowers), and *Saxifraga rivularis*—sometimes found growing near the last mentioned species, is equally rare, in a few of the highest corries, to about 3900 ft.

A third and much larger geographical group consists of species mainly of arctic or sub-arctic regions and on high mountains farther

south, but characteristically absent from the intervening lowlands (unless on the sea coast). Over seventy species of this arctic-alpine group occur in Scotland, and these include :—

Alchemilla alpina—one of the commonest and most widespread of Scottish mountain plants, of pastures, rocks and exposed summits, reaching over 4000 ft., *Alchemilla filicaulis*—widespread over the Highlands in grassy places from about 1500 ft. to over 3000 ft., *Alchemilla glomerulans*—occurring on mountain ledges, chiefly at elevations from about 2000 ft. to 3000 ft., *Arabis alpina*—extremely local on the Cuillin Hills of Skye, at over 2500 ft., and nowhere else in the British Isles, *Arctostaphylos uva-ursi*—very widely distributed, and often locally abundant from Dumfries to Shetland, on moors and rocks, to about 3000 ft., *Arctous alpina*—local, from W. Inverness-shire northwards, on rocky moorlands, but sometimes on grassy slopes, ranging from about 200 ft. in Shetland to 3000 ft. on the Scottish mainland, *Astragalus alpinus*—very rare and local, being restricted to small areas on three hills, in N.E. Perthshire, N.W. Angus and W. Aberdeenshire : always associated with basic rocks, from about 2200 ft. to 2600 ft.

Bartsia alpina is very local on moist ledges and hill pastures in Perthshire and Argyll, ranging from about 1000 ft. to 3000 ft., *Betula nana*—distributed locally on peaty moors, chiefly between 1000 ft. and 2700 ft., *Cardaminopsis petraea*, (*Arabis petraea*)—widespread on mountain rocks ; and reaching at least 4000 ft. on the Cairngorms.

Carex atrata and *C. atrofusca* are perhaps the two most attractive species of our several arctic-alpine sedges ; both favouring basic rocks, and both rare, especially *C. atrofusca*. *Cerastium alpinum* is very local, but ranging from Dumfries to Sutherland, usually on rock ledges and ascending to over 3900 ft., *C. cerastoides*—rare, on the wet rocks of high corries from Perthshire to Sutherland, usually between 3000 ft. and 4000 ft., *Cicerbita alpina* (*Lactuca alpina*), surviving on only a few ledges of the eastern Grampians, its highest known station being on Lochnagar, at 3600 ft. Very rare.

Draba incana is widely distributed but not common in the Highlands and most frequent on the calcareous schists, reaching about 3500 ft. in Breadalbane. *Dryas octopetala* is perhaps best known on the limestone and coastal sands of Sutherland, but occurring locally on calcareous mountain rocks throughout the Highlands, ascending to 3000 ft. in Angus and 3200 ft. in Banffshire.

Empetrum hermaphroditum and *E. nigrum*. Both species are common on the Highland moors, but the former characteristically at greater altitudes—up to about 3500 ft. on the Cairngorms ; *Epilobium alsinifolium* and *E. anagallidifolium*—of similar habitats—by small mountain burns. These two species are locally frequent, often ascending beyond 3000 ft.

Gentiana nivalis—very rare on calcareous schists, is confined to one mountain in Angus and to a small area of the Breadalbane moun-

tains. (Remarkable both for its beauty and in being an annual among the predominantly perennial "alpines"). *Gnaphalium norvegicum* is extremely local and rare : on a few high mountains of the Grampians, and in Ross and Cromarty : evidently preferring acidic rocks at elevations well over 2000 ft., and reaching about 3600 ft. (Well established in very steep places on Lochnagar). *Gnaphalium supinum* is widespread, often at great altitudes, in the Central and Northern Highlands, on exposed slopes and summit areas, occurring over 4000 ft. on the Cairngorms and on Ben Nevis. *Loiseleuria procumbens*, on high exposed moors and mountain tops, is plentiful locally, as on the Cairngorms ; usually ranging between 2000 ft. and 4000 ft. (It has its most northerly Scottish station on Ronas Hill (1475 ft.), Shetland).

Myosotis alpestris, extremely local, is probably naturally established only on Ben Lawers, where it is conspicuous from about 2500 ft. to near the summit of the mountain, on rock ledges and short turf. *Oxyria digyna* occurs frequently in most parts of the Highlands, usually on wet rocks in corries and gullies, up to over 4000 ft. *Phyllodoce coerulea*, extremely local, is still unknown in Scotland apart from its famous station in N. Perthshire. *Poa alpina* and *P. glauca*, both attractive grasses, favour basic rocks, usually over 2000 ft., but are rare and local, particularly *P. glauca*.

Potentilla crantzii is local, usually on basic rocks, in many parts of the Highlands : reaching about 3300 ft. on the Grampians, *Salix arbuscula*—rare, and apparently not present in the Northern Highlands ; up to at least 2700 ft. on the Grampians, *Salix herbacea*—widely distributed on rocks and exposed gravelly places, ascending to near the summits of our highest mountains.

S. lapponum occurs locally on crags of the Central and Northern Highlands up to 3500 ft. *S. myrsinites* is a rarer willow than *S. lapponum* and more restricted to calcareous rocks, attaining an altitude of 2900 ft. in N.W. Angus. *S. reticulata*, ranges from the mountains of Perthshire to Ben Hope in Sutherland but, definitely very local and rare, is always on basic rich rocks, to at least 3500 ft. *Saussurea alpina*—widespread throughout the Highlands, but rather local and rarely on acidic rocks, ascends to at least 3900 ft. *Saxifraga aizoides*, occurring in most Scottish counties in wet rocky places among the hills, tends to avoid acidic rocks ; found up to about 3800 ft.

S. cernua is now known on four mountains in Scotland (in Perthshire, Inverness-shire and Argyll), but is still very rare : on calcareous rocks, between 3000 ft. and 4000 ft. *S. hirculus* is hardly a mountain plant in Scotland, being confined to wet moorland below 2000 ft. Very rare and local—deserving very careful protection. *S. nivalis* is local and rare, but occurs on many mountains in the Highlands, and, notably, on Rhum : nearly always on basic rocks, but sometimes on granite, at altitudes well over 4000 ft. *Saxifraga oppositifolia*—well known (from near sea level in places) up to about 3900 ft., is locally common, especially on the Ben Lawers schists, and flowering profusely from

late March to June. *Saxifraga stellaris*—by far our best known saxifrage, ranges from near sea level in the north of Scotland to the summit of our highest mountains, by burns and on wet rocks generally. *Sedum rosea* is widespread on coastal cliffs and in the high corries ; on both basic and acidic rocks to at least 3900 ft. *Sibboldia procumbens*, locally common on rocks and gravel, is usually found from about 2000 ft. to about 4000 ft. *Silene acaulis* is conspicuous as a local plant on many mountains, both on rocks and on detritus of exposed summit areas, reaching the top of Ben Macdhui (4296 ft.).

Thalictrum alpinum is widespread in wet places throughout the Highlands, ascending to over 3900 ft. on various rock formations, *Tofieldia pusilla*—local but often plentiful by small burns and springs, usually between 1000 ft. and 3000 ft., *Vaccinium uliginosum*—widely distributed, and locally common on moors, reaching in the Central Highlands elevations up to 3700 ft., *Veronica alpina*—a rare and local species ranging from Dumfriesshire to W. Inverness-shire : on wet rocks and detritus in the corries, chiefly from about 2000 ft. to at least 3700 ft. (very widepsread in Europe and N. America), *Veronica fruticans* —very rare and retricted to a few mountains in Perthshire, S. Aberdeenshire, N.W. Angus and W. Inverness-shire ; favouring calcareous rocks between 2000 ft. and 3000 ft. *Viscaria alpina* (*Lychnis alpina*) is extremely local and rare, growing on an exposed rocky area in N.W. Angus at over 2800 ft..

The many species of *Hieracium* recorded for various parts of the Scottish Highlands cannot readily be placed in geographical groups : some are common to Britain and the Continent, others appear to be absent quite from the Continent, while a few seem to be peculiar to Scotland. Of the mountain species, sometimes very prominent in several of our high corries, are : *Hieracium holosericeum* (a very handsome plant), *H. alpinum*, *H. eximium* and *H. hanburyi*, the latter being unknown in Continental Europe.

Such then are many of the most attractive and interesting species of flowering plants found on Scottish mountains. A very high proportion of these (while often plentiful in other countries) are definitely among the rarest members of our British Flora, and it need hardly be emphasised that all the species referred to above as rare, or very local, merit careful conservation wherever they persist in their natural habitats.

In search of Plants in the Dolomites

By M. E. GIBSON

ON RETURNING from a three weeks' holiday in the Dolomites (July 6th-28th, 1956) it occurred to me that readers might be interested to know how easily the special plants of this district can be found without any great physical effort.

We spent most of our time in Selva at the head of the Gardena Valley at about 5000 ft. The bus service was extremely good and in a short time we could get to one or other of the three passes—the Gardena, the Sella and the Pordoi—all about 2000 ft. higher up.

On the Sella pass, within a few minutes walk of the bus stop, we found *Ranunculus seguieri* and mats of *Primula minima* in the short turf. *Gentiana acaulis* and *G. verna* were going over, but *G. brachyphylla* or *Gentiana imbricata* (Froel) and *G. bavarica* were in full bloom, while on the walk down from the pass on a brilliantly sunny day the grass was studded with the tiny, incredibly blue stars of *G. nivalis*. Everywhere we went the rock crevices gave us *Saxafraga squarrosa*, *Sax. caesia*, and often a third Sax. said to be a hybrid between the first two and called *tyrolensis*. Another plant of the rock crevices and peculiar to this region is *Paederota* (alias *Veronica*) *bonarota*, with downy rosettes of leaves and a very attractive cluster of fluffy lavender blue flowers about 4 ins. high. In a similar situation grows a small neat *Phyteuma*—possibly *sieberi*. Over the rocks in woodland and in the open trails *Atragena alpina*, though the best of its bloom was over in July. In a meadow at the top of the pass where we had lunch one day we listed between forty and fifty varieties of plants in flower, in an area of a few square yards.

From the Pordoi Pass a famous path, the Vial del Pan, runs South-East to the Marmalada glacier and is noted for its wealth of flowers. The path can be reached either by bus or by a chair lift from Canazei, a little town on the South side of the Sella pass. Here we found by the wayside large mats of *Douglasia viteliana* covered with its yellow flowers and almost hiding small clumps of *Draba azoides*. There were yard-wide patches of *Primula minima* in full bloom and showing a great variation in the colour of the flowers. At the edge of a snow patch in a shady hollow *Anemone vernalis* and soldanellas were still in bloom. Other flowers seen by the wayside were *Orchis globosa*, *Pulmonaria azurea*, *Anemone baldensis*, *A. sulphurea*, *Loiseleuria procumbens*, and best of all, in the crevices of some rocks the lovely sky-blue cushions of *Eritrichium nanum*. Further on, on a saddle between two crags, only a few minutes climb from the path, we found more *Eritrichium nanum*, *Androsace glacialis*, both white and pale pink forms, *Lloydia serotina*, *Geum reptans*, *Ranunculus glacialis*, *R. pyrenaeus*, *Primula elatior* and *Saxifraga oppositifolia*.

The best walk from Selva itself is up the Valle Lunga for about three miles level going. In July there was not much to see for the first

mile of the way, but there was evidence that *Primula farinosa*, Soldanellas and *Silene acaulis* had adorned the turf a few weeks earlier. Further on we came to vast screes where we found Edelweiss, *Papaver rhaeticum*, *Dryas octopetala*, *Calamintha alpina*, *Saponaria ocymoides*, *Linaria alpina* and exquisite patches of *Potentilla nitida* in all shades of pink, from nearly white to deep rose. This plant was at its very best for us, while *Rhodothamnus chamaecistus*, which was growing among very dwarf *Rhododendron hirsutum* and *Erica carnea*, was almost over. After a walk of about three miles it is worth while to transfer one's attention to the vertical cliffs on the west side of the valley. Here in the narrow clefts in the limestone grows *Phyteuma comosum* within easy reach of admiring eyes. It was in bloom in July, and quite safe in the stranglehold of the rock. On this walk we also found *Daphne striatum*, *Dianthus silvestris*, *Aster alpinus*, both mauve and pink forms, and a dwarf form of *Auricula alpina* which was very attractive. There were also three Pyrolas, *rotundifolia*, *secunda* and *uniflora*.

The most lovely meadows of all were probably on the Suisi Alp reached by a lift from Ortisei. This town, the largest in the valley and about 5 miles from Selva, is a delightful place to visit. The Alp is a vast tableland, 1000 ft. above the valley, stretching for miles and affording magnificent views. The chief flowers seen were quantities of *Gentiana campestris* in many different shades with *Campanula barbata*, arnica, nigritella, phyteumas, *Dianthus superbus* and *Parnassia palustris*.

In the woods around Selva there was a great variety of plants including Orchises, *Lilium martagon* and *Cypripedium calceolus*. We did not find the latter but as it blooms in June we feel we have at least an excuse. We did see *Lilium croceum* but it was more often than not in a bouquet. Its conspicuous orange colour seemed to be its undoing. On one walk we found *Daphne cneorum* and *Daphne striatum* growing cheek by jowl. The former was almost over and though we frequently found *striatum* we never saw *cneorum* again.

A week of our holiday was spent at Alba, a small village about a mile from Canazei. From here we made an expedition by bus, Shank's mare and chair-lift to the Marmolada glacier. This was a memorable trip but rather tantalising as plant identification is extremely difficult when one is dangling at anything from 20 to 100 ft. above the ground, while on the glacier we were surrounded on all sides by deep snow. In the woods and by the river at Alba there were great quantities of the three Pyrolas already mentioned, especially *uniflora*, also *Goodyera repens*, *Swertia perennis*, *Polygala chamaebuxus*, both yellow and pink forms, *Cheiranthus alpinus* and *Pulmonaria azurea*.

We paid fleeting visits to other passes by motor coach. At the Rolle Pass we hoped to find *Primula tyrolensis*, but were disappointed. However, we got a campanula, which we provisionally called *morettiana*, but this has still to be confirmed. We also found *Primula longifolia*, a very large butterwort with as many as six flowers to one plant,

and *Ranunculus glacialis*. On a 15 minute stop at the Tre Croci Pass we got *Dianthus superbus*, *Gentiana utriculosa* and *scorzonera rosea*.

I must report to finish that the commonest plant of all in the alpine meadows was *Horminum pyrenaicum*. It was everywhere and in every shade from white to the deepest purple—almost, it palled.

I have mentioned chiefly the plants which seemed typical of, or peculiar to this district. Needless to say, there were many others, including all the more universal alpines.

* * *

THE GARDEN GATE

When I was kindergarten age, in good Victoria's day,
I hated formal gardens, though they were so trim and gay,
With yellow calceolarias and the fiercely blazing heads
Of geraniums, massed closely, in lobelia-bordered beds.

The reason was a secret—t'was a garden that I knew
Behind a curly iron gate, with slits for peeping through.
I found it one hot morning and it looked so green and cool,
There was really little wonder I forgot to go to school.

Each day I watched the flowers there (I could not pass the place),
Whilst hard against those close-set bars I pressed an eager face.
The teacher would be angry—"You are late again," she'd say,
"Do try to pay attention, you're in dreamland half the day."

How could I pay attention ? I was trying to design
A better sort of gateway that was going to be mine.
With iron bars so far apart that, when my flowers were sweet,
Children could see them, and the scent would spill into the street.

R. M. H.

Growing Rock Garden Plants for Exhibition

NOTES FOR BEGINNERS

By DAVID LIVINGSTONE

AN IMPORTANT factor in keeping the Club before the gardening public and in attracting new members is the number of shows held throughout the country each year. In order to maintain the high quality of the exhibits at these shows and to increase their number there must be a regular stream—and I mean stream, not driblets—of new and enthusiastic exhibitors. These are most likely to graduate through the ranks of those who exhibited in the beginners' sections and these notes are primarily intended for them and to a lesser extent for those who now find themselves having to compete in the senior sections for the first time.

It is great fun exhibiting on even a small scale, and I would advise beginners not to be over ambitious in the first place. It would be enough in the beginning to have a cold frame of about 3 ft. by 4 ft. which would accommodate some three dozen or more plants, depending on the size of pots used. In this connection I would recommend limiting the size of pot to 5 ins. in the first few years ; indeed, with some kinds of rock garden plants one need never use a larger pot in which to grow quite aged specimens. I began my own career as an exhibitor with a frame of this size. It had a stout wooden bottom in which there were a number of 1 inch holes to allow for drainage, and the whole thing was raised on 24 inch legs to bring the plants nearer to eye level and of course to reduce back bending when attending to the occupants. This frame was 18 ins. deep at the back and 14 ins. at the front.

I used old red blaze as plunging material but weathered boiler ash or sand would serve the purpose. Certainly plunging material of some kind is necessary to prevent the pots from drying out too rapidly and to prevent or at least minimise the cracking of pots by frost. Pots are best plunged to their rims in whatever material is used.

The framelight should be permanently in position from say mid October until the end of March, when it should be pulled down during the day and replaced at night, finally removing it altogether about the end of April, depending on weather conditions. Unless in frosty weather ventilation should always be given when the light is in place and I think that this is best achieved by raising the light on blocks of wood 2 or 3 ins. thick. A word of caution : don't forget to tie the light down or it might be blown away. I prefer raising the light in this way to pulling it down a little, because the back row of plants is not then exposed to direct rainfall.

The siting of the frame is important. It should be, if possible, sheltered from seering east winds, which I think cause more damage than is generally appreciated, and it should not be so placed that drips

from trees or from the house fall on it. If it receives a little shade at some time during the day it will not matter, but I think good light and sunshine are both necessary to keep the plants happy and in character. Having said that, let me appear to contradict myself. Direct sunshine of any intensity for a long period would have an adverse effect on some plants, in pots particularly, such as the Kabschia saxifrages, and to prevent the sun's rays from resting too long on any one spot a sparred lid should be made to fit the top as does the frame light. The spars or slats should be 2 ins. or so wide, they should be $1\frac{1}{2}$ to 2 ins. apart, and they need run one way only, the result being something like a barred gate. This lid need only be put in place in periods of prolonged hot sunshine in late spring and summer. It should be of very light material so that it can be handled easily by one person and again a word of warning : always tie it down to brackets or nails in each end of the frame.

The plants must be kept well watered in spring, summer and early autumn, and it may be necessary in dry sunny weather to water every other day, but experience will soon teach when the watering can is necessary. Spraying overhead in the morning and again in the evening with a fine mist spray in dry sunny weather also helps to keep the plants in fine condition and in the same conditions I find that it is also helpful to keep the drainage material reasonably damp. In winter, early spring and late autumn water should be applied with care and only when it seems necessary ; indeed, in winter if the plants are plunged properly they should go for long spells without attention from a watering can, and when water is necessary care should be taken to see that it goes into the soil and not on to the leaves and stems.

The golden rule about perfect drainage for rock garden plants must be observed and I find that this is best achieved by putting a large crock over the vent of the pot with several smaller pieces of crock on top of that and covering the lot with a few half decayed leaves (beech or oak are best) to prevent the potting compost from washing down into the drainage material and clogging it.

The selection of plants to be grown always proves difficult and those which I suggest have been chosen to give flowers over quite a long period and should give a few plants for exhibition at most of the Club's shows. In fact, this selection should form the basis of a very good collection for the senior sections in later years. It will be noticed that I have omitted all spring bulbs ; these I hope to deal with in a later article. The plants suggested are not all of the easiest cultivation but none is really difficult if the general directions which I have given are followed. Additions may be made to the collection as the grower gains experience and skill. The potting composts given are merely a general guide to the kind of soil conditions required and need not be followed slavishly. The main thing is that the grower himself should note the kinds of composts used for particular plants and the reaction of the plants to them. Experience wisely used is the key to success.

Most plants should not need to be re-potted more often than once each year and some such as rhododendrons and some of the other shrubs might well go for two years. Those not re-potted at the end of a year should be given a top dressing of fresh compost. This is best done after flowering is over, as is re-potting, and consists of removing a little of the surface soil and adding fresh compost.

The first group of recommended plants should react favourably to a mixture of loam, peat or leaf mould and 1/10 inch sand in very roughly the proportions of 2, 2 and 1.

Andromeda polifolia compacta. This is a dainty dwarf shrub with bell shaped pale pink flowers in Spring.

Astilbe simplicifolia. A very fine deciduous plant flowering in August and September. It has light sprays of small very pale pink flowers over leaves which are beginning to assume Autumn tints as the plant comes into blossom.

Cassiope lycopodioides and *C. selaginoides.* Both are fine little shrubs, the former prostrate and the latter upright. Both bear lily-of-the-valley like flowers in Spring.

Cyclamen neapolitanum and its white form. Both are excellent for September flowering. The type plant is pink and the flowers of both are like little butterflies perched above marbled green and white foliage.

Daboecia azorica. An excellent little shrub only a few inches high, having small green leaves forming a perfect background for the egg-shaped crimson red bells held on 3 in. slender stalks.

Gaultheria cuneata and *G. miqueliana.* They are fairly similar and one only need be included in a small collection. They are shrubs bearing small round white flowers which are succeeded by large pure white fruits. The flowers come in late Spring and the berries persist throughout the Autumn.

Gentiana Farona, G. Glendevon and *G. orva.* These three gentians, hybrids of the very beautiful species ornata, are perhaps the most compact in growth of the autumn gentians and are therefore very suitable for pot work. The flowers are somewhat similar, all having the tubby tube of the parent and all are pale blue with white throats.

Phyllodoce aleutica and *P. nipponica.* Two very desirable little shrubs, the former growing a little stronger than the latter, and the one bearing cream-coloured bells and the other white slightly pink-tinted bells in Spring.

Rhododendron imperator, R. pemakoense, R. microleucum and *R. sargentianum.* There are many dwarf rhododendrons from which to choose, but these four flower well even while quite small. Their colours are rose red, pale mauve, white, and yellow. Their flowering period is April and May.

Vaccinium nummularia. This is one of the finest of all spring flowering rock garden shrubs. It bears clusters of small cylindrical pinky white flowers in April or May and these are often followed by little blue-black fruits with a bloom on them like well grown black grapes.

The second group requires a compost with rather more sand and should grow well in roughly equal quantities of loam, peat or leaf mould and the same grade of sand as before.

Campanula pilosa superba. This is an easily grown bell flower from Japan. It has small rosettes of shiny green leaves and large open flowers of pale blue.

Campanula wockii. A neat dwarf plant with small dark violet-blue flowers. There are many other dwarf campanulas easily grown and free with their flowers which can be selected to suit individual taste.

Chamaecyparis obtusa caespitosa or *juniperoides* or *flabelliformis.* One of these dwarf cypress trees would be enough in any small collection. They vary only very slightly in their habit of growth, all making more or less bun-shaped evergreens. I had a specimen of the first named in a 5 in. pot which at 15 years of age was only some 4 ins. wide by 3 ins. high. The other two are slightly more rapid in their growth.

Daphne arbuscula or *collina.* Again one might be sufficient in a small collection. The former grows about 6 ins. high and spreads outwards very slowly. It bears deep pink flowers in clusters at the tips of the shoots in May and June. The latter is more upright in its growth and will eventually after many years reach 18-24 ins., when, of course, it would be unsuitable to grow in a cold frame. Its flowers too are borne on the tips of the shoots and are a paler pink.

Lewisia brachycalyx. This plant forms rosettes of spathulate leaves and the large white flowers, water-lily like in their appearance, are borne between the leaves in the centre of the rosette usually in April or May. Like all Lewisias its weak spot is at the neck just level with the soil and it pays to put some very sharp sand there instead of compost. This plant dies away in the late summer or early autumn and comes into growth early in the year. The following three—Howellii, cotyledon and columbiana rosea—are evergreen and their flowers are borne in sprays in May or June. The first two are fairly similar and have salmon pink flowers. The third one is much smaller in its growth and has deeply veined rosy purple flowers. All three need not be included in a beginner's collection.

Morisia hypogaea. This is an attractive rosette forming plant with beautifully cut leaves. It produces a rapid succession of stemless yellow flowers in the centre of the rosette.

Rhodohypoxis baurei. This South African bulbous plant bears hairy grassy foliage and deep carmine rose flowers over a long period, usually May, June and July, but sometimes even later than that.

There is a very fine form called Douglas which has larger flowers and is very vigorous. There is also a pale white one, platypetala. Margaret Rose has large silvery pink flowers, but I find that the effect is spoiled by the fact that the flowers quickly become dingy looking. This is a great pity because the flowers when fresh are very beautiful. Again one should make a choice and not grow all of these.

Thalictrum kiusianum. This is a small delicate looking plant with foliage like a Maidenhair fern. It throws in June and July little clusters of pale mauve flowers. It is quite easily grown and sends out stoloniferous runners which root down and form little tuberous roots which then become little plants on their own. The whole plant dies away in the autumn, but reappears with the warmer days of spring.

The third group requires a compost rather more open in character than that for the second group. There should therefore be added to the compost recommended for the latter some broken pot or small stone chips.

Androsace arachnoidea superba. This is a small compact plant having woolly rosettes from which rise very short stemmed clusters of three or four white flowers in April or May. In the young stage the flowers have a green eye but this changes quickly to rose. After flowering the rosettes will throw out small strawberry-like runners and at this stage to keep the plant compact a little coarse sand should be worked in amongst the stems.

Draba dedeana and D. rigida bryoides. The former has little dark green rosettes which form a close cushion and in April each rosette bears a little cluster of clear white flowers. The latter has very small bright green rosettes and clusters of golden yellow flowers also in April.

Saxifraga burseriana crenata and *sundermanii (of Kew).* Both of these form hard tight grey-green cushions and both have white flowers in March or early April. The former has crimped petals giving a most pleasing appearance. The latter is extremely free with its flowers and an excellent plant for the beginner.

S. stuartii or *stuartii rosea.* Only one of these need be grown. They have small silvery rosettes packed tightly together and the former has attractive light orange yellow flowers and the latter rosy bronze flowers on short stems in April. There are many other saxifrages of the Kabschia and Engleria sections which are quite suitable and a selection of other than those named can be made from any rock garden nurseryman's catalogue.

The fourth group, which consists of European Primulas only, should be grown in a compost consisting roughly of two parts of loam, two parts of leaf mould or peat, one part of coarse sand with a little dried cow dung mixed amongst it or a little bone meal.

Primula bilecki—makes small rosettes of deeply notched leaves and in late March or early April is covered with very large, almost

stemless flowers, which are, I think, magenta in colour, although some people refer to them as rosy purple. This is an excellent little plant for the early shows. So too is P. forsteri, which is very similar in appearance, perhaps being slightly larger. Its flowers are pink and are borne on slightly longer stems.

Primula pubescens Mrs. J. H. Wilson. The whole tribe of pubescens hybrids is worthy of attention. This one is perhaps the best known. It is very free flowering, has a very good constitution and its deep lilac flowers are carried on short scapes in April. I have found this one to flower consistently about the middle of April, never varying much from one year to another.

P.p. Rufus has large brick red flowers. It is a very robust grower and I have always found it to be the last of the pubescens family to flower, coming into bloom about the end of April or the beginning of May.

P.p. The General has flowers of a rich terra-cotta red set off by a pronounced yellow eye. It has been given a bad reputation but its constitution is not nearly so weak as some writers have suggested. It too flowers in the second half of April.

Primula Barbara Barker. I recommend this one in preference to the silvery leaved P. Linda Pope, which is one of its parents, because Barbara Barker is, I think, slightly easier to do and, while it does not have the striking silvery foliage, has flowers which are very similar, being rich lavender blue, large and symmetrical. They are borne in quantity in short scapes in April.

Primula marginata Pritchard's Variety. This plant has silvery foliage serrated on the edges, with large bluish lilac flowers borne on short scapes. It is sweetly scented and one 5 in. pot of it will scent a whole Alpine house. There are various good forms of marginata available and one of the best is the magnificent form collected by Mr. Jack Drake and appropriately called Drake's variety. I think it is slightly larger than Pritchard's variety, which it closely resembles.

All of these European Primulas seem to react favourably to a weak solution of one of the patented liquid manures such as Bio.

Now one or two tips about exhibiting. Always see that your entries are with the Show Secretary in good time. This gives him an opportunity to allocate sufficient space to each class. Your exhibit should be correctly named and the label should be printed so that it may be read easily by visitors to the show. If you are in doubt about the nomenclature of any plant try to ascertain from a knowledgeable person connected with the show what it is. If you are unable to find out the correct name in this way put a question mark on the label and no doubt one of the judges will be able to supply the missing name. Be careful too to ensure that your plant is entered in the correct section. If in doubt ask the Show Secretary or other official of the Club. They will only be too willing to help you. Dead leaves should be trimmed

off and all spent flowers removed before the plants reach the show bench. The pots should be scrubbed clean, as nothing detracts more from the appearance of an exhibit than dirty slimy pots. These may appear to be elementary points, but it is surprising how many experienced exhibitors do not take care to clean their pots and dress the plants. Failure to attend to these matters of detail can quite easily mean the difference between a prize and no prize.

New to My Garden—Part 2

By D. M. MURRAY-LYON

PART I appeared in the April 1956 *Journal*, and the plants mentioned here have flowered for me for the first time since then.

First, some peat lovers : *Andromeda polifolia grandiflora minima* (Ericaceae). As often happens, this is a case of the longer the name the smaller the plant. It is a form of *A. polifolia* which I got direct from Tokyo. It is more dwarf than *A. polifolia compacta*, being only four-inches high, but the flowers are quite as large or larger and a good pink.

So far I have grown it in a frame, but as soon as I have propagated it I will try it outside, where it should do all right in damp but drained "humusy" soil. Cuttings will probably strike as easily as those of the common form, or suckers might be removed in early summer.

Myrtus nummularia (Myrtaceae) is quite prostrate and only an inch high. It has small white flowers followed by pink berries in autumn, and is a most attractive little thing. I have read somewhere that it is not hardy and that it requires shade. In spite of that it is quite happy in the open here in Edinburgh ; it seems to flourish too out of doors at Aviemore in Jack Drake's much colder garden. A well-drained soil with plenty of humus in it is what it seems to like. Soft green cuttings treated with Hortomone are said to strike well in June or July.

Rhododendron pumilum (see Fig. 29) is a delightful little shrub with flowers of a really good pink and it only grows to about three inches in height. It flowers in April and is a good doer. *Rhododendron prostratum* is slightly taller than *R. pumilum* and the flowers are not such a pure pink, being more of a pinky mauve with some red spots. It, too, is a most desirable little plant and flowers at about the same time. The usual rhododendron soil, plenty of humus, in the form of leaf mould or peat, and moist but well-drained conditions suits them both. Neither objects to full sun. They both flower from seed in four years.

Harrimanella stellariana (Ericaceae), which the botanists decree we must now call *Cassiope*, is a native of Japan and Alaska, and is sometimes called the Alaskan Heather. It forms a mat of wiry stems, two

or three inches in height, with small leaves rather like those of *Empetrum* but bronzy green in colour. Between April and July it produces lots of dainty white bells with red calyces, on thin stems of an inch or less, the whole effect being most attractive. It is not difficult and likes the same conditions as dwarf rhododendrons. I have not yet tried to propagate it, but it shows signs of layering itself which is a pretty good pointer.

Next for mention are the three hardy Lady's Slipper Orchids. They do well in a compost containing plenty of leaf mould and peat, a little loam, enough sand to keep it open, and some broken pot to help keep it both open and moist. They should not be planted deeply, but with the roots spread out just an inch below the surface.

Cypripedium macranthon var. ventricosum is a native of Siberia and China, where it is said to grow in open birch woods. It grows to about a foot high with leaves rather like those of *C. calceolus* and solitary flowers of the usual lady's slipper form but rather large. They are described as being bright rose or brownish purple, but I would describe mine as purplish red with a lot of veining. Mine, growing in full sun, flowered in June. *Cypripedium pubescens* is a lighter and daintier plant than the last and grows to about nine inches high. It comes from N.E. America, and is perfectly hardy. It is said to like pine-needle peat, so I gave it a mixture of that, ordinary peat and leaf mould, with a little loam and sand. In that mixture, on a slight slope, and in full sun, except for perhaps an hour or so at mid-day, when it is shadowed by a cherry, it seems to be quite happy. The predominant colour of the pouch is golden yellow with slight reddish markings. The sepals are greenish yellow streaked with brown, and the two outside ones are twisted like corkscrews. I only got it in March, but by the end of May it had settled down and flowered. *Cypripedium spectabile* (syn. reginae) (see Fig. 30) comes from the woods in the eastern parts of North America where it is known as the "Mocassin Flower." By many it is considered to be the finest of the hardy Lady's Slipper Orchids. It has handsome foliage which is said to attain a height of three feet. In this country, however, fifteen or eighteen inches is, I think, more usual. The flowers, up to four to a stem, are large—a diameter of three inches or more, and are produced in June. The pouch is a soft deep pink and the sepals are white. It is said to require rather moister conditions than *C. calceolus*, and unlike *C. calceolus* it is calcifuge. So far I have only grown it in a pot, but now that I have more than one I am trying it planted out amongst dwarf rhododendrons.

These orchids are easily propagated by scratching away the soil and cutting off portions of root three or four inches long, each of which must have a dormant bud. Early spring, just as they are starting into growth, is the best time to do this, but it may also be done in September or October. The pieces of root are placed in a mixture of peat and/or leaf mould and sand 50/50. The addition of pine-needle peat is said to be good but I do not think it is essential.

The next three plants to be described are also orchids, but not reliably hardy like tne Cypripediums. They are *Pleiones—P. pricei,** *P. formosana,* and *P. humilis* ; the first two are natives of Formosa and the last named is from the Eastern Himalayas. *Pleione pricei* is the best known, and lately it has been appearing quite frequently at our shows. All three have annual pseudo-bulbs. The old bulb gradually dries up after the plant has flowered and a new bulb develops alongside of it. The pseudo-bulbs of *Pp. pricei* and *formosana* are very similar, round and dumpy and about an inch in diameter, but the former has a central boss while the latter has not. Some writers mention a difference in the colour of the pseudo-bulbs. My own, admittedly limited experience is that the colour varies with the time of year and with the stage of development of the pseudo-bulbs. The pseudo-bulbs of *P. humilis* are flask shaped, much smaller in diameter but longer. The leaves, four to six inches long, are ridged or plaited and in the late autumn they turn yellow and fall off. *P. formosana,* which I got from Japan, has not yet flowered for me, though it is flourishing.† From what I have read, its flowers are very similar to, but larger than, those of *P. pricei.* The flowers are produced before the leaves and are borne on stems of about four or five inches, and are some two or three inches across.

I do not feel qualified to describe the various parts of an orchid flower, but in *P. pricei* the colours are a pleasing combination of purple, brown, pink and yellow. In the case of *P. humilis* the colours are less strong, and the general impression is of a much paler flower and smaller. All three flower in May. These orchids are said to be "near hardy," and I know of one plant of *P. pricei* which did survive out of doors in a high-lying garden in Midlothian for a few years, growing under a dwarf rhododendron ; it did not flower, however.

I am trying a plant of *P. pricei* in a "cave" on top of one of my screes where it was planted in 1956 ; it will be interesting to see what state it is in by April. At the time of writing (3/2/57) the bulbs feel quite firm. Most people grow them in the Alpine House, which is probably wiser.

They are not pernickety about soil so long as it contains plenty of humus, is open and well drained, but retentive of moisture. They do well in a mixture containing osmunda fibre, but this is not necessary. I find they do just as well in a compost made up of 2 parts loam and 1 part each of peat, leaf mould, chopped sphagnum, sand, and broken crocks. Some growers say a much simpler compost of equal parts loam, leaf mould and sand is quite satisfactory. Others recommend the addition of a little dry cow dung, and some add charcoal.

As they are all shallow rooting a deep pan or half-pot is probably deep enough, and if the compost is "domed" it helps the drainage.

*(*See Fig.* 31).

†Flowered in April, spathe brown, not yellow-green as in ***P. Prici.***

The pseudo-bulbs should be planted with their bases only in the compost, less than a third of the bulb being immersed. They should not be allowed to dry out at any time. In winter they should be kept just moist, but when in full growth they will take a lot of water.

In Scotland they stand full sun. Re-potting is best done when growth is starting in spring ; propagation by division can be carried out at the same time. On some of the old bulbs small bulbs will be seen and these, if removed and grown on, will reach flowering size in three or four years, I understand.

Another orchid which I got from Japan is *Amitostigma keiskei*. It has small four-inch stems bearing one to three small violet flowers, reminding one of pinguiculas. Mine has flowered at the beginning of June, having arrived from Japan on 7th January ; and a very dainty little thing it is. In Japan it grows in bogs in the mountains in the centre of the country. I have not risked mine outside yet, and I am growing it in the Alpine House in a compost of 1 part chopped sphagnum, 1 part leaf mould, 1 sand, and ½ broken crocks.

Bryocarpum himalaicum (Primulaceae) is found in Sikkim, Bhutan, and S.E. Tibet. It grows in open Rhododendron forest, either on the ground or on moss covered boulders. I have not found it easy, and it has taken me four years to get it to flower. As I only possess one, it is in a pot in a shaded frame. They grow it in the same way in the R.B.G., Edinburgh, in a Primula mixture of loam, leafmould, and sand, with live sphagnum on top. After flowering it soon dies back and forms a winter resting bud which looks rather like a bulb. In spring it produces several pale green leaves, each with a conspicuous midrib. The flowers, produced in summer, are carried singly on four-inch scapes. They are yellow and in form rather like a soldenella flower except that they are not fringed. It seems slow to increase, but division is a probable means of propagating it. Neither my plant nor, so far as I know, those in the R.B.G. have set seed.

Polygonatum hookeri (Liliaceae) is a native of Sikkim, Tibet, and Szechwan. It has creeping rhizomes from which spring short upright stems two or three inches high. On the lower part of the stem the leaves are alternate, but at the top they are in a bunch. In June in the middle of this bunch opens a solitary "Solomon's Seal" flower in mauve. It is an attractive little thing and quite easy in part shade in gritty soil with peat and leafmould. It may be propagated by division in spring, as it starts into growth, probably in March. It might also be divided in September, but in that case it might, I think, be safer to winter the divisions in a cold frame.

Lilium macliniae was found in Manipur by Kingdon Ward, and it is named after his wife, Jean Maclin. Perhaps surprisingly, it has proved itself hardy in Scotland grown in Rhododendron soil in light shade. The stems are ten to eighteen inches high. The leaves, about two inches long, are glossy and rather crowded together on the upper part of the stem. The flowers, three or more to a stem, are carried on inch-long

pedicles and are widely bell-shaped and about two inches across. They are white within and rose-purple without, with a touch of carmine at the base and the pollen orange brown ; flowering time is June. The flowers may not be startlingly beautiful, but they will appeal to people who like fritillaries.

Sisyrinchium douglasi (syn. grandiflorum) belongs to the Iris family, though its flowers, to the non-botanical eye at least, look much more like fritillaries. It comes from Canada and is cast-iron hardy, the shoots appear in November and the flowers in February or early March. The leaves are rush-like, and on slender six-inch stems are carried inch-wide, wine purple, swinging bells. It is happy growing among dwarf rhododendrons, i.e. in well-drained "humusy" soil.

It is easy from seed (three years to flower), and clumps divide easily when died down after flowering. As they disappear entirely during the summer they should be carefully marked. I believe there are white and pink forms, though I have never seen them. These sound attractive, and I am hoping that some of our Canadian members may send us seed of them for the seed exchange.*

So far the plants described may be said to come under the general heading—Woodland. The next lot prefer a more sandy mixture, more or less scree, in fact. First a few dwarf shrubs :—

Acantholimon venustum (Plumbaginaceae), (see Fig. 32) is one of Farrer's "Vegetable Hedgehogs" and comes from Cilicia in Asia Minor. It forms a silver-grey cushion about four inches high and a foot or more across. The flowers, of a vivid rose in June, are larger than those of the better-known *A. glumaceum.* They are carried on six-inch spikes with ten or more spikelets each. It is happy and easy in the sharpest of sharp scree in full sun. Propagation is difficult, as although said to be quite easy from seed, this is seldom produced in this country. Cuttings are said to strike best if taken in May or June and treated with hormone, but even so the proportion which take is small. I have not tried it myself, but heel-layering might well be its answer.

Pentstemon corymbosus (Scrophulariaceae) comes from California, and I have heard doubts expressed about its hardiness. Plants raised from seed in March 1955 spent their first winter in a cold frame, flowered in the scree in 1956, and are still looking all right now in February 1957. That, however, is hardly sufficient experience on which to base a definite opinion. It is an attractive little shrub of eight or ten inches with small, pointed, toothed leaves of dark glossy green. The flowers, in July and August, are a pretty shade of coral red with a touch of orange in it perhaps ; it is growing in full sun. Large soft cuttings are said to strike well in July.

Hypericum fragile (Hypericaceae), a native of Greece, is one of the less well-known members of the family. It is rather like a larger and

*Incidentally I hear our N. American members have been most generous with their seed this year.

more floppy *H. coris* or a refined *H. polyphyllum.* The usual hypericum-type golden yellow flowers are produced about July. It does very well, and looks most attractive in a sunny wall, and if it does get straggly it does not resent being cut back. It self seeds, and soft cuttings in summer are not difficult to strike.

Pimelea prostrata (Thymeleaceae) is a dwarf New Zealand shrub which forms a low mat an inch or two high. It has rather grey leaves and small white flowers followed by pearly white berries like small beads or rice grains, hence the name "Rice Flower." Although said not to be too reliably hardy, it spent last winter without mishap growing outside in very sharp scree, and is still looking quite happy now (3/2/57). Just in case of accidents I have another one in a pan in the Alpine House, where it makes quite a nice little plant. Self-layered shoots are an easy way of propagating it.

Paederota bonarota (Scrophulariaceae), a Veronica according to some botanists, comes from S.E. Europe. I have never seen the plant, but the name intrigued me, so I bought one and planted it in a west-facing wall of granite blocks. There it has grown and flowered well in spite of books saying it requires shade, and also in spite of being an inhabitant of limestone crevices in the Alps. It is more or less procumbent, and the leaves are dark glossy green and toothed. At the ends of the five- or six-inch-long shoots it bears in July, and sometimes again in September, racemes of blue flowers whose protruding stamens give the flower spike a fluffy appearance. I had not tried to propagate it, but it is said to divide easily and it looks a suitable subject for cuttings.

Geranium macrorrhizum var. dalmaticum or just plain *G. dalmaticum* as it is more usually known, comes from Dalmatia, as one would expect. It is one of the most attractive of the dwarf geraniums and also one of the easiest to grow in light sandy soil in full sun —a good scree plant in fact. It forms a three-inch-high tuft of round glossy leaves. The flowers, carried on six-inch stems, are an inch across and a good rich pink. It spreads by suckers, which makes propagation easy, but does not become a nuisance. It has been given an Award of Merit and is, I think, definitely one of the better of the fairly recent introductions. It is listed in a number of catalogues.

Allium kansuense (Liliaceae) is from Kansu and Tibet. It is rather like the better-known *A. sikkimense*, but is slightly smaller and comes into flower a little later, in August. It has bulbs about three-quarters of an inch long, and from each of these grow four or five slender leaves up to eight inches long. The flower stems are two or three inches longer and carry a number of nodding bell-shaped flowers of violet-blue : the anthers are yellow, whereas in *A. sikkimense* they are blue. It is hardy and perfectly easy in a sunny scree. The *grass* is not sufficiently strong-growing to be untidy, and altogether it is a very attractive little plant. It comes easily from seed, or it may be divided in September.

The last two plants that I wish to mention are Primulas. The first of them is a hybrid whose parentage I do not know—Primula x "Blairside Yellow"—a most attractive little plant like a miniature auricula. Only a couple of inches high, its flowers are a good clear yellow. It is doing well with me in scree to which a little leafmould has been added. Division will be the method of increase.

Primula cuneifolia belongs to the section of the same name, and is a native of the islands in the Behring Sea. The only member of this section which is at all well-known in this country, or even in cultivation one might almost say, is *P. suffrutescens*. Not knowing anything about the cultivation of P. cuneifolia, I have treated it in the same way as *P. suffrutescens*, i.e. in a pot with good drainage and a very sandy compost. It is a small plant with a tiny tuft of leathery leaves, from which rise stems of one to two inches bearing quite attractive 'mauvey-blue' flowers fairly large for the size of the plant. I am afraid it is not yet available in "the trade" in this country. I got mine direct from Japan.

Harvesting Seeds

By HENRY TOD

IT HAS BEEN suggested that an article on harvesting seeds for the Seed Distribution might be useful both to Members and, perhaps even more, to the Seed Distribution Manager ! Hence, anyhow, arises this "advisory note."

Before starting to collect seeds, obtain a number of smallish boxes (those containing 50 or 100 cigarettes are a useful size ; the lid forms one tray and the box another) and a number of pieces of paper about the size of a visiting card. Keep an eye on the plants from which you intend to get seed, and as soon as the seed vessels begin to look dry and begin to split, open their valves, or take other action to release their contents, cut the stem bearing them, carry it carefully, upright, and then lay it in the tray with the seed vessels in the tray and the stem, if too long, over the edge. Write the name of the plant on a piece of paper and put in *in* the tray *under* the seed heads. The first-ripe seed vessels should, at this point, be opening, and as the others ripen in their turn they will open and a gentle tapping will release the seeds into the tray.

In the case of seeds with a pappus—the silky parachute affair that the Composites have attached to their seed as in the Dandelion "clock" —as soon as any show signs of loosening, cut the head and place it in its tray. Long pods, as in the Legumes and many Crucifers, should be gathered as soon as the "seams" show signs of splitting, but in this case a box that can be closed should be used, as many of these explode violently, throwing their seeds to considerable distances—which can be a real nuisance if they are not placed to ripen *inside*

some container. The same thing applies to certain of the Geraniums which have a similar explosive dispersal, only in this case it is more of a "sling" action which can throw the seeds to a distance to be reckoned in feet if not in yards.

Pulpy fruits are a rather more difficult proposition. The problem is really quite simple—either such fruits rot or they dry. If they rot they are shockingly messy to handle ; if they dry they may get as hard as wood and be very difficult to open.

With soft pulpy fruits a very easy method of cleaning the seed is to take a wide-mouthed bottle with a tight-fitting cork, one holding about 4 to 6 ozs. is a good size. Place about an inch depth of medium-coarse but very sharp gravel in the bottle, half fill it with water, add the fruit a few at a time, cork tightly and shake really hard. This should strip most of the pulp from the seeds which will float *or* sink according to their density, while usually the pulp will remain suspended in the water. The seeds are then skimmed off, if they are floating, or else the pulp suspension is decanted from *above* the seed and gravel if they have sunk. The pulp and water suspension is then discarded from above the gravel, the seeds are again shaken up with the gravel and more water, and the process is repeated. This should yield clean seed which can then be allowed to dry, spread out on blotting paper. With fruits which are naturally dry, such as rose hips, the seed has to be squeezed out of the rather sticky and sometimes furry pulp, and as far as the writer knows, there is nothing much better for removing this material than squeezing through the finger and thumb.

There are a number of methods which can be used for cleaning broken bits of capsule, chaff or dust from the seed as finally obtained in the trays. Most of these depend on differences in density between seed and chaff. The simplest is to lay out a large sheet of paper on a table—or better on the ground outside if the day is still—and pour the seed slowly on to it from six inches to a foot height, blowing fairly strongly across and through the seed-stream the while. The light chaff should be blown considerably farther than the seed, so that the seed will fall almost vertically while the chaff will land a fair distance away.

Alternatively a piece of cotton cloth (not too smooth, a bit of old bed-sheet is suitable) can be fastened on a bit of heavy card or wood which is then held at about 45 degrees to the vertical with the lower edge in a box or on a sheet of paper. The seed is poured gently on to this slope, when the seed will usually roll down and land on the paper while the chaff sticks to the cloth and can later be brushed off with a stiff brush.

Large seeds can, obviously, be picked out by hand from any debris and cleaned in that way and this method, combined with the use of a lens, can be employed where the seeds are small, few and valuable. Here forceps are almost essential unless one has exceptional delicacy of touch. In the case of winged seed, or seed enclosed in a membrane,

such as seeds of the Liliaceae, hand picking must be employed, though the sterile chaff can usually be fanned out gently as it is so very much lighter than the viable seed.

Seed saved for either one's own sowing or for the Distribution should obviously be "good," in other words capable of germination. Many plants, and especially the Compositae, produce a lot of non-viable or "blind" seed and there is evidently no use whatever in collecting this as it lacks the necessary embryo and stores to allow it to germinate. Good seed should be firm and should all look much the same (this may again need the use of a lens) and will generally break through with the thumb-nail. This may seem an odd statement for such treatment will destroy the seed, but if one seed breaks open to show obvious living tissue, almost all the others which look the same, feel alike and are of the same size will also be good. In the case of seed such as lily or nomocharis, which is flat and translucent, good seed shows a dense patch in the middle, or sometimes near the end, while chaff is translucent all over.

Really hard seed, of the type of plumstones, must be taken on trust in the hope that ones of decent size and fatness will be good, as they have such a hard coat that no information can be obtained from their "feel."

When there are large numbers of stems with seedheads to be dealt with, too large to be placed in a box, they can be tied up in bundles and hung up, head down, over a sheet of paper, when the seed will be released and will drop on to the paper as the capsules open. Incidentally, seedheads and the like should be allowed to ripen and dry in a light airy room, *not* a hot one, which is apt to be *too* dry. If the seed shows any signs of going mouldy it is well worth while to dust it lightly with one of the proprietary seed dressings, such as the one marketed by Murphy, which will stop all mould growth.

It is very unwise to try to handle more than one lot of seed at a time, for if labels get mixed or crossed it is very difficult, if not impossible, to get them sorted out. As a consequence, it is wisest to clean seed A, then B, then C, etc., and do not try to get A to the end of one stage, and then go on to B, then back to finish A, and so on, as this almost always leads to trouble—and seeds are very easily carried from one lot to another on fingers, under finger-nails or on cuffs which can lead to a high proportion of rogues in an otherwise good and even braird. Always keep the slip of paper with the name beside whatever container the seed may have reached, and only scrap it when the seed is in its final envelope or packet, sealed up and with its name written—or better, printed—clearly on it.

It is unwise to put seed on a warm shelf in a dry room "to keep dry," for this very often tends so to toughen the seedcoat that germination will be seriously delayed. The writer's own choice for storage of packets of seed is in a bookcase in a room that is lived in, for this will be at a fairly even temperature and humidity most of the time.

Photo.—J. Grant Roger.

Fig. 25.—Diapensia lapponica, W. Inverness.

Photo.—J. Grant Roger.

Fig. 26.—Saxifraga caespitosa, Scotland.

Several members have told the writer that they store the seed capsules and the like in small bottles tightly corked, but this seems rather dangerous, for if the seed vessels are just a bit too damp they will probably rot and damage the seed. The open tray followed by cleaning and packaging in envelopes or packets is probably the safest method, which is, after all, the one adopted on a big scale by the seed traders whose livelihood depends on their good results. By the way, very fine seeds should be folded into a twist of thin tough paper and this placed in an envelope or packet, as very few of the latter are so securely fastened together that they will not let fine seed escape or lodge behind flaps and in corners.

All the foregoing, of course, applies equally to seed saved for one's own use as to seed for the Club's Seed Distribution !

Fragrance in our Rock Gardens

By PETER P. KRIEGER

MANY OF OUR little spring flowering bulbs are very fragrant.

Crocus biflorus, with its petals purple-bluish veined outside and white inside, and *C. imperati*, blooming early in March, are only two of this fragrant genus of more than eighty species to give both colour and pleasant scent to our rock gardens.

Of the many fragrant Muscari species *Muscari macrocarpum* with flowers purple turning to yellow, is probably our first choice. This little beauty delights us in March and April with its marvellously sweet perfume. *M. botryoides var. album*, the white Grape Hyacinth, is a close second.

Fritillaria pudica, with yellow flowers, and *Leucocrinum montanum*, with delicious sweet-smelling pure white flowers on four-inch stems, are yet more early bulbs which delight us with their perfume. Among other members of the Liliaceae family which give sweet fragrance are the many Erythronium species.

In the Iris family *Iris histrioides* and *I. reticulata* suggest Sweet Violets, while *I. hoogeana* gives the scent of Tea Roses. Among others, *I. graminea*, *I. ruthenica* and *I. verna* are exceptionally fragrant.

The lavenders, which have been great favourites in our gardens since time immemorial, are strongly aromatic. Among the Thymes we can almost pick our scent. *Thymus nitidus* gives us the sweet odour of the Rose Geranium, *T. citriodorus* of lemon, *T. micans* of pineapple, *T. herba barona* of caraway : *Thymus vulgaris v. fragrantissima* has perhaps the most potent Thyme odour of all species of this genus. The sage-scented one, *T. membranaceus*, is still somewhat difficult to acquire in this country ; it must have a protected, sunny place in the rock garden. Most of the Thymes make resistant mats between the flagstones on which to tread, giving out no other protest than their sweet scent.

The Satureias will supply a fragrance close to that of the Thymes, with the added advantage that they are blooming for a long time, late in the season when fragrance and colour are so often lacking in our rock gardens. The Satureias, as well as their cousins the Thymes, are children of the sun and natives of southern Europe and the Near East, but they have adapted themselves well to our soil and climatic conditions.

Most of the Dianthus of the alpine heights, although they are members of the most fragrant genus of our lowland gardens, are without scent ; but we still have a number of the dwarf species that are fragrant. *Dianthus suavis* calls to our mind the scent of orange blossom ; *D. suendermannii* suggests the perfume of jasmine. There are many more of our dwarf Dianthus with a sweet scent all of their own.

In the half-shaded part of our rock garden, sheltered from the burning sun, we find a veritable host of exquisitely sweet-smelling flowers. Our first choice is *Narcissus triandus*. Then there are many of the sweet-smelling Campernelles and Jonquils with numerous forms and hybrids.

Greatly admired for its elegant and beautiful, rosy crimson, sweet-scented flowers is *Cyclamen europaeum*. It grows well in sun or shade, in leaf mould or limestone soil.

All Primroses have some fragrance, especially the newer Himalayan introductions. *Cheiranthus allionii* gives us its fragrance when we walk through the garden in the cool of the morning. *Mentha requieni*, *Mitchella repens*, *Epigaea repens*, and *Linnaea borealis* are carpeters for moist and woody leaf soil. They need special care and all make their presence welcome by their sweet perfume.

Some Plant Likes and Dislikes

By HENRY TOD

I SUPPOSE THAT all of us have certain plants for which we have a particular liking, and equally some which we especially dislike. These responses may be well-based or sometimes quite irrational, but nevertheless they are real, and the Editor suggested that I might venture on the topic—I only hope that I do not wax rude about your pet plant.

One little plant I particularly like for no very valid reason except that it is neat, flowers quite freely and has an elusive something about it, is *Stachys corsica*. I got it many years ago at Woolworth's and it lived for a very long time though I have not, I regret, got it now. It is a completely prostrate little plant with light green, slightly hairy leaves which scrambles about among the stones, popping up here and there with its little white snapdragon-like flowers. It seemed to be hardy enough, but it succumbed one very hard winter when it was under about three feet of snow and ice for about three months—hardly fair on a Mediterranean plant, after all ! A pan of this plant in full

flower would be really delightful on the Show Bench—I must try it, I think.

Talking of creeping plants, a pet hate of mine is *Linaria cymbalaria* —and also *L. hepaticifolia*—and for a very good reason. My last garden had a light soil and a kindly (?) friend gave me a handful of this fiendish little horror which I duly planted. Up it came with very attractive leaves and neat little flowers, and looking charming—until I noticed that it had appeared *three feet* away on the *other* side of the mound on which I had planted it. Alarmed, I investigated and found dozens of yards of thin, fragile, spaghetti-like white roots fairly raging through that bank of light soil. For three long years I dug that little brute out wherever it appeared—and burned every little bit I found, for all would grow most enthusiastically. By contrast, *L. alpina* is a lovely little blusih-grey leaved plant with either purple or pink flowers, which is distinctly tricky to keep in one's garden. It is short-lived and—if you are lucky—may keep itself going by seeding, but it is lovely and well worth some experimentation.

Another creeper which I cannot raise any enthusiasm for, but which is very popular and has actually been awarded an Award of Merit, is *Pratia treadwellii*. This hails, I believe, from the Antipodes, and as far as I am concerned could have stayed there. It has rather ragged-looking white flowers which are followed by brown berries and I must admit it colours well in the autumn, but I *still* think it is dull and uninteresting.

From creepers to a climber which can be grown in an unusual way on a biggish rock garden. This is *Jasminum beesianum*, a twining pink flowered climber which, if grown on the flat, will produce odd columns of growth like little trees. These consist of many shoots twined around each other until they are about an inch or so thick, and the little pink flowers with which they are flecked are followed by black berries. A plant grown in this way can be seen on the Rock Garden in the Edinburgh Royal Botanic Garden.

A plant which should be avoided, and one for which I have a very marked dislike, is *Cacalia aurea* (or *Emilia aurea*). This arose in my garden from a packet of Mixed Alpine Seed which I bought in my very early days. I tended the two seedlings of this plant which brairded with loving care, as they had the oddest greeny-bronze leaves with grey hairs, and lay absolutely flat to the soil. I got to know them only too well, for years later I was *still* pulling them up. It throws up nine-inch stems which terminate in flowers like a smallish dandelion of a blazing orange colour—a most handsome plant, completely prostrate as to foliage when the stems wander through the stones. The operative word here is "wander" for it creeps over, under and through anything and everything, rooting as it goes, and throwing up flowering stems which set *lots* of seed and, if you let it, it will carpet a whole area in short time—and every little bit will thrive if it is missed ! The R.H.S. Dictionary lists this plant as an annual, which it most

definitely is not, so perhaps it is *Hieraceum aurantiacum* and not *Cacalia*, but whichever it may be, it is a vicious plant to be avoided.

Another Composite which scared me badly when I was given it, but which later, after very careful watching, became rather a favourite of mine, is *Hieraceum villosum*. This has flowers almost exactly like dandelions (hence the alarm after the foregoing plant), of the same fine clear yellow colour but with softly hairy greeny-grey leaves. As it transpired it does not seem to set much, if any, good seed, increases slowly in size, never gives any trouble and flowers steadily. If one could only control the seeding of the common dandelion and grow it in poor scree it would form one of the finest rock garden plants one could get. I have seen it growing thus at the roadside in the North and it is magnificent as the flowers are on stems only a few inches long, but little reduced in size, and the leaves form a flat leathery rosette—and there is nothing "washy" about the colour of the dandelion flower.

I have a great affection for the Aizoon group of the Saxifrages. They are common but most satisfactory. I grew them in my last garden in pockets of gritty soil filled into holes chipped out of the bedrock. I had *S. aizoon*, the type, which is white, as is *S. a. var. Rex*, a larger form, and also vars. *lutea*, a nice clear yellow, and *rosea*, a good pink which did not fade. A bigger one of the same group was one that I got as *S. macnabiana*, which looks to me like a hybrid of some sort. It has good spires of flowers, white with occasional pink spots, but its great charm is that in autumn the outer leaves of the rosette colour to a fiery crimson. At the other end of the scale was one I got as *S. aizoon minor*, where the rosettes were very tiny and formed a greenish-grey iron-hard mat on the scree throwing up miniature spires of flourish in the spring. One of my very early "Firsts" at the Club's Shows was for *S. griesbachii* "Wisley var." which has remained one of my pet plants, though it has not always been any too easy to keep a stock of it. It has perhaps the finest rosettes of its group, the Englerias, beautifully encrusted, and its woolly "croziers" of flower are of a fine crimson.

The Sempervivums also are a friendly group—but never try to name them ! The nomencalture of the "semps" has nearly broken the hearts of several workers. I have not yet seen any species or variety which I thought unsightly or untidy and they will grow away happily in the hardest, most sun-baked places, and their flower-spikes, though disliked by many people, please me greatly. If the many-pointed star-shaped flowers are examined closely they are really very striking and their colour ranges from a pale greenish-yellow to a deep crimson according to the species.

I have never been very enthusiastic about the genus Campanula. I know that I am in a minority in this and I have grown a lot of them at one time or another. One of my favourites is *C. raddeana*, which has deep purple bells of a curious glistening texture with reddish stems. It

is a hardy, tough plant which spreads slowly and can hold its own even with a rough dwarf moor grass that invaded one rock garden of mine. This grass, incidentally, has led to the necessity for total demolition in order to get rid of it, and yet *C. raddeana* managed to increase against its competition. *C. pulla*, the little baby bluebell, is a most engaging little plant, though in some gardens I believe it can become a troublesome weed. I have had both the pale blue and the white forms and they never gave me any trouble—if they spread a bit too much I just dig them out. One Campanula which gave me a lot of trouble and which I loathe thoroughly as a result is *C. rapunculoides*. The same dubiously kind friend who gave me *Linaria cymbalaria* gave me a clump of this for my rock garden when I was starting, and also one of *C. glomerata*. The latter was a spreading nuisance, but *C. rapunculoides*—words fail me ! The roots go down to the middle of the earth apparently and every little broken bit will grow—a striking demonstration of propagation from root cuttings ! It is still ramping around my previous garden for it finally beat me. The only way to get rid of it would have been to tear up a biggish herbaceous and shrub border into which it finally travelled.

My last acute dislike is *Euphorbia cyparissias*. This plant has many virtues. It has very pleasant soft yellowish-green foliage in the spring, heads of yellow flowers in the summer, and it colours well in the autumn. Against all this it can give Coltsfoot and Bishopweed a flying start and then pass them as a spreading troublesome weed. The same friend gave me this plant too, and she must have had a curious soil in which these pests behaved themselves, for she was a kindly soul and would not, I am sure, willingly have let me in for the riotous time that followed her gifts. She gave me a small basketful of roots which I planted in a number of sites "to be sure of getting one to suit it." Little did I know what I was doing. They *all* flourished and I liked the plant well enough until I saw it appearing feet away at one particular site. Then it started to bob up in the middle of all sorts of other plants and I started to dig. I found yards of roots and eventually demolished a total area of about twelve feet by four of sections of rock garden right down to the level of the bed-rock, in order to clear it out completely. In this case I succeeded in one month, but I had suffered so much with the *Linaria* that I was determined not to be caught the same way again, and I decided it was better to lose a few plants than to be smothered in Spurge.

Finally, I would like to commend a very old garden plant that is rather hard to come by nowadays—*Potentilla alba*. It isn't in any way exciting, it's not rare or difficult, it is not showy or in any way outstanding, but it is an old, reliable friend that somehow has "quality." The foliage is attractive, slightly silvery, greyish-green palmate leaves, and nice solid white flowers which, somehow, are always there when everything else is sulking. There are never a lot at one time, but it's a very rare New Year's Day that *P. alba* hasn't a few flowers out—or

Easter—or Midsummer or, for that matter, Hallowe'en—in short, it is a steady reliable old friend that increases slowly, always looks tidy, and always produces a flower or two as a welcome, even though you may have to clear away the snow to find them.

The Rose Bush

By "LOCUM TENENS"

THIS SHORT story is quite true. It concerns a Little House in London, The Lady, and a Rose Bush, but mainly the Rose Bush. My part in it is infinitesimal.

The Little House really is a little house about two miles from Big Ben. I did not know that such a thing existed. Better still, it has two little gardens—a front one and a back one. To complete the description I should explain that the back door is in the front garden and opens into the kitchen, which is rather awkward for visitors, if they come in that way. The back garden is outside the drawing-room and the front door is in the side of the house.

The Lady is a very keen gardener and has been spending much time, thought and energy in converting what was little more than a rubbish dump, beloved of stray cats and small boys, into something very different, which brings me to the Rose Bush.

The Rose Bush was part of the plan. It was to grow up the wall in the front garden alongside the back door and the kitchen window. For this honour a rose called Mermaid was chosen and in due course it arrived from the nurseryman. I watched it being planted and, with an eye to the future, I stretched some wires on the wall to support it when it got bigger. Next morning it had vanished without trace.

Having established (by referring to me) that she was neither mad nor dreaming, and that she really had planted the rose, The Lady approached the Police. A charming young man in the C.I.D. came round. He was full of confidence but as yet neither the criminal nor the Mermaid has been found.

Further reference to the nurseryman produced the sad news that there were now no more Mermaids to be had until the following season. Something had to be done. So from our garden in Scotland I took by train to London a young *Rosa Moysii.* I was not previously well acquainted with this variety, but I can assure anyone who is interested that it has the prickliest stems imaginable. The thing was wrapped up in sacking, but that was not of the least protection against the thorns, as I, two porters, the guard and a taximan discovered without difficulty.

The next step was by way of further precaution and greater security. I bought a chain and a padlock, and from a builder I procured the father and mother of a staple and borrowed a heavy hammer. That

staple is now well and truly driven into the wall of the Little House. Moysii is planted and, round its stem, just above ground level, The Lady has wound the chain, which in turn she has padlocked to the staple.

I now feel a little sorry for anyone who thinks that that particular rose would look nice in their own garden. Any intending thief-in-the-night will go away with pricked fingers but no *Moysii.*

On the other hand, next summer, at a carefully selected moment, I shall make a special visit to London where I shall admire the Little House and The Lady and be greeted by *Moysii* in full bloom. What fun that will be !

Campanulas for the Rock Garden – Part I

By STEWART MITCHELL

CAMPANULAS of all sorts have always pleased me, but I doubt if the rock garden value of this large family of plants is appreciated as it ought to be. It is true that a small number of them are grown in most rock gardens, but outside this limited selection there remains a very large choice of species and hybrids suitable for rock gardens of all sizes. These are generally easy to grow and will give immense pleasure.

The genus is one of the larger groups of our flowering plants and is the largest of the family group of Campanulacae, which also includes Adenophora, Cyananthus, Edraianthus, Phyteuma, Wahlenbergia, with some other less important genera.

The vast majority flower during July and August and serve to give that follow-on so necessary after the full burst of bloom in May and June from the many other rock garden plants.

Few families have the diversity of form and habit of Campanulas. Some are only suitable for the large rock garden or the wild garden, there are gems fit for the most choice rock garden, and very precious species only to be entrusted to a trough or a pan in an alpine house, where they will get the attention and protection they deserve.

Campanulas are confined to the Northern hemisphere and few even of the allied genera are found South of the Equator. Their distribution there is restricted to the temperate zone, which is a further advantage to growers in the United Kingdom. The principal centres are in the Pyrenees and Spain, the Mediterranean basin, the Balkans, and the Caucasus, while there are a number in the Himalayas, Japan and across North America. Our own Bluebell of Scotland, *Campanula rotundifolia,* has a very wide distribution and in its numerous geographical forms is found across Europe, Russia and Asia, the United States and Canada, in depth as from the Mediterranean to the Arctic Circle.

While they generally grow in meadow and sub-alpine regions, a few species are found at altitudes of 9000 or 10,000 feet. Others are content at lower heights in screes or rocky places. In the more southerly latitudes they will be found at greater elevations than those stated, the height compensating for the latitude.

The colour which predominates is blue, few certainly with that true blue shown by some other families, for many seem to have an underlying pink tinge which produces varying shades of purple. Some species have quite a pink colouration, while white forms of most of the better-known species are in cultivation. In any case the general colour is blue, which is welcome amongst the Hypericums and Dianthus which bloom at the same time.

While the genus as a whole gives little cultural difficulty, there are a few species which will try the skill of the most able gardener. These latter species include some of the most choice and desirable subjects and are well worth any trouble involved.

Any decent garden soil will grow most Campanulas, many like some lime, but my garden, which has been kept neutral, does not seem to be at any disadvantage. Good drainage is essential and those which prefer scree or rocky cliffs in nature should have their preferences attended to, for their root structures will be adapted for the differing natural habitats. This question of root formation is also the reason for many species not taking kindly to culture in pots, those with spreading roots need a big pot or pan, while those with a tap root require a deep pot and will even grow through that.

In order to limit this note to reasonable size, and to contend with my own limitations, I am to confine my remarks to species and hybrids I have actually grown, although some reference will be made to others in passing.

I have not grown any of the annuals of the genus, but there are a few well worth while, and if they reproduce themselves from self-sown seeds and are otherwise suitable, I see no reason against growing them in the rock garden. What is good enough in nature is good enough in the garden, provided it is practical.

Biennials in the genus have also some worth while species, and many produce self-sown seedlings, so preventing the recurrent raising from seed and planting out, but this can be done if you are very particular about where you want them to grow.

Before coming to the true perennials, there are a number of desirable monocarpic species. As with biennials, a basal rosette is formed in their first year, but production of flowers is deferred until a later season, which may be the following one, or additional rosettes may be formed instead. *Campanula formanekiana* (Fig. 33) is a delightful representative of this class. It grows in rocky crevices in nature, and I find a wall an ideal place for it, with its long root into good soil. Its rosettes are most attractive themselves, being grey and crinkled, and of regular shape. From these rise sturdy stems of eighteen inches or thereby, carry-

ing Canterbury Bells in the leaf axils. The flowers are generally a good solid white, but pink and blue tints are said to occur. A well developed plant will produce side flowering stems, making a pyramid of bloom. It is good for pot culture in a deep pot, potting on to a final pot of considerable size if the plant is well grown. Seed provides the only means of increase, although this year a rosette formed on one of my plants has survived while the rest of the plant is dead.

Campanula sartori, another monocarpic species, is a small prostrate Campanula producing in the first year a neat little rosette of small leaves, from which in the second year long branching flower stems grow along the ground. These stems have small leaves, and carry single upturned broad bells with rounded lobes. The colour is white or pinky-white, making quite a pretty show. I grow mine in scree where self-sown seedlings get every chance and stock is never any difficulty.

Some of the perennial Campanulas for convenience and also for appreciation of their requirements may be grouped, and the *Tridentata* group are taken first as they are the earliest to bloom.

Campanula tridentata, a species from the Caucasus, is at its best in late May or early June with me. Growing from a thick tap root, it forms clusters of rosettes of spathulate leaves notched at the tips, from which grow flower stems on which are single large erect flowers. These have well spread lobes and are a good shade of blue with a paler base. As it is deep rooting, sufficient depth of good soil is required, in a well drained position in full sun. Seed appears to be the only means of propagation, although I would imagine cuttings would also be possible.

Campanula aucheri makes similar growth and blooms about the same time. The flowers are a violet-purple and similar in shape to those of *C. tridentata*. Its needs are similar too, and I have found it satisfactory in a rich scree, where drainage is good, and leaf-mould forms a good percentage of the mixture. In a pan a mixture enriched in this way also satisfies, and grown in the alpine house it is in condition for April Shows. Seed is the means of increase, or as I mentioned regarding *C. tridentata*, cuttings might be tried.

Campanula bellidifolia is similar, and I have it as a crevice plant, yet with a rich compost for its tap root. The flowers are much the same shape as the two already mentioned, but are a very good deep purple, and most attractive.

The *Garganica* group of "starry" Campanulas includes *C. fenestrellata*, *C. istriaca*, and *C. elatinoides*, which simply cover themselves with bloom. The type species, *C. garganica*, is from Mount Gargano, an isolated Italian mountain. This group forms evergreen tufts of ivy-shaped toothed foliage, from which spreading branching stems are produced with clusters of star-shaped flowers in great abudance, hiding the foliage.

Campanula istriaca is sometimes referred to as *C. garganica hirsuta*, and is certainly hairy, while the type has smooth leaves. I find my

plants of *C. istriaca* tend to flower more freely on the prostrate outer flower stems, forming a ring of blossom which, if not kept clean with a gravel surface, are best in a wall.

Campanula fenestrellata, although neater in growth, is not so spectacular with its show of flowers, although its habit displays them to advantage.

Campanula elatinoides is quite downy in foliage and I have found it to thrive best shaded from the hottest sun, where, unfortunately, slugs are a greater nuisance. It is looser in growth and while quite floriferous, the flowers are smaller. It blooms a little later than the others in this group, which are at their best in the second half of June. Division in early Spring is the easiest method of increase, but cuttings in Spring root easily, and of course there is always seed.

Campanula garganica "W. H. Paine" is a variation of the type with darker blue flowers which have a distinctive white throat.

The *Rotundifolia* "aggregate" as Farrer described it consists of geographical variations of our "Bluebell of Scotland." the harebell of England, which has a distribution stretching in a wide band round the whole Northern hemisphere.

Campanula rotundifolia itself, my first love, is still a favourite, although to get it really dainty it has to be starved in a garden. Ordinary good loam is bound to make it too lush and floppy, about one foot high. It can be only four or five inches tall and as neat as Campanula cochlearifolia, the "Fairy Thimbles," and I have seen it as dainty as this in Glen Lyon. The typical root stock is fibrous and spreading, and a mat is soon formed. Self-sown seedlings can be a nuisance, but interesting crosses with other species can occur. The shape of the bell is the standard I use when thinking of all the other variations, although this is variable even in Scotland. How much more then can you imagine variations across the globe, and botanists of the "splitter" type give specific names on the slightest botanic pretext. Synonyms are legion, and disappointment frequent amongst those ordinary gardeners like myself who often buy from catalogue descriptions.

Campanula valdensis was one of these. Downy stems and leaves it has, no doubt, but is otherwise very much like our old friend, *C. rotundifolia.*

Under the name of *Campanula hostii alba* on the other hand is a Campanula which has pleased me immensely, as well as visitors to the garden. It has the family or group resemblance, but is sturdier in every way, the spreading stolons included, and the flower stems of eight to nine inches tall are stiffly erect, carrying a wider drooping bell. It is most attractive and stands up to considerable wind strength. A blue form self-sown nearby has the same shape of flowers, but has lost its strong stems and is obviously a hybrid. The proper name of this species is *C. linifolia*, the name I have it under being a synonym.

Campanula scheuchzeri var. Covadonga is a recent addition with me, and the name is a problem, as was mentioned on Page 8, *Journal*

No. 18. *C. scheuchzeri* is said to be a form of *C. linifolia*, but to an ordinary gardener it is a much neater plant, although having *C. rotundifolia* characteristics. The tuft of small round leaves has flower stems four to five inches long, with a big single bell of fine deep purple. It is a plant which can be recommended on its appearance alone, without regard to its pedigree. It blooms in July to August, and I understand can be divided.

There are some very fine hybrids with *C. rotundifolia* as a parent, and I will deal with these later.

The *Carpaticas* are very well-known and are found in most rock gardens. Here again variations have produced many fine named varieties. *C. carpatica turbinata* is sometimes given specific rank as *C. turbinata*. From seed a host of variations appear in one seed pan, colour, shape of flower, stature, and hairiness varying most interestingly.

Campanula carpatica, as its name indicates, comes from the Carpathians, and has been known since 1774. It is a very satisfying plant, the foliage forming a fine clump of roundish leaves with toothed edges, from which rise erect stems up to twelve inches high, on which are large wide bells, almost saucer shape, varying in colour from deep purple through various paler shades to white. A very easy grower, very hardy, it has a long flowering season, and gradually forms a nice clump. Division is essential if you have a good form. Seed is easy, but cannot be relied on to produce any particular colour or form.

Campanula carpatica turbinata is a smaller edition of *C. carpatica*, and should not exceed six inches in height, and is slightly hairy in all its parts. The flowers are not quite so flat, more cup-shaped. It is equally easy to propagate by division.

I have another labelled *Campanula turbinata pallida*, on what authority I do not know, which is certainly worth growing for variety. While similar in many ways, it has an even flatter saucer shaped flower than *C. carpatica*, and is intermediate in size. During very hot sun last year I thought those flat flowers were to turn outside in like an umbrella in the wind, they flattened out so much.

Hybrids are numerous and most of them lovely. Campanula enthusiasts should visit nurseries and see them in flower.

It is about time I came to the "Fairy Thimbles," *Campanula cochlearifolia*, for they are possibly the best known of all. Like many other groups of wide distribution, this one appearing throughout the mountains of temperate Europe, but not in Great Britain, unfortunately, it has been given specific rank by various authorities. It has at different times been known as *C. bellardi*, *C. pumila*, and *C. pusilla*, these names still appearing in trade catalogues. *Campanula cochlearifolia* (see Fig. 34), however, must be its name now, but whatever title it may receive, it will always be a great delight. It has a thin fibrous root-stock which runs freely, forming small rosettes of dainty shiny leaves. Wiry erect stems three to four inches tall bear two or more

flowers, sometimes as many as six. It thrives almost anywhere, preferring sunshine. The flowers vary a great deal, almost erect and normally quite tubby in shape with slightly reflexed lobes. Colour varies too and I like to see drifts of varying colours allowed to mingle. From self-sown seedlings one eventually gets this delightful result. Some good forms have received Awards of Merit, such as "Miranda" and "Miss Willmott." "Miranda" (Fig. 35) is a lovely silvery pale blue, which I have planted in a corner on its own. Another, "Oakington Blue," is perhaps the best for blue colouring and seems a robust grower too. Propagation is easy by division, and is even successful at seasons other than early Spring, which is a "must" for most other Campanulas.

Innumerable hybrids are available, giving a further range of dainty plants, and some of these I will mention later.

Gardens under Trust

Notes on the activities of the Gardens Committee of The National Trust for Scotland

DURING THE summer months of last year four gardens under the care of The National Trust for Scotland—Crathes Castle, Culzean Castle, Falkland Palace and Inverewe—attracted a total of more than 110,000 visitors. Whether or not petrol restrictions will seriously reduce the traffic of tourists and holidaymakers this year is a matter for speculation, but the attractions of such gardens will certainly remain.

Although the Gardens Committee of The National Trust for Scotland is a comparatively recent extension of the Trust's activities, it has received enthusiastic support and has accomplished much useful work in the improvement of Trust gardens and in the interest of Scottish gardens in general. The annual gardens cruises organised by the committee have given many visitors from overseas and gardeners at home an opportunity of seeing outstanding gardens on the west coast which otherwise would have been inaccessible. The success of the cruises has also resulted in some profit for the Trusts's Gardens Fund.

The most recent grants made for the benefit of Trust gardens from the Gardens Fund were : Inverewe, Wester Ross, £1000 ; Crathes Castle, Deeside, £500 ; Culzean Castle, Ayrshire, £500 ; Falkland Palace, Fife, £100 ; Leith Hall, Aberdeenshire, £50 ; and a sum of £150 was earmarked for use at a number of properties with smaller gardens, including Provan Hall, Crookston Castle, and Souter Johnnie's Cottage.

At Culzean Castle last year the Fountain Court garden was greatly improved by establishing two large borders of flowers, including a magnificent display of pillar roses. The rock garden at Inverewe, built with stone salvaged from the original house which was destroyed

by fire, has a magnificent situation looking out on Loch Ewe and the Heights of Ardlair. It is at its best in late May and early June. The tremendous popularity of Inverewe—20,000 visitors last year—has brought with it much extra work in which considerable expenditure has been involved.

Last year the magnificent yew hedges at Crathes Castle, planted in 1702, were severely pruned to encourage fresh growth. The decision to prune was not an easy one to make, but the operation has already shown excellent results. At Falkland Palace a corner of the garden adjoining the Royal Tennis Court was re-designed and now has an attractive layout of lily ponds.

It is part of the Trust's task to ensure that the gardens under its care retain their individual characters and that they continue to develop naturally as gardens should.

Information about all Trust properties, membership and other means by which its work can be supported may be obtained from The Secretary, The National Trust for Scotland, 5 Charlotte Square, Edinburgh 2.

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.

A Selection of Dwarf Shrubs – Part V

By A. EVANS

Ilex (Aquifoliaceae). Most gardeners would not be impressed if someone suggested that they should plant a Holly in their rock garden. There is, however, a variety of a species which would be out of its environment if planted elsewhere. This form should not be planted in poor or dry soil and succeeds best in a sunny position.

Ilex crenata var. mariesii is an extremely slow-growing shrub with an annual rate of growth which rarely exceeds half an inch. It eventually develops into a plant of character and is very different to most other plants. The leaves are very small and almost round, averaging almost a quarter of an inch across and, although in some instances there may be two or three teeth present, quite often they are without serrations. In addition the leaves are fairly thick and sturdy and, owing to their short petiole, are closely held into the sides of the shoots. W. J. Bean states that the fruits are black, but so far I have never seen berries on this holly. For those who are interested in growing shrubs in pots, *Ilex crenata var. mariesii* is one plant which will respond to this type of treatment.

Jasminum (Oleaceae). Most species of Jasmine are strong and rampant growing, and must be planted in good soil, but they do not flower well if planted in the shade. In 1923 a dwarf species was introduced from N.W. India and, in view of its stature, has proved of great interest to the rock gardener. It rarely attains a height of more than twelve inches, but if allowed to fall over a rock face drooping shoots may eventually descend a distance of four to five feet. In most winters it is completely hardy, but the unpredictable weather conditions occurring in our cold seasons may find the shoots unripened and exact heavy toll. Rarely, however, is the plant killed outright, and the reflected heat from the rocks in summer does much to assist the ripening of the youth growths.

Jasminum parkeri can be classed as an evergreen in most winters, although in severe seasons the leaves may be shed. Contrary to most other plants in this order, which produce their flowers in pairs or clusters in the axils of the leaves, this species gives rise to solitary blooms. The flowering period extends through June into July and the half-inch-long yellow trumpet-like flowers are well set off against the green of the leaves and stems.

Lavandula (Labiatae). Most Lavenders have a spreading habit and for this reason alone one must be wary about positioning these plants. Any slow-growing or dwarf species planted too near will be unable to compete with their vigour and must eventually succumb. Being a Mediterranean plant it should be given an open situation and, similar to numerous other inhabitants of that clime, has grey foliage. The leaves are long and narrow and, as a rule, are covered by grey down. Propagation is very simple and small cuttings taken in July or August

will root with ease if inserted in a cold frame in a mixture of half sand and soil. Not all the species will withstand the winter without some form of protection, but *Lavandula spica* and its varieties are completely hardy.

Lavandula spica is the common Lavender and is so vigorous that it may reach four feet in height. The shoots, however, can be controlled to a certain extent by being pruned back in the Spring just before growth commences. Flowering spikes are carried high above the shoots on eighteen-inch long stems and the closely packed head of flowers begins to open in July and continues all during the following month. The small tubular corollas are a pale blue-grey and everyone is familiar with their fragrance.

Lavandula spica var. rosea is similar to the species in every way except that the flowers are light rose-pink in colour. Two dwarf forms which can be recommended are *L. spica var. nana*, which only differs from *L. spica* in being less vigorous in growth and consequently requires only half the accommodation, and *L. spica var. Munstead Dwarf*, which has deep purple flowers, rarely exceeds fifteen inches in height, and is an extremely desirable plant.

Leucopogon (Epacridaceae) is a genus indigenous to Australia and New Zealand, with a few species found in Malaya. These species vary in size and form and in almost every case are not considered completely hardy. There is one species, however, which has lived and grown out-of-doors for many years in Edinburgh. It looks so different to many of the other shrubby plants growing in the garden that it warrants mention.

Leucopogon fraseri is a low spreading evergreen shrub which colonises an area by underground runners. Its average height is three inches and although it flowers but sparsely in this climate the greenish brown foliage is most attractive. The very small alternate leaves are closely packed together on the shoots and appear bristly with bronze-coloured hairs. The flowering period is June, when in the axil of each leaf will appear a single small white flower. *Leucopogon fraseri* is found in both Australia and New Zealand.

Lithospermum (Boraginaceae). In this genus is found the universal favourite "Heavenly Blue" and there cannot be many rock gardeners who do not attempt to grow this lovely variety. Good drainage is essential if these plants are to flourish, and the sunny ledges of the rock garden are ideal sites. In all cases the leaves are hairy and alternately arranged on the shoots, while the growth of the plants varies from prostrate spreading forms to habits which are fastigiate. Cuttings of half-ripened wood taken in summer and placed in an unheated, shaded frame will root fairly readily. After potting, these rooted cuttings should yield strong plants suitable for planting out the following spring.

Lithospermum diffusum is the species from which the horticultural forms have been selected. The leaves are covered with stiff hairs and

during the whole growing season flowers appear in their axils. The colour is a deep bluish purple, which gradually fades to reddish violet with age. The growing habit is spreading and this may have to be curtailed if other plants are endangered.

The two most widely grown forms are *Lithospermum diffusum* "Heavenly Blue" and *L. diffusum* "Grace Ward." The first mentioned varierty has very bright blue flowers, but does not seem to have the constitution of the other variant. This latter plant has larger flowers and is stronger growing and, where *L. diffusum* "Heavenly Blue" is unsatisfactory, this other one may prove successful. This species and its varieties will have a greater chance of becoming established if lime is not present in the soil.

Lithospermum diffusum album is the nearest approach there is to a white *Lithospermum*. It is a plant of interest rather than of beauty, as the flowers are only partly white and in most cases are streaked with light blue or reddish violet.

Lithospermum diffusum erectum only differs from the species in its upright habit, but this is quite important if one has only a small rock garden and room cannot be spared for the more spreading types.

Lithospermum oleifolium is a difficult plant to grow well. It is not a rapidly growing species and the shoots become leafless for most of their lengths except for those leaves which are clustered round the tips of the shoots. Nevertheless, a good plant will be greatly admired, and a not-too-rich soil mixture may discourage straggly growth and promote the development of a more bush-like habit. The leaves are extremely variable, for in some cases they may be long and narrow while in others they are comparatively broad. A native of the Pyrenees, with flowers which are pale blue on the outside of the petals and darker within, this plant was discovered almost 150 years ago.

Moltkia (Boraginaceae) is closely related to *Lithospermum*, but in most cases the plants are much more woody in character. They all have an upright habit of growth and the shoots are terminated by dense cymes of flowers. All species should be planted in full sun and, in this instance, the plants will thrive better if the soil has a lime reaction. Good results still may be had where the soil is slightly acid and the drainage sharp.

Moltkia petraea is native to Asia Minor and is a small bushy shrub twelve to eighteen inches high. The violet flowers appear in July and are clustered at the tips of the young shoots. When not in flower this plant closely resembles a dwarf Lavender with its grey linear foliage. It is not a rampant growing species, nor does it become leggy and untidy in a very short time, but the judicial use of the secateurs will assist in preserving for many years its neat dwarf habit. One of the south facing ledges in the rock garden would suit this plant ideally.

Oxytropis (Leguminosae) is a very handsome genus belonging to the "Pea Family" and in it there is a native species which responds

Photo.—S. Mitchell.

Fig. 27.—Tulipa kaufmanniana var.

Photo.—S. Mitchell.

Fig. 28.—Crocus chrysanthus var.

well in cultivation. It should be planted in full sunshine and in a light sandy soil where the drainage is good. There, it will flower freely.

Oxytropis campestris flowers in July and is a dwarf plant of barely six inches. The flowers are cream in colour, tinged with purple, and these are borne in dense heads carried on top of a two-inch-high stem. The beauty of this plant is increased by the pinnate leaves which, arching over, form a soft covering over the whole plant. These leaflets are numerous and densely pubescent.

Olearia (Compositae) is a genus of evergreen shrubs native to New Zealand and Australia and, although there are numerous species, relatively few can be considered hardy in Britain. They ought to be planted in fairly poor soil so that soft unripened growth will be unknown and, if they can be found a position in the sun, this will serve them best.

Olearia moschata makes a compact bush up to two and a half feet and is one of the finest of the *Olearia*. The shoots and leaves are covered with a grey felt. This covering is more dense on the stems and undersides of the leaves than on their upper surfaces, where the colour shade is a greenish grey. The individual leaves are small, with entire margins, and are attached to the stem by a short stalk. Branched clusters of flowers go to make up the inflorescences, and the white ray florets contrast with the orange florets of the disc.

Olearia nummularifolia is one of the hardiest members and is a New Zealand species. It has compact growth and thick golden foliage which is often viscid. The undersides of the leaves are lighter than the upper surfaces and the margins are folded inwards. So densely packed are the leaves that very little of the stem is visible. The flowering season is July, when the creamy white flower heads are produced singly.

Along the Gordon River on Vancouver Island

By ETHEL LOHBRUNNER

[Enclosed with a parcel of seed from The Vancouver Rock and Alpine Garden Society]

ON 24TH JUNE 1956, many members of the Vancouver Island Rock and Alpine Garden Society gathered at the Colwood Beer Parlour, that is, the parking area, to begin their annual trek into the hills of Vancouver Island.

After leaving the Island Highway we came to the entrance to Mead Creek and found the way barred by a locked gate. Permission to enter was not granted, as it was Fire Season in the woods. After following a wrong road we finally came to the entrance to Sutton Creek, the way being barred again by a locked gate, but one of our members, Mr. Edgell, came to our rescue and persuaded the guard that we had

not come to set the woods on fire, but just to collect a few wild plants. Permission was granted ; our convoy of ten cars rolled through to Sutton Creek, where we had lunch.

We noticed a fallen log spanning the Creek and after lunch we crossed over and entered a deep woodland where the dainty Oak Fern (*Polypodium dryopteris*) and Shield Fern (*Aspidium aculeatum angulare*) grew, also great clumps of the beautiful Maiden Hair (Adiantum) and Liquorice Ferns grew abundantly and far up many of the trees in the moss.

On the way up one of the mountains we noticed *Cornus canadensis* growing on many of the stumps and also in patches as ground cover, the Princes Pine or Pipsissiwa, and more clumps of the Oak Fern, which grew abundantly along with *Aquilegia formosa* and the sturdy *Lilium columbianum*. We were amazed at the growth of the Oak Fern in full sun-light, as this was a logged off area and, of course, the Oak Fern is a woodland subject : nevertheless, although a lighter green, it seemed quite happy. We finally reached a cliff where *Phlox diffusus* in many mauve shades grew, and also a lovely white form. *Penstemon menzeisii* and dainty little *Saxifraga bongardii* and *rufidula* greeted us. *Lewisia columbiana* grew quite luxuriantly here, and several other interesting plants.

It was now growing late, so we decided to return. A few of us veered too much to the right but still managed to get down—I managed to stay up, but Mr. Myers, Ed and a few others came to my rescue and then we all proceeded to Sutton Creek, where we had our supper. One of the amazing things about this trip was the seemingly endless miles of beautiful hard-top highway going through virgin hills with mountains showing in the distance. Sutton Creek flows into the Cowichan Lake area and Gordon River into the Pacific.

New Scottish Wild Flowers

By R. B. COOKE

IN SCOTLAND in recent years several plants have been found which are new to the British flora and one which, in Europe, was previously believed to be confined to Ireland. Some have little or no appeal to the rock gardener, but all are of great interest to those who love our native flowers.

One which does make a fine show is *Diapensia lapponica* (see Fig. 25), which was only recorded as recently as 1951 for a single hill in the Fort William area. Here it is very local, and in "Mountain Flowers," by John Raven and Max Walters, Mr. Raven says that when it is in bloom and displaying thousands of its creamy-white flowers it must present "a sight that few mountain plants in Britain can surpass." I have not seen it there, but hope to do so some day. There is a Japanese form, *D. obovata*, which is very similar. This grows very well with me

in the garden, but does not flower freely. One thing I have found out about it—to my cost—is never to try to move it after it has got to some size, as it is sure to die. So, I say, do not try and move even one plant from its lonely Scottish station, but let it remain one of the glories of our alpine flora.

In 1952 *Artemisia norvegica var. scotica* was confirmed for a wind-swept mountain ridge in West Ross in the Ullapool area. This was an even more unexpected find than that of the *Diapensia*. I saw it there last June and therefore know how inclement a climate it has to endure, even in midsummer. It has none of the silvery sheen of some of the other alpine Artemisias, and for this reason is never likely to be popular in gardens. Nevertheless, although dull from a horticultural point of view, as a unique Scottish plant it deserves every protection.

Homogyne alpina cannot be called a new plant since George Taylor recorded it for the Clova mountains in 1813, but in the intervening years his record was disbelieved as no-one had seen it again till 1915. It is a common plant in the European alps and many will have seen it there, and also, as I have, grown it in their gardens. Now it can be re-admitted to the list of rare Scottish native alpines.

Arenaria norvegica, near Inchnadamph, Sutherland, is not new, as it has been known to grow there for long enough. Recently other stations have been added, and an interesting one among these was the Isle of Rhum in 1938. Mr. A. J. Wilmott once told me that the plant on this island is not quite the same as that on the mainland. Mentioning Inchnadamph gives me the excuse to say something about *Dryas octopetala*, which grows on the limestone cliffs there in great profusion. I think that on the Isle of Raasay only can a finer display be seen in this country.

Pondweeds generally are of no interest to gardeners, but one of unusual interest was found in 1945 by one of our members, Dr. W. A. Clark, in a small fresh-water loch in the Isle of South Uist. This is *Potamogeton epihydrus*, a North American species, and new to the British Isles as a native. In 1951 Dr. George Taylor also found it in several other neighbouring lochs.

Another new plant which is not a gardener's is *Koenigia islandica*, which was recorded for Skye in 1950, although it had been collected there in 1934 and wrongly named. It grows on the rugged mountains at the north-east side of the island. I have often admired the outlines of these mountains from the Isle of Raasay without realizing the rich flora which grew upon them—including this very noteworthy new British plant.

The Irish Lady's Tresses, *Spiranthes romanzoffiana* (Fig. 37), is widespread in North America, but in Europe is restricted to the British Isles. At one time this was thought to be only in S.W. and Northern Ireland, but now it is also known to be a native of the Isles of Colonsay and Coll. It was first recorded for Coll in 1939, after a party of students from Durham University had camped by Loch Cliad and seen it there.

In August 1940 when I was on this island I saw it by this loch, and also here and there throughout the northern half of the island, including one plant almost in Arinagour. My memory of it is that it never grew in clumps but always singly. If this is correct, then for its survival seed dispersal seems to be necessary, so too much picking of its flowers may lead to its disappearance. This Scottish plant, as well as that in Northern Ireland, is sometimes considered to be a sub-species and is given the name of *S. stricta*. In 1941 I was given some tubers which had been collected in the north of Ireland. I failed with those planted outside, although they were tried in various positions, but I succeeded with some in a pot kept in a cold house. They did well for years and a few are still alive, but are not as strong as they used to be, for which perhaps I am to blame. This orchid has white flowers with a hawthorn scent and grows to a height of about 6 or 7 inches, but those in the pot have been about 10 inches tall. In the autumn of each year these pot plants produced green shoots about half an inch in length which remained in this condition all through the winter.

Another noteworthy plant in Coll is the Pipe-wort, *Eriocaulon septangulare*. This is abundant in Loch a'Mhill Aird, and to a lesser extent in some others. This plant is also an American species like the above orchid, and in Europe is found only in Iceland, Skye and Coll.

The Mossy Saxifrage, *Saxifraga hypnoides*, has a curious habitat on Coll, as it grows in considerable quantity on the sand dunes near the Arnabast Earth House, but the distribution of plants in the Hebrides is a very big subject and alien to these notes on the plants recently added to the Scottish list.

Central Pyrenees and Andorra, July 1956

By R. S. CORLEY

MANY OF THOSE who grow alpines do so from love of the plants themselves, and never visit the habitat of these treasures to see them growing in all their natural beauty. Inhabitants of northern England and Scotland, of course, are fortunate in having mountains close at hand, though their flora is very limited compared with those of mountain ranges further afield. Those in the south, though further from the British mountains, are nevertheless better placed for visiting the Alps, to which most people turn first when they start collecting wild alpines, and particularly to Switzerland, where everything is so "cut and dried" for the tourist. Beautiful as are the Alps and their flora, however, after a few visits the ardent collector yearns for pastures new. He finds that the Alpine flora gets more interesting the further east one travels, and the Dolomites and Tyrol claim his attention, yielding many species that do not occur further west, and the south-eastern extensions of the Alps in the Balkans again provide still greater interest, culminating in the extremely rich flora of Greece.

I have myself followed this path, though after visits to our home mountains, then Switzerland, Savoy, the Tyrol and Dolomites, wanting to try another mountain range altogether, I deferred going further east until some future year, and in 1956 switched to the Pyrenees, having been led on by the many glowing accounts of the Pyrenean wonders related by Alpine Garden Society members in past *Bulletins* of that Society. As few articles on these mountains have so far appeared in the *Journal* my experiences will, I hope, be of interest to S.R.G.C. members.

The holiday was arranged for the first two weeks of July 1956, which may seem late to many, but even then there was a great deal of snow about at quite low altitudes which hampered our movements more than once. As leader of the party I had, of course, studied as far as possible all obtainable details of the districts concerned, and quickly learned that while all kinds of information on the Alps are readily available, it is a very different "kettle of fish" when one is dealing with the Pyrenees. To all intents and purposes the French do not want people to visit them and one struggles in vain to wrest from the French Tourist Office adequate information in the shape of tourist literature and other details. Also, books giving good pictures of the scenery are extremely few and far between, and mostly out of print, and good maps hard to obtain. One would think, too, that nothing grew in the Pyrenees, for no books on their flora seem to exist. This is indeed astonishing in view of the rich and varied flora of the mountains, so distinct with its admixture of representatives of the Arctic, Mediterranean, and Lusitanian flora, and its many attractive endemic species. What I did unearth, however, convinced me that the Pyrenean scenery leaves nothing to be desired, and that there was no doubt about the flora either.

Our first week was spent at Gavarnie, that unique spot in the Central Pyrenees not far distant from Lourdes. Situated at about 4400 ft. above sea level, it is well known to nearly everyone who knows anything about the Pyrenees and is unfortunately much frequented by the "pilgrims" who crowd to Lourdes in the summer months. Fortunately, however, these, after the manner of trippers in all lands, do not stay long or venture far afield, but arrive in their motor coaches and merely infest the village itself and the road to the Cirque, so that they are easily avoided. The Cirque of Gavarnie is unrivalled among the many mountain amphitheatres that abound in the Pyrenees ; its rock terraces face north, rising in three tiers to the frontier ridge and flanked by the beautiful peaks of 10,000 ft. or so with their glaciers and snowfields. At one point the summit ridge is pierced by a fantastic breach at over 9000 ft. known as the Breche de Roland, which is fairly easily reached over a small glacier. The Aretian Androsaces, *A. cylindrica* and *A. pyrenaica* are said to grow here, and the former species takes its name from a neighbouring peak, the Cylindre du Martore. From the Breche one looks over into Spain and not so far down on the Spanish side is the famous glacier cave discovered by the French spelaeologist, Norbert Casteret. Another feature of the Cirque is its impressive cascade which, with many smaller ones fed by the melting snows above, falls in a great sweep to the floor of the Cirque, with one of the longest drops of any fall in Europe. Rock climbs abound in the surrounding peaks and the walks in all directions from Gavarnie are of the very highest order, even to those who have sampled the best that the Alps can offer. Unfortunately the mass of snow on all three terraces of the Cirque prevented our exploring them or the Breche de Roland above.

The immediate vicinity of the village itself was interesting as regards plants. *Ramonda pyrenaica* occurred on rock just above the village near the Hotel des Voyageurs where we stayed, and was seen also in the village street, so to speak, on a large rock on the bank of the Gave du Pau, the river running from the Cirque through the village. The road to the Cirque follows the river and along it, daily, pass the trippers on mules, on horses, or "a pied." Within a hundred yards of the hotel was found *Erinus alpinus albus*. Not much further on is a rocky peak near the entrance to the Val d'Ossoue, surmounted by an enormous statue of Notre Dame des Neiges. The rocks at its base were a happy hunting ground yielding amongst other things *Asperula hirta*, *Asplenium trichomanes*, *Potentilla alchemilloides*, and *Hypericum nummularifolium* which, unlike others of the genus, requires shade and moisture.

Our first excursion took us past this statue into the long, gradually rising Val d'Ossoue, leading more or less westward from Gavarnie, and ending under the huge mass of the Vignemale with its glacier. Here were growing so many worthwhile plants that one could have filled all one's available luggage space without going further afield. Crossing the river, which runs out from the valley by a stone bridge

over a gorge, we saw *Lonicera pyrenaica*, a low-growing shrub with glaucous leaves *and* pinkish buds opening into cream-white flowers, growing out of the rocky side of the gorge. The flowers are, however, not scented as one would expect. Nearby were *Pinguicula grandiflora* in the boggy places, and the rocks were covered with the fascinating, minute-leaved *Globularia pygmaea* with its powder blue "bobbles," and here and there its white-flowered form. A little searching is required to find a piece with good roots, but such pieces are easy to re-establish. This plant can sometimes be found in nurseries, and it is fairly slow-growing ; also it is advisable to cover it with glass for the winter. A charming light blue scilla was also found here, like a miniature bluebell. The name of it is uncertain. Ramondas adorned the crevices of some of the larger rocks near the track which led to a rough road. We followed this road up the valley on the left bank of the stream under rocky walls on our right studded with the silvery rosettes and long white-flowered panicles of *Saxifraga longifolia* (Fig. 39). After a longish walk with many new discoveries, the road came to an end at the hydro-electric station near a lake with a dam at its lower end, and we continued along the lake shore towards the valley end, on rough rocky ground. Here were *Passerina nivalis*-without its small yellow daphne-like flowers, *Androsace villosa*, *Globularia nudicaulis* and *Reseda glauca*. *Passerina nivalis*, a relative of the Daphnes, is a rare plant in nurseries as it is from all accounts difficult to propagate, and though I once possessed a plant it did not last long. A little past the lake the valley floor became very rocky and we threaded our way through a maze of boulders amongst which we found a few lingering, deliciously-scented flowers of *Narcissus juncifolius*, and *Androsace villosa* in abundance. At the end of the valley rose the lower slopes of the Vignemale massif, up which the track rose in zigzags. The stream here was bridged by snow and we had no time to continue, but contented ourselves with climbing a grassy slope to examine an impressive waterfall which thundered into a deep gulley, drenching with its spray the vegetation for a great distance around. A few *Gentiana acaulis* grew here, but our best find nearby was a group of primrose yellow orchids with attractive solid-looking flowers, which, however, had a most unattractive smell. This was quite unfamiliar to all of us and indeed the only other yellow orchid I have ever found is *Orchis sambucina* which grows in the Alps and the Dolomites and occurs to my knowledge, with its purple form, on Monte Baldo. Other unidentified plants in the Val d'Ossoue were a Paronychia with papery bracts which may have been *Paronychia nivea*, and a delicate little cream-white flowered, tufted plant, probably a Galium or an Asperula.

The next day was, as the hotel proprietor said, "unique," the sky being cloudless and extremely clear, and we were lucky to have planned an excursion to the impressive and little-visited Cirque de Troumouse (Fig. 38). This involved a drive in a small bus, hired for the day, which took us via Gedre, a neighbouring village, into the Vallee de Heas,

and very conveniently picked us up in the evening. We disembarked outside a deserted-looking hotel in the hamlet of Head and took a path leading up the valley towards the Cirque. At the start the Cirque itself was almost entirely obscured by an enormous rounded rock mass rising from the centre of the valley, with side valleys on each side of it giving access to the high grassy plateau beyond in the Cirque itself. We took a well-defined path up the left hand or eastern side of the valley which, after following a delightful mountain stream for some distance, described many wearisome zigzags up the eastern wall of the Cirque. About halfway up these zigzags we found *Fritillaria pyrenaica* in flower, *Pinguicula grandiflora* and *Primula farinosa*. Arriving on the grassy alp at the top, we saw the Cirque at last in full view but were at first distracted from admiring its imposing beauty by a huge ram which detached itself from the midst of a flock of sheep some hundred yards away and charged headlong towards us and, selecting me as its chief objective, chased me around amongst the rest of the party, until I realised it had no malignant intent and was only curious at the unaccustomed sight of humans in this unfrequented spot. It proved to be quite tame, which was lucky, as it was the biggest ram and had the longest horns I have ever seen. After these alarms and excursions we lunched on the alp amid *Ranunculus pyrenaeus*, and examination of nearby rock outcrops yielded *Saxifraga aizoon*, *Globularia pygmaea*, *Salix retusa*, and *Primula rubra*. The Cirque is staggering in its immensity and its snowy peaks form a rocky semi-circle near the 10,000 ft. mark, pierced here and there by narrow passes to "ports." Time forbade our traversing it to the western side and we returned by the same route, to the aforementioned deserted hotel, where unexpectedly we had the most delicious tea before picking up our bus.

The clear weather continued the following day and we set out on a long walk to the Port de Gavarnie. After turning out of the village by the church the track leads up zigzags to a fairly high level and then straightens out. Here were striking views of the whole Gavarnie Cirque, with the Marbore and Astazou peaks on the east side, and to the west the rocky Sarradets, the snow-covered Gavietou and Taillon making a beautiful group of regular conical peaks on the left hand side of the gently rising Vallee de Poueyaspe leading to our objective, the Port de Gavarnie. At the top of the zigzags were *Orchis ustulata*, *Nigritella angustifolia* and *Iris xiphioides*. This, the so-called English Iris, with its large deep violet purple flowers on stalks up to two feet in height, is an astounding plant to encounter in such surroundings. Further on at the foot of the rock-wall on our right were found *Salix pyrenaica* and *Eryngium bourgati*. The latter, an exquisite thistle-like plant, is tap rooted and not easily collected, but seedlings were found which should be easier to re-establish. Proceeding into the Vallée de Pouey Aspé across loose shady slopes we came where it opened out into grassland, with the stream on our left, fed by the snows of the Taillon and Gabiéton which rose on the other side and presented a

magnificent sight during our progress. We soon arrived at a stone refuge hut and climbed steadily onward past gentians and yellow patches of *Douglasia vitaliana*, with *Androsace villosa* and *A. carnea*. The head of the pass was blocked with masses of snow, but the track fortunately attained the Port by zigzags, arriving in the gap itself well above the snow and we gazed expectantly into Spain from something like 8000 ft. On our left the grey rocks tinged with blue here and there rose steeply from the pass, and beyond was a beautiful peak of yellow-brown rock, its slopes plunging down to the green valley of Bujarvelo. Straight ahead was a knife-edged ridge and beyond this a most imposing unknown snow peak, and a sea of summits continued round north-westwards as far as the eye could see. The view back into France was not less beautiful, with the sharp point of the 9000 ft. Pic du Pimeme which rises over Gavarnie, and the many mountains to the east. All around was rough scree carpets with *Geranium cinereum*, *Ranunculus pyrenaeus*, *R. parnassifolius* and *Saxifrage oppositifolia latina*. *Saxifraga ceasia* and *Linaria faucicola* were found a short distance up the rocks of the Gabiéton. After lunching at this entrancing spot we commenced our return walk along the "Ancienne Route," an old worn track, which led back along the slopes up which we had come, above our previous track, and over a grassy shoulder into the Vallee d'Especieres which runs nearly parallel to the Vallée de Pouey Aspé. The way was rather precarious in places where the track had fallen away and snow covered it, making care necessary. Eventually however we arrived on the grassy ridge-top where grew quantities of *Gentiana alpina* and *Androsace carnea*, their blue and pink forming a delightful colour association, and we soon plunged down into the Valle d'Especieres. Here we gained experiences of the tricky walking in the Pyrenees, for the track proved difficult to follow and after mist with dramatic suddenness had rolled up the valley from below we found ourselves going right out of the valley on the wrong track and had to retrace our steps, arriving at the hotel somewhat jaded, after what nevertheless proved to be the best excursion of the holiday.

We next tried the Pic de Pimene, a shapely conical mountain of just over 9000 ft. which overlooks Gavarine on the east. In spite of its height it had seemed to me possible anyway to get up to the ridge between its summit and a neighbouring peak, the Cap Latus, where *Androsace ciliata* is said to grow, if not to the summit itself. We therefore set out, not very early, and this proved to be our undoing, for after climbing up eastwards out of the village into the valley from which we hoped to attain the ridge leading towards the Pimene we found the way was tiringly steep, and only two of us climbed the heights on to the next shelf under the Crete d'Alans. Only when we reached this shelf did we see our peak and in a moment our spirits sank, for contrary to our expectations the distance to it along the ridge and even to the nearer Cap Latus seemed immense. Views of the Cirque and the Vignemale, however, were impressive and we had our first and only sight of the Breche de Roland over the Cirque with the Astazou and

Marbore peaks to its left, and the Sarradets, Taillon, and Gabiétou to the right, the abundance of snow on their slopes making of the whole shapely group a truly magnificent spectacle, equalling anything I have ever seen in the way of mountain scenery. We encountered here a fine pale mauve form of *Primula integrifolia* in a large wad of foliage overhanging a small waterfall, with *Pinguicula grandiflora* close by. The grassy sward was studded with *Androsace carnea* and *Ranunculus pyrenaeus*, though the latter was not a very good form. On the way down we made a detour on to the screes under the Crete d'Alans and found *Saxifraga caesia* and, on a vertical outcrop, one perfect plant of *S. longifolia* which, unlike the others we had seen, was conveniently placed for photographing (see Fig. 39). Just after this encounter I placed one hand on a rock to steady myself, within a few inches of an enormous adder which slithered off quickly into a hole. This was startling and unexpected, as I have never before seen these creatures at such a height. The descent to Gavarnie was uneventful and our regret at not reaching the habitat of *Androsace ciliata* was great, but we had under-estimated the distance and height and on a future visit this excursion will be undertaken with an earlier start.

After three energetic days a coach trip seemed attractive, so next day, again in magnificent sunshine, we set off in our small bus again to the Col du Tourmalet via Bareges, where some welcome shopping was done. This Col is probably the most celebrated in the Pyrenees, with a fine motor road winding up to its summit at about 7000 ft. in sensational sweeping curves round the side of a spacious and beautiful valley. At the top a road leads off the main route to the Pic de Midi de Bigorre (9355 ft.) with an observatory at its summit. We set off to the top on foot, but, alas, snow blocked the road and we had little time, so contented ourselves with lunching on a rocky spur overlooking the valley to the west, and the splendour of the scene drove out for a time all thoughts of botanising. Searching on the way back to the Col disclosed interesting plants such as *Primula farinosa*, *Ranunculus pyrenaeus*, *Gentiana verna*, including an amethyst coloured form, Pinguiculas, *Daphne verloti*, *Linaria alpina*, *Androsace villosa*, *A. carnea*, *Saxifraga aizoides*, and *S. aizoon*, but my chief memories are of a fine display of *Viola cornuta* and a marshy spot with an abundance of *Caltha palustris*. Not far from Gavarnie on the return drive we caught sight of a Lizard Orchis by the roadside on a sharp curve, where we could not easily stop and get out as the evening exodus of motor coaches from Gavarnie had started crowding the road.

Having enjoyed our stay at Gavarnie, we were loathe to leave for Seldeu in Andorra, but tore ourselves away, assuring the friendly hotel proprietor that it was a case of "Au revoir" and not "Adieu." We started off at the ungodly hour of 5 a.m. by special coach and after a thrilling and beautiful drive across the plain just out of the main Pyrenean range, which was ever in view, we arrived in the late afternoon at the cluster of hovels which with the one modern hotel constitutes the first village of Andorra on the French side after the descent

of the sensational Envalira Pass. Our first walk down the road near the hotel disclosed masses of meadow plants we had not seen at Gavarnie, such as *Gentiana lutea, Gymnadenia conopsea, Orchis maculata* and *Helleborus viridis* growing with an unbelievable luxuriance.

Our first objective was the Val d'Incles, a long, gradually-rising valley reached by a walk of about a mile down the main road which runs right through the little country into Spain. A good track ran along by the river for the first two miles or so, through flower-bedecked meadows rising on either side to fairly high peaks. The wealth of plants includes the annual *Gentiana campestris, Asphodelus albus var. pyrenaicus, Gentiana lutea, Iris xiphioides,* a cream-white herbaceous Spiraea, Phyteumas, Polygonums, *Trollius europaeus* and many orchids including the vanilla-scented Nigritella. Arriving at the end of the lower part of the valley, where it forked into two more steeply-rising branches, we took the right hand one, which soon branched again. Here we continued over a log bridge up the left hand branch and the track soon wound up sharply amongst big rock outcrops covered here and there with *Rhododendron ferrugineum.* We soon found ourselves in a narrow rocky gully strewn with masses of great granite boulders, lichen-covered, through which the track zigzagged on its way to the heights above. A long time was spent here, for many of the larger boulders were the home of *Androsace imbricata,* indeed every large rock over a certain size contained the silvery tufts of the plant in most of its crevices. It was, however, impossible to prise open the crevices, so adamantine was the rock, and only one plant was collected which happened to have flakes of rock round it. A purple Allium, which was new to us, was also found here on a ledge. We did not continue beyond this point and so did not find *Lilium pyrenaicum,* which is said to grow higher up.

The Val d'Incles, apart from the beauty of the floral display in its lower reaches, has the distinction of being the habitat of the silver Androsace at an exceptionally low altitude, and I have never seen a better display of this species anywhere.

There followed a day of thunderstorm, but we managed to fit in a short climb, which was most repaying, up the slopes above the village. We found a hillside covered with an extensive colony of Arolla pines ranging from arborescent forms to dwarf and prostrate ones, many of them growing out of rock crevices with all the Lilliputian charm beloved by dwarf conifer fans. Past this slope was a sward studded with the bright purple of *Gentiana pyrenaica.* Though the ineffable blue of *Gentiana acaulis* forms and *G. verna* never fails to give a thrill when first seen on a mountain holiday I really think that this other beauty has no less attraction. It remains to be seen whether it can be grown in my garden. Some people have been successful with it in the south, but it has a bad reputation for intractability and is hardly ever seen in nurserymen's lists in England. On the steep meadows just above the hotel *Gentiana lutea, Gymnadenia conopsea,* and *Orchis maculata*

grew with great abandon and parts of the hillside were covered with the bright yellow *Cytisus purgans*.

The next day we went by bus through Les Escaldes and Andorra la Vieille to the Spanish city of Seo de Urgel, a trip which was not remarkable botanically. The heat on the Spanish side of the mountains was terrific and the only plants I remember were *Asplenium ceterach* and *A. ruta-muraria* growing in the stone gateway of the Bishop's palace at Seo de Urgel.

It was a treat to be back at a higher altitude after this and we set out to walk about five miles down to the village of Canillo, and a mile or so further on we struck off the road to climb Casamanya, a limestone peak of 8666 ft. from which it is possible to see the whole of Andorra and far beyond. This mountain, which has three summits, can be seen from Soldeu and has something of the appearance of an enlarged chalk down such as one sees in the Chilterns or perhaps the Cheviots, but on reaching the broad ridge leading to the top from the Col d'Ordino we saw what an effort would be needed to surmount it, and the five of us who reached the top had no doubt whatever of its claim to be called a mountain, especially as the west face was largely a precipice. Before leaving the road we saw a number of interesting plants. *Erodium macradenum* was conspicuous with *Antirrhinum asarina* in rock crevices, and *Eryngium bourgati* flowered by the roadside. We climbed through pinewoods to the Col d'Ordino and soon headed north up the ridge, which rose in three huge steps, the last two being quite steep, and rocky stretches increased as we neared the top. Many new treasures were encountered on the way up : *Ononis cenisia*, a fascinating small-leaved prostrate shrub with pink and white pea flowers, which, being tap-rooted, is very dufficult to re-establish ; an unknown Paronychia with minute leaves, many of which had a bright orange tint ; *Teucrium pyrenaicum* with its white form ; *Globularia pygmaea*, here again very plentiful ; *Saxifraga latina*, *Thlaspi rotundifolium*, *Primula integrifolia*, *Daphne cneorum*, *Dryas octopetala*, *Silene acaulis*, *Androsace carnea laggeri*, *Gentiana verna*, *Ranunculus parnassifolius*, a Linaria like *L. alpina* but without the orange lip, and quantities of *Saxifraga media*, an Engleria with silvery rosettes, pink flowers and purplish flower stalks, which, though not so showy as many other Englerias, is nevertheless an attractive species. One plant of a particularly charming Helianthemum, quite prostrate, with cream-white flowers, was also found, but to me the best find was an exceedingly dwarf Alyssum with tiny silver-grey leaves on greyish prostrate stems and heads of pale yellow flowers, strongly reminiscent of the far coarser and taller *Alyssum saxatile*. It is strange that this little gem should have remained unmentioned by others who have climbed Casamanya and who found *Iberis tenoreana*, which we failed to discover. The Alyssum is an almost complete mystery for though I have bought the same plant from a nursery as *A. tortuosum*, I believe this name is incorrect, but can find no mention of the plant anywhere, which is astonishing considering what an attractive plant it is for a trough.

The view from Casamanya's summit was magnificent on this cloudless day. The eye ranged over a sea of peaks from the higher snow-covered summits to the north and west to the lesser ones and the Spanish plain to the south, and the stark yellow rock of the three summits and western precipice of Casamanya itself. After a lingering lunch and a visit to the nearest snow patch to quench our thirst, we descended down the eastern ridge direct to Canillo, encountering on the way more *Saxifraga media.* Fatigue made a car ride back to Soldeu very welcome after what had been our best excursion in Andorra.

The last day was given over to a walk to the Cirque des Pessons, which lies south of Soldeu. It was reached from the Fray Miguel Refuge at the foot of the Envalira Pass. This Cirque contains many small lakes and is composed of igneous rock. Good finds were made, among them being *Lychnis alpina, Veronica bellidioides, Androsace carnea, Rhododendron ferrugineum, Gentiana verna, G. kochiana, Daphne verloti, Douglasia vitaliana,* and perhaps the chief glory of the walk was the abundance of *Gentiana pyrenaica.* My own part in this was, alas, somewhat restricted by slight stomach trouble, which made me take things easy.

Thus ended a notable tour which has left me with a longing to visit again these wonderful mountains to find, after a softer winter, some of the plants we could not get to in their high habitats because of the snow. This winter through which we have almost passed seems to have been of this kind and I have with great enthusiasm been making plans for the summer to go to other promising centres in the Hautes Pyrenees. The Alps can wait until I have become more familiar with the delights of the lesser-known ranges and I look forward to new adventures there, but do not particularly wish to encounter any of the bears which inhabit some parts of the Pyrenees !

Silver Foliage Plants

By ROGER F. WATSON

THERE IS A great beauty in the alpine plants with silver-grey foliage, whether in the garden or the alpine house, or on the show bench, and they never fail to attract attention. In writing of some of this class of plant that we grow I am conscious of the fact that the West of England is a far cry from Scotland, and conditions very different. There is one thing in connection with grey-leaved plants which may be taken for granted—that they all need a warm dry soil and are inclined to perish in a cold wet winter unless protected by grass overhead. Indeed, there are quite a few that I have to grow as alpine-house subjects ; and how eminently suited for this purpose they are !

For Show purposes the term "Silver-foliaged plant" is widely interpreted to cover silver-grey to white-woolly, and I shall take the liberty of doing the same here. In the alpine-house they look bright

and cheerful, especially in winter, and in the open garden they provide a good foil for brightly coloured flowers. I like a mat of *Artemesia lanata pedemontana* among the blues of garden forms of *Campanula carpatica* or the bright yellow of Hypericums. My first subject shall be one of the choicest, *Androsace imbricata* (*argentea*), a plant of the utmost charm with its tight cushion of silver foliage and white flowers. It provides a challenge to the most skilful cultivator and is a joy to behold when well grown. It is safest by far in the alpine-house in a pan of sharply drained soil and watered from below.

Alchemilla alpina : I feel diffident about including this as the silver is on the underside of the leaves, the upper side being of a pale green, but when the underside of the leaves are examined the silver is of the very brightest. In any reasonable soil it is easy to cultivate.

Andryala aghardii : is a hawkweed from Spain, with spoon-shaped silver-grey foliage and yellow flowers, growing to a height of about six inches. Thriving outside here in warm dry soil in sun, or in a pan, it requires only the normal potting soil, and can be propagated readily from the fluffy seed which is freely produced.

Anthemis barbeyana : grows to a loose cushion of much-cut grey foliage and neat white flowers in loose heads. It is closely allied to the Achilleas, among which there are many good silver foliages plants. Here I must include a lovely plant, the name of which I am as yet unable to determine. I have it as *Pyrethrum sp.*, but have seen it also labelled *Chrysanthemum sp.*, *Anthemis sp.*, and *Achillea sp.* While the name remains doubtful, there is no doubt about the beauty of the plant. It is a superb silver with finely-cut foliage making a mass of about four inches in height and rather spreading, with white flowers in heads like an Achillea, and would make an excellent show plant.

Arabis bryoides olympicum : is a choice cushion plant for scree or pan, making a rounded dome of very woolly rosettes which it adorns in spring with white flowers on short stems.

Artemisia glacialis : is a true 'high alpine,' making a mat of the brightest silver filigree, and is best grown in a pan in the alpine-house in gritty lime-free soil.

Artemisia brachyphylla splendens : makes a prostrate mat of tiny grey filigree foliage from woody stems, and needs a warm well-drained soil, or alternatively it may be grown in a pan.

Artemisia lanata pedemontana : must be well-known to most rock gardeners with its spreading mass of silver-grey tinsel. The flowers are insignificant and should be cut off early to improve the foliage effect.

Celmisia argentea : is a choice tiny mat of narrow foliage arranged in rosettes which are of the brightest silver. It is, here at least, very slow growing and needs a pan in the alpine-house in lime-free very gritty soil.

Convolvulus cneorum : is a shrubby plant for the hottest and sunniest spot you can find. Down here it is hardy in all but the severest winter,

but I do not know how it would behave in Scotland. I feel sure it would make an excellent plant for the alpine-house in a large pot. The foliage is very silver and the large flowers in white with pink veins are very attractive. It will propagate readily from cuttings. *Chrysanthemum atlanticum*, a plant of N. African regions, is a beautiful pan subject, not hardy enough for outside, with much-cut grey foliage and white daisies.

Erica vulgaris incana : was a gift from our President and, as the name "incana" implies, is a beautiful grey foliage form of the summer flowering heather with bright rose-pink flowers. Among the green-leaved forms it is very conspicuous, especially in winter. It is an uncommon form seldom found in catalogues.

Eriogonum ovalifolium : is an American, a tufted plant of grey spoon-shaped leaves forming a cushion-like loose mound which it decorates in summer with chaffy flowers creamy yellow in colour. It is hardy, but resents our wet winters ; it makes a good pan plant.

Helichrysum angustifolium : is a dwarf shrub of some two feet with very linear grey leaves and a strong flavour of curry powder when bruised, and is hardy here in a warm corner. *Helichrysum frigidum* is one of the daintiest little plants one could wish for, growing into a small spreading clump of silver shoots from which in summer are produced the clean, white, half-inch "Immortelle" flowers. It is hardy outside if given glass protection in winter, but makes a lovely pan plant in sharply drained gritty soil.

Helichrysum orientale : is a sub-shrub not hardy enough for outside, but a lovely combination of silver and bright yellow when in flower, and these flowers last the whole summer.

Helichrysum marginatum : grows into a mat of woolly rosettes and in summer produces beautiful silvery-white everlasting flowers from crimson buds. I have not found it very free flowering but it always produces a few of its blooms. Here it is quite hardy in a scree bed without winter protection. *Helichrysum virginium* is another sub-shrubby plant for a pot in the alpine-house, as one would not dare to subject such beauty to the vagaries of our winters. The broad leaves are very silvery by reason of a thick covering of silky hairs, and it is a favourite show plant. These leaves are enhanced in summer by beautiful flowers of silvery-white from peach pink buds, a most delightful combination.

Lavandula lanata is the woolly lavender and grows to a low hummock of grey woolly foliage which is very attractive. In summer it produces tall flowering stems which are rather ungainly, but these can be cut off and the plant grown for its foliage effect. *Lavandula vera nana alba* is a dwarf lavender, seldom reaching more than nine inches when in flower. The tiny foliage is grey-white and the flowers are also white in short stems. It is an uncommon but charming dwarf shrub, small enough to plant in a trough. *Lupinus ornatus* is a dwarf lupin from the U.S.A., where I believe there are several other dwarf forms. It

is a plant for a warm dry position in full sun where it will produce its silky silvery foliage and bright blue flowers in short spikes. *Micromeria corsica* is a dwarf labiate sub-shrub with an intricate mass of branches clothed with small grey foliage and pink flowers, the whole plant being invested with a rich fruity scent. Unfortunately, this scent has a strong fascination for the local cats, and once they have discovered it they will haunt your garden till you or they finally dispose of the plant.

Raoulia australis : is an antipodean plant of prostrate, creeping habit, for planting in paving where the bright silver foliage will spread along the cracks and joints. One could wish the same could be said of its aristocratic relation *Raoulia eximia*, which demands the greatest skill on the part of the grower and is almost unobtainable. It is the silver foliage plant *par excellence*, forming a tight cushion of the utmost beauty. One sighs in vain for this treasure. *Stachys candida* is a very choice plant related to the well-known "lamb's ears," *Stachys betonicifolia*, and is a beautiful alpine-house plant of shortly trailing habit. Both stems and leaves being intensely woolly, the whole plant appears silvery-white. The flowers in summer are very attractive, white with deep red veining ; it is a rare plant almost unknown in this country. *Sedum capablanca* is a form of *Sedum spathulifolium* with smaller rosettes than the type, very silvery-grey in colour, growing into a close mat and producing yellow flowers in heads on short stems just above the rosettes. This is a pretty, easily grown plant, suitable for the rock garden or trough, and is often seen as a pan plant.

Synthyris subpinnatifida lanuginosa : is a plant of the high places in the U.S.A. and the foliage is quite different from the usual Synthyris type, being very deeply cut and very grey in colour. It is a beautiful plant for a scree bed or pan, quite dwarf and slow growing ; the flowers are blue, produced in spring and early summer.

Teucrium rosmarinifolium brings us back to the labiates. It is a sub-shrubby plant forming a dwarf bush of very linear, grey foliage, with bright rose-pink heads of flower. Fairly hardy in a dry sheltered place, it also makes a good pan plant. *Teucrium ackermannii* is near this, perhaps not quite so grey in the foliage, with heads of plum purple flowers, and requires the same conditions. *Verbascum dumulosum* is a recent acquisition and is a choice dwarf form of the better-known tall Verbascums. The erect, leafy stems and foliage are very grey and the flowers are comparatively large and bright yellow, the whole plant being less than one foot in height. Unlike most of its relatives, it is perennial in duration and makes a good exhibition plant if accommodated in a deep pot, as the fleshy roots are deep delving. *Veronica bombycinum* is a choice prostrate plant, very silver in stem and foliage, which in summer is covered with wide-eyed pale blue flowers. It is a tricky plant to grow and is best in the alpine-house as it resents wet on the leaves at any time, but especially in winter readily damping off. It should be grown in a gritty, sharply-drained soil

Photo—R. B. Gray, Edinburgh.

Fig 29.—Rhododendron pumilum.

Photo—D. Wilkie.

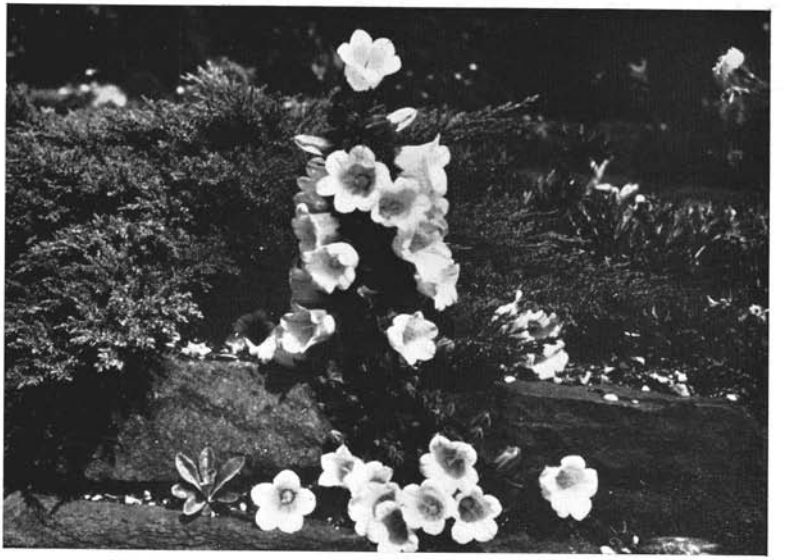
Fig. 30.—Cypripedium spectabile.

Photo—W. A. Clark.

Fig. 31.—Pleione pricei at Glasgow Show.

Photo—D. Wilkie.

Fig, 32—Acantholimon venustum



Photo—S. Mitchell.

Fig. 33—Campanula formanekiana
(*Reproduction from colour transparency*).

Photo—S. Mitchell.

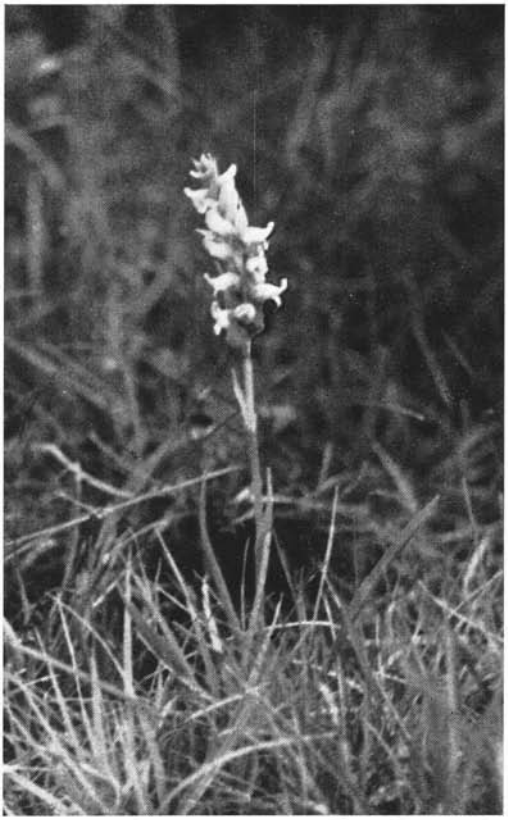
Fig. 34—Campanula cochlearifolia
(*Reproduction from colour transparency*).

Photo—S. Mitchell.

Fig. 35—Campanula cochlearifolia v. "Miranda"
(Reproduction from colour transparency).

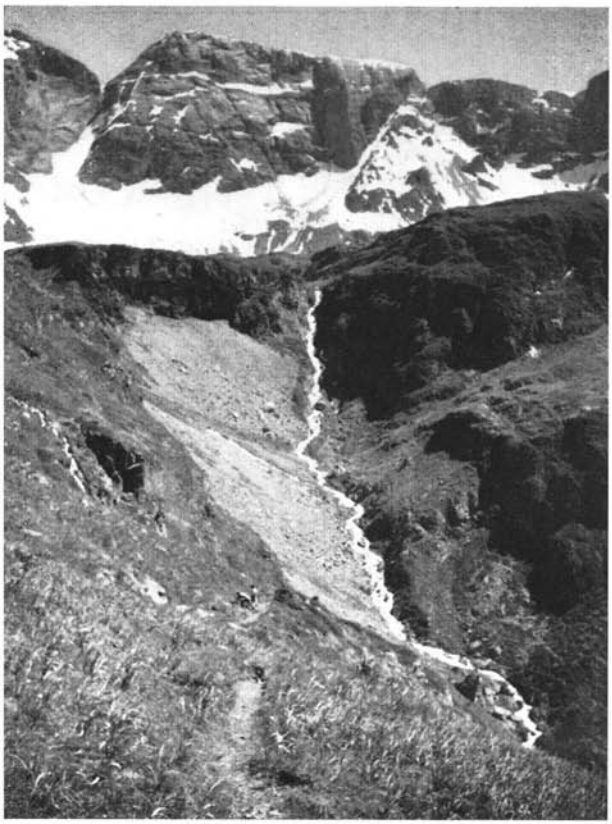
Photo—S. Mitchell.

Fig. 36—Campanula muralis (C. portenschlagiana)
(Reproduction from colour transparency).



Photo—W. A. Clark

Fig. 37—Spiranthes romanzoffiana, Isle of Coll



Photo—R. S. Corley

Fig. 38—The Way to Cirque de Troumouse. Fritillaria pyrenaica on foreground slopes

Photo—R. S. Corley

Fig. 39—Saxifraga longifolia near Hourette D'alans Gavarnie.

Photo—D. J. M.

Fig. 40—Lithospermum intermedium

and watered from below. When full grown to cover a pan it is a good show plant.

It may be considered surprising to include dwarf conifers among silver-foliaged plants, but I have two which fairly justify their inclusion. *Abies lasiocarpa compacta* is a dwarf form of the N. American alpine fir, and forms a broadly pyramidal shrub reaching a height of three or four feet in time. The foliage is not just glaucous, but a real silvery-grey. *Abies nobilis glauca prostrata* is a prostrate form of the "Noble Fir" with very blue-grey foliage. Both these lovely conifer forms are rare in cultivation but can sometimes be obtained.

Most of the dianthus and encrusted saxifrages have grey or silver foliage and no doubt my readers will think of many more. There are many omissions, but these are the silver-leaved plants we grow. In conclusion, let me pass on a tip on propagating them. Nearly all have soft woolly stems which are easily damaged when putting in cuttings. Use a fine sand for them, as the usual coarse medium used will scratch or bruise the stems when firming them in. Water them to settle the sand around them, then water very sparingly until rooted, as damping off can easily occur.

Wild Flowers of Indiana

By DORA E. WATERSON

Anderson, Indiana, U.S.A.

ON FIRST arriving in this State early in the month of June many years ago I experienced the sad but mistaken impression that there were no wild flowers in Indiana. Wherever my friends took me riding along the highways, I saw nothing but miles of endless taut wire fencing enclosing vast fields of sprouting corn and large woodland tracts, menacingly displaying "NO TRESPASSING" signs. When remarking on the absence of wild flowers, my friends replied: "You have come too late for them and will have to wait till next spring."

The following spring I was taken on a wild flower jaunt; not over cement highways this time, but along rough gravelled back roads where there were occasional unfenced woodlands. These we invaded. To my joy, the first group of American spring flowers I saw was an acre or so of "Blue-eyed Mary" (*Collinsia verna*) covering a gentle slope, with a soft misty-grey footing of "Dutchman's Breeches" (*Dicentra cucullaria*).

Unlike my former county of Gloucestershire, where wild flowers are everywhere, and a step or two will take you from a field of cowslips into a wood of bluebells, then home again along lanes bedecked with flower-laden hedgerows and ditches—seven-leagued boots or fast autos are in order to reach the distantly spaced flower patches here. So on we sped to another wood completely carpeted with what appeared to be a light fall of pink-tinged snow; these were the "Spring Beauty" (*Claytonia virginica*).

This flower expedition finally ended up with a visit to a valley creek where after walking a considerable distance along a trail through rich, black alluvial soil, I suddenly observed before me a long stretch —as far as my eyes could see—of thousands of sky-blue nodding flowers with rose-tipped buds. These, I was told, were the American bluebells. Before retracing our steps I paused before them for a moment or two in reverent awe, deeply humble for my former hasty conclusion "that there were no wild flowers in Indiana."

A year or two later I was privileged to become one of the chaperones to a small mixed group of high-school students bent on nature study. This was when I really made my acquaintance with many of our Midwestern wild flowers. Each spring we started out close on the thaw of the last snow, driving over miles of territory in search of the "harbinger of spring" (*Erigenia bulbosa*)—that tiny lacy-leaved carpeter, with its salt and pepper sprinkled flowers. Often we were rewarded with other early arrivals such as the Bloodroot (*Sanguinaria canadensis*), *Hepatica triloba*, Rue anemone (*Anemonella thalictroides*), "Dutchman's Breeches" (*Dicentra cucullaria*), Squirrel corn (*D. canadensis*), Great merrybells (*Uvularia grandiflora*), a few trilliums, and maybe the Skunk cabbage (*Symplocarpus foetidus*), which we greeted from afar.

Whilst delving through various wild flower books prior to our weekly jaunts, I was surprised to discover many of the wild flowers scattered over these United States of America were "garden escapes" from plants and seeds brought over the Atlantic by the early British settlers and European immigrants long, long ago.

Every section of America has a wealth of beautiful wild flowers, and now my heart rejoices to know that seeds, bulbs, and maybe plants of some of them, are making reversed journeys across the Atlantic for experimentation in British soils and climate, through the facilities of the S.R.G.C. Seed Exchange. Maybe future generations of young Britishers will some day behold drifts of "Blue-eyed Mary," complementing a nearby bank of yellow primroses, or the American bluebells fringing the burns of Bonnie Scotland, only to learn that they too were once "garden escapes" from American wild flowers sent over in the dim past by members of the S.R.G.C., who thereby all unconsciously paid off a debt of gratitude to the "old timers" who enriched their land with many a sweet flower and good pot-herb.

On Showing

By F. C. BARNES

THERE MUST be many members who, like myself until a few months ago, have never entered any of their plants at the Club's Shows. Perhaps the reason (or is it an excuse ?) is diffidence, or it may be the physical difficulty of getting the plants to the show place. On both of these points I can be reassuring and in evidence I can do no better than quote my own recent experience.

Once having resolved to take the plunge, my first job was to study the Show Schedule and to ascertain the classes for which I felt I would have plants in the right condition for the show. (Show Rules and Show Schedules are full of pitfalls for the unwary and repay the closest scrutiny lest a potential prizewinner should be entered for the wrong class or some other error lead to disqualification). Once the plants were earmarked, the Entry Form was sent in and preparations for packing commenced. An orange-box about 10 ins. deep was firmed at its joints and two lengths of webbing were affixed diagonally across the top to serve jointly as a carrying handle.

When the due time arrived the plants were lifted, potted up, labelled and put into the orange-box with a goodly amount of rolled-up newspaper to pack them tightly in place. As I was unable to take them to the show myself, and the Show Secretary had kindly offered to do the staging for me, the plants had an eighty-mile journey on their own. This they did in something like four hours door-to-door at a charge of 1/8d, thanks to the good offices of United Automobile Services, Ltd., and they suffered nothing more than the curious and interested gaze of the Parcels Office Staff.

To my pleasurable surprise three of my plants on the show bench gained prize tickets, so that they had more than paid for their cartage each way.

Whilst I am mildly flattered by the Judges' verdict, I cannot pretend that my plants were anything out of the ordinary, and I am quite certain that anyone taking a little trouble can at least hope to pay modest expenses of showing at a distance out of his winnings. On the question of transport I can, of course, speak only from my own experience, but it would be surprising if such facilities were not generally available : and in any case enquiry will soon tell.

But apart from these mundane considerations there is a great pleasure experienced in seeing a plant of one's own nurturing residing on the show bench in close proximity to a First Prize card, even if it happens to be in the Novices' Section : it is, perhaps, if nothing more, an indication backed by august authority that one is at least on the right lines.

Plants and Problems

LETTERS TO THE EDITOR

Dear Sir,

I happened to read the letter from A.G.S. of Glasgow in the September issue of the *Journal*, and though I am not the writer of the articles on Alpine Gardens, thought the following might be of interest.

13*th September* 1953. Visited Patcherkofel, Innsbruck. On the outside terrace of the hotel I noticed several small stone troughs of alpines and a notice to the effect that these could be seen growing in the Alpine Garden nearby. This was just beside the hotel and was under construction three years ago. The gardener, who was living in a wooden hut above the garden, was working under the direction of the University of Innsbruck Botanical Section and informed me that he was making this Alpine Garden to contain specimens of all alpine plants of local origin in the first instance. It should be quite perfect when finished as the situation is magnificent, wonderful views all around, and the ground is pretty extensive and slopes naturally towards the Inn Valley below. The gardener advised visiting the garden just after the snow melts, but as this varies slightly each year probably the latter half of May would be the best time. He was most enthusiastic and delightful and had for company in his hut two adorable boxer dogs and a little black cat.

16*th September* 1953. Visited Botanical Garden, Innsbruck, and was extremely disappointed as the whole place had a shabby and most dilapidated appearance. Speaking to two gardeners, I gathered that during the War nothing had been done at all, and it was only recently

that any money had been forthcoming to spend on hiring staff and putting the place very slowly to rights. So it would not be fair to judge this *vis-a-vis* our own Botanical Gardens. Things may be better now, of course.

Edinburgh. E. A. M.

Sir,

It was with no little surprise that I read the letter of A.G.S. in the last number of the *Journal* (p. 132), in which he states that he was unable to find the alpine garden at Patscherkofel, near Innsbruck. Monsieur R. Ruffier-Lanche of Grenoble has written to me also expressing his surprise and quotes from a letter which he received from Professor Lüdi, as follows : "The alpine garden at Innsbruck on the Patscherkofel mountain does really exist. I paid a visit to it last summer (1956) with the International Phytogeographic Excursion under the guidance of Professor Gams and Pisek of Innsbruck. It is well tended by the amateur gardener, Buchner. In front of the terminus of the telepheric there is a small gardener's house, and past it is the garden, which is especially rich in saxifrages and succulents."

Moreover, I am informed by Mr. Evans of the Royal Botanic Garden, Edinburgh, that he had no difficulty in finding the garden, which he visited in September 1956, and there obtained seeds and plants.

The negative enquiries of A.G.S. would appear to be another example of the well-known unreliability of information frequently obtained from local inhabitants !

I might also add that M. Ruffier-Lanche in his letter informs me of another alpine garden, the "Giardino alpino di Campo Imperatore" near the Gran Sasso d'Italia (Apennines), recently established (1953-54), and under the control of the University of Rome.

West Linton. JAMES DAVIDSON

PHYLLODOCE COERULEA IN SCOTLAND

THIS IS one of the rarest Scottish arctic-alpines, being known only on the Sow of Atholl in Perthshire. It has been stated for the last 80 years or so to be "exceedingly rare," or "extremely rare and diminishing," and recently in one case to be "extinct." So this year on passing the Sow it seemed to be a good opportunity to see what the position really is, especially as one of the party who had seen it there 19 years previously volunteered to act as guide. He took us straight to the place where he had seen it before, and we were delighted to find that it is far from extinct, if still very local. This was a great thrill and quite worth the climb, and very cheering too was the statement by our guide that it appeared to be more plentiful than on his previous visit. It would be a national calamity if anything happened

to destroy or diminish these plants. It would be a great shame to dig up even one. Now that the Japanese form is so easily obtainable, which is brighter in colour and therefore more attractive for the garden, and many think easier to grow, there is no excuse for such vandalism. Besides, if it was really wanted it could be grown from seed.

Phyllodoce coerulea is an arctic species with a circumpolar distribution, which is to be found here and there further south as a mountain plant. In Europe it reaches its southern limits in the Pyrenees and the Alps, where in each case it is very local : in North America in New Hampshire : and in Asia in North Japan and Korea. It is strange that although it has such a wide distribution a white-flowered form is unknown in cultivation. Surely such a thing must exist somewhere. In the past it has been given various other names such as *Erica, Andromeda, Bryanthus* and *Menziesia,* and as well has had its specific name altered to *taxifolia.* This latter name seems to be very appropriate as its leaves are yew-like, but *coerulea* is the older, so has to remain the correct one.

When *P. coerulea* is collected within the arctic circle and moved to our more southern gardens, it may never flower. The absence of perpetual daylight during the summer months is probably the cause. For sixteen years in a Northumberland garden a Lapland plant has behaved this way, and *Vaccinium vitis-idaea* from the north of Norway in thirty years and *Cassiope lycopodioides* from Alaska in twenty years have never had even one bloom. This raises the question as to whether after the last ice age the present European-arctic flora migrated from the south or came from an ice-free area further east. An interesting problem for the plant geographer.

R. B. COOKE

THE EFFECT OF SALT SPRAY ON SOME ALPINES

MY SMALL rock garden is less than a hundred yards from the sea and receives a thorough drenching with salt spray whenever gales blow from the south-west. Notes on the effect on some of the smaller plants may be of interest to people with gardens in similar situations.

When my garden here was newly made and very empty I accepted an offer of several plants of two types of small campanulas from a garden in Edinburgh where the owner had difficulty in keeping them from smothering his more choice alpines. I was prepared to remove them to the compost heap when they became too rampant, but in fact all the plants of one type (I'm sorry not to be able to supply names) gradually dwindled and died in spite of different soils and different positions. Of the other type only one plant survived. It now flowers well but grows only very slowly, making a more attractive plant than usual by virtue of its high proportion of flower to leaf. I believe this to be the result of the salt and not a soil effect, because use of the soil from the Edinburgh garden had no invigorating effect on the plant.

Primula clarkii grew well when I had it in a frame or plunged in a bed behind the house where it was sheltered from the sea spray. Using the same soil as I did when it was potted, I tried to grow it in different positions in the rock garden. In each case the plant gradually dwindled and after two years I was forced to return it to the plunge bed, where it very rapidly recovered. *Rhododendron fastigiatum* is also interesting in that the leaves turn brown within about a week after a salt spray, but the plant nevertheless recovers rapidly and flowers well, producing new green leaves quite quickly. *Rhododendron chrysographis*, on the other hand, seems completely unaffected. This discoloration of the leaves shortly after a day of sea spray, without any other ill effect, occurs with quite a number of the plants in my garden.

Plants which seem to enjoy this climate are the Dianthus group (and also, unfortunately, the weeds in the Caryophyllaceae family), aquilegias, some primulas, particularly the primroses, heaths, androsaces and lewisias (both covered during the winter), and, of course, maritime plants like *Gentiana saxosa* and the armerias.

As the salt treatment is fairly seasonal those plants which are above the ground during the summer months only are not usually affected.

I would be very interested to hear of other peoples' experiences with plants grown under similar conditions.

Ayrshire. R. W. M.

TULIPA KAUFMANNIANA VAR. "GAIETY"*

EARLIEST of the tulips, it greets the spring in March. *Tulipa Kaufmanniana var.* "Gaiety" is one of a wonderful range of varieties produced within recent years, all with the early rising habit. "Gaiety" retains the charm of the type species with its short stems, blue-grey leaves, and creamy flowers with pink on the backs of the petals. Opening wide to the sunshine, they fully justify their name, "The Water-Lily Tulip." In full sun, they establish easily, and give the excitement and glory of their coming in increasing quantity year by year.

Angus. S. M.

*(*See Fig.* 27).

CROCUS CHRYSANTHUS VAR. "E. A. BOWLES"*

THE VARIETIES of Crocus chrysanthus are all beautiful, but the variety named after that great expert on Crocus, the late Mr. E. A. Bowles, is an acknowledged favourite. The butter-yellow colour, its beautiful brownish-grey shading at the base of the petals, and its delightful shape, make a very charming flower. They like a well-drained spot in sun, are easily grown, and are an eagerly awaited joy each spring.

Angus. S. M.

*(*See Fig.* 28).

P. AUREATA AND P. AUREATA FORM

THESE TWO Peteolaris primulas which are amongst the choicest and loveliest of this group, are very similar both in foliage and flower.

Both as Alpine House plants and planted out in a sheltered northern aspect, they must on no account ever be allowed to become dry, and should be planted in a moist spot and shaded from direct sun. I have found that they are best left outside during winter and given a fairly good glass protection, as they are apt to damp off with too much moisture during this period.

Seed generation is very difficult, but propagation by division is not only fairly easy but is really necessary, as plants are very easily lost by allowing the centres to become too tight with foliage.

The flowers, which are normally out during early April, are cream shading to a warm yellow, those of the form showing more of the cream.

One other point, which may or may not be a coincidence, is that the 'form' can be planted in a richer compost and will show a heavier growth both in foliage and flower by such treatment.

Unfortunately both plants are still rather scarce, but if given that little extra care should eventually find a permanent home with us.

Dumfries. N. M. B.

TROLLIUS PUMILUS

Trollius pumilis has now been established in my garden for almost six years and it has made a lovely clump in the middle of a crazy pavement. It rises to about seven inches and will again be smothered in a multitude of lovely yellow flowers. Some seedlings have appeared around the parent plant, but these take a long time to develop and in the seedling stage are sometimes rather doubtful doers. The position of the plant is in a damp spot sheltered from the prevailing winds. All of the Trollius family resent being disturbed at the roots, so choose a good position for them right from the start.

West Lothian. J. G. C.

[I disagree that *Trollius* are bad movers.—*Editor.*]

KNIPHOFIA GALPINII

THE ALPINE purist will doubtless say that this member of the red hot poker family should not be admitted to the rock garden, but relegated to the front of the herbaceous border. But I do not consider it too large for even a modest rock garden and it provides such a welcome splash of colour in late autumn that I regard it as an "indispensable."

In 1956, after the poor summer, it did not begin to flower until mid-October, continuing for three or four weeks. The flower spikes, about 9 inches long, stand 2 to 2½ feet high, well above the dark green grass-like foliage. The individual florets, 1 inch long, are well spaced

out, giving a very graceful effect. The most arresting feature of this plant is the colour, orange deepening at the rim to flame, giving a brilliant effect which is greatly enhanced by the low autumn sun.

The plant is a good perennial, increasing slowly. A word of warning ! The flower spikes, which are very late in putting in an appearance, prove very attractive to slugs.

Aberdeen. J. D. Y.

CELSIA ACAULIS HYBRID

Is THIS lovely plant, a hybrid between *Celsia acaulis* and *Verbascum phoeniceum*, becoming something of a rarity ? It flowers freely all summer and autumn—perhaps too freely. At first the flower spikes bloom close to the plant and gradually lengthen to 6-inch sprays of large verbaseum-like flowers of a colour difficult to describe—a deep tangerine shade. A well-grown plant with several spikes is a beautiful sight.

Although grown in scree or light sunny soil, I find this plant to be short-lived. It seems prone to rot at the neck. However, even if it succumbs from this cause you may still succeed in propagating it from root cuttings—this is the only method of propagation, as it does not seed.

Aberdeen. J. D. Y.

PLEIONE PRICEI*

THE PLANT which received a F.C.C. at the Glasgow Show was bought in 1948. Since then it has been kept in a cold greenhouse in a position where it was protected from the mid-day sun. The temperature of this house has never been much below freezing point, as it has a door opening into a room where there are two radiators and this door has been left open when the temperature in the greenhouse has been near 32 F. If this has not been enough during hard frosts a little heat has been turned on in the pipes. In summer, to keep the temperature down in hot weather, the outside double doors have been set open and, of course, the top ventilator, which goes from end to end of the house, has been left open day and night. Also in hot weather newspapers have been spread over the orchid and the adjoining plants for a good part of the day as a protection from the afternoon sun and to keep them moister and cooler.

It has been re-potted each year into a larger pot and latterly into a larger pan. The soil used has been roughly 50% leaf-mould and 25% each of loam and coarse grit. In the autumn after all its leaves have turned yellow it has had very little water until its flower buds begin to show the following spring. The staging on which it stands is covered with gravel, so this keeps the air round it moister. The pan

it is now in is a nine-inch one. As a New Zealand friend recommended a little general fertilizer for orchids, in the late summer of 1955 a small quantity was scattered over the surface of its soil. Whether this made it flower better last spring, or the warm summer of the previous year was responsible, I do not know. All I can say is that the fertilizer seemed to do it no harm. With me it has never suffered from the usual plant plagues, such as greenfly, white fly, or scales, which its neighbouring plants have had at times, so it has been very trouble free.

Northumberland. R. B. COOKE

*(*See Fig.* 31).

LEWISIA LONGIFOLIA

BEING INTERESTED in the genus, I applied for and got seed of the above Lewisia from our Seed Exchange, but I have failed to find a description of it anywhere. I wonder if the donor of the seed, in Canada or U.S.A. I presume, would very kindly let us have a note describing the plant and giving some cultural details.

Edinburgh. M-L.

DELPHINIUM MUSCOSUM

THIS DELIGHTFUL little delphinium was found in 1949 by Ludlow & Sherriff in sandy screes around an altitude of 15,000 ft. in Bhutan. Varying from about 3-6 inches in height, it produces a number of flowering stems, each terminating in a beautiful solitary blue-violet flower which is large in comparison to the diminutive size of the plant, being about 1½ ins. long. These large solitary flowers appearing amongst the finely divided hairy leaves give this plant rather a lovely and unique appearance. The name *muscosum* was chosen for this delphinium because of its mossy character.

It is said to be perfectly hardy in Scotland, and with me grows well in a trough in a gritty soil. It survived the winter of 1955-56 with no protection in quite an exposed position. It would appear to be a plant eminently suitable for a trough, but in dry summers it will have to be carefully watered, as apparently it does not care for too dry conditions. Unfortunately it is much beloved by slugs, but I find that life in a trough has up to the present been of great assistance in overcoming this difficulty.

Peebleshire. J. DAVIDSON

HOBBIES AND HANDICRAFT FAIR

THE Scottish Rock Garden Club were invited to exhibit at the Hobbies and Handicraft Fair held under the auspices of the Rotary Club of Edinburgh in the Waverley Market, Edinburgh, from 12th to 20th October 1956.

Thanks to members of the Edinburgh, Midlothian, and East Lothian groups, a very creditable display of alpines was produced and was much admired, interesting spectators and introducing a number of new members to the Club.

At the request of the Rotary Club, the organisers, we ran an "open to the public" competition for a miniature alpine garden of limited dimensions. This was won by Mrs. N. C. Murphy, the runner-up being Mrs. Maxwell Davidson, both of whom are Club members. All the profits from this Fair are to be handed over to the Royal Blind Asylum and School. The undersigned is indebted to those members who staffed the stall during the period of the show.

R. H. HOOD,
Edinburgh Show Secretary.

LITHOSPERMUM INTERMEDIUM

THIS PLANT (see Fig. 40), so generally known as *Lithospermum*, should really be named *Moltkia x intermedia*, and is a hybrid between *M. petraea* and *M. suffruticosa* (*Lithospermum graminifolium*). However, by whatever name we care to call it there can be no argument but that it is one of the most beautiful dwarf flowering shrubs for the rock garden (even the small rock garden) that there are.

Moltkia x intermedia is more shrubby in character that its parent "*graminifolia*" and forms an evergreen, shapely, low brush of closely set short shoots thickly clothed with three-inch-long, narrow leaves. Never attaining more than nine inches or so in height, it may ultimately cover an area of two or three feet diamater. In early summer each of its many shoots throws up an erect stem of about eight inches in length which ends in a dense cyme of pendulous, tubular, inch-long flowers of a bright, clear blue, so that the plant becomes a dome of blue superimposed on a background of grey-green foliage.

It thrives happily in a mixture containing leaf mould and sand in a well-drained sunny pocket, and is very easily propagated by cuttings of part ripened shoots set in a cool sand frame.

East Scotland. J. M.

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