



The JOURNAL of
THE SCOTTISH
ROCK GARDEN CLUB

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VOLUME XI, Part 2

No. 43

SEPTEMBER 1968

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Obtainable from Mr. D. ELDER, Hon. Treasurer, Dalmara, Carslogie Road, Cupar

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PUBLICATIONS

MEMBERS of long standing know the pleasure and profit to be derived from a re-reading of the *Journals* which the Club has published over the last 30 years. It is impossible to detail the wealth of advice, wisdom, humour and enthusiasm which appears in a complete run of the *Journals*. An entire set is normally unobtainable : at present one is in hand and enquiries are solicited.

However, small stocks of most numbers remain in the Club's hands and are available for sale as follows :—

Journals :

Nos. 7/14, 18/20, 22/26, 28, 30/41 at 5/- each, post free

No. 29 being the 1961 Conference Report, a very extensive and well illustrated report, 15/- post free

Also available still are :

H. G. HILLIER ON DWARF CONIFERS, 10/6 post free

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Journals not listed above are rare, though they are occasionally available. These issues sell readily at 30/- a copy and a waiting list is maintained for them.

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The JOURNAL of
THE SCOTTISH
ROCK GARDEN CLUB

W. C. Henderson & Son, Ltd.,
University Press,
St. Andrews

Frontispiece opposite : Raised Beds at Windsor

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Editor's Page

ROCKS are a great fascination to gardeners and perhaps one reason for this is that they form the very basis of our landscape. From them the mineral particles of soil arise and, for tillers of soil, the soil structure plays an important part. It may also be partly due to their aesthetic appeal, their background value, or for the almost symbiotic association that has developed between the living rock and certain plants. Whatever the cause of this attraction, it is there and, in rock gardeners, like the prominent outcrops on the hillsides, it comes to the surface.

Despite this inherent feeling for rocks, rock gardens are often seen in the most unpromising places. Sometimes this is due either to lack of thought or ignorance—not that these excuses apply to rock garden enthusiasts—but there are folks whose gardens are in extremely awkward sites and the constructing of a rock garden, while desirable, is not always easy. Soil, shade, water supply, exposure, all play their part, and while everyone knows, having been told often enough, that the way to succeed is to grow only plants suited to the environment, the urge to grow other species and varieties that appeal personally is always strong. And if it is the case that the experiment fails, and it often does, it need not be that the conditions prevailing are too severe for the plants chosen ; often they are not severe enough.

In this issue Dr. Tod explains, in simple terms and with great patience, what is meant by your basic commodity, soil ; Mr. Duff, an acknowledged expert at growing alpine plants in pots, explains to the beginner how this is done and, if his advice is followed, one result may be that more exhibits will be entered at the Shows ; Mr. Fox, from Aberystwyth, has something to say about clothing an exposed site with dwarf shrubs. For the enthusiast there is an excellent article on the alpine beds at the Savill Garden ; heaths and heathers, very much inhabitants of our high hills and moors, have had a great deal of publicity in recent years, and the large heather garden at Ness, in the Wirral peninsula, is described and, in addition, numerous cultivated forms of *Calluna* and *Erica* are listed.

The specialist need only read the paper from Keillour to appreciate how fascinating and attractive are gesneriaceous plants. The line illustrations for this article have been done by Miss Rosemary Smith of the Royal Botanic Garden, Edinburgh, and are included to show how varied are some of the less known members of this family which are being grown out of doors in Scotland.

Slide Library

THE LIBRARY contains over 1400 35 mm. colour transparencies mounted in 2 × 2 in. slides. A list of these can be had by members on application to the Curator.

The following Tape-Recorded Lectures are available for hire :—

“Early and Late Flowers for the Rock Garden” (a new recording)
by Major-General D. M. Murray-Lyon, D.S.O., M.C., S.H.M.

“Adaptation to Environment” by Mrs. L. C. Boyd-Harvey.

“Dianthus for the Rock Garden” by John Belchamber, Esq. Presented by the lecturer.

Each recording is accompanied by a set of slides. Charge : 7/6. Typescript copies of the lectures, with slides but without recordings, can also be supplied. Charge : 3/6.

There is also available a tape-recording of a BBC “Rock Gardeners’ Forum”, which was held at North Berwick and broadcast in January 1964. This runs for about 25 minutes and is not illustrated by slides.

Full particulars of the above from the Curator : Mrs. C. E. Davidson, Linton Muir, West Linton, Peeblesshire.

Club Christmas Cards

THIS YEAR’S Club Christmas Cards will be of the four colour plates (figs. 26, 27, 46, 47) in this *Journal*. They will be supplied in lots of NOT LESS THAN ONE DOZEN, either all of one kind or mixed, as desired, and will be larger than in previous years. It will be sufficient to give figure numbers when ordering, which should be as soon as possible to the Hon. Treasurer : David Elder, Dalmarra, Carslogie Road, Cupar, Fife, enclosing the necessary remittance. The price, including envelopes, is 12/- per dozen, post paid.

The cost of producing colour photographs in the *Journal* can, to some extent, be offset by Club members supporting this Christmas Card Scheme.

Seed Distribution 1968-69

WILL MEMBERS who have seed for next year's distribution please note that the closing date for receiving donations (or lists of seed to follow) is **16th November 1968**, but that I shall be grateful for contributions that arrive earlier.

The Seed List will be published in January 1969 and is sent, as routine, to all overseas members and to all home members who have contributed seed. Other home members must ask for it if they want it and, in the past, have been requested to send a stamped self-addressed envelope. Last year, however, four-fifths of the envelopes that reached me were too small to contain the list. If a suitable envelope ($8\frac{1}{2} \times 5\frac{1}{2}$ ins.) is not available when you write, may I suggest that you send a stamp and a self-addressed label ?

(Miss) M. R. ROBERTSON,
Portkil Cottage,
Kilcreggan,
Dunbartonshire.

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SCOTLAND'S PREMIER HORTICULTURAL SOCIETY**

Membership costs one guinea annually, and enables you to attend any of the twenty-odd Lectures to be given in Edinburgh in 1967 by eminent Horticulturists.

For over 150 years the Society has been a meeting ground for all that is best in Scottish Horticulture. You will find among the members many gardeners with problems and pleasures similar to your own. You will also meet some who will be able to help you and others who will be glad of your advice. In short, you will find among the members of the Royal Caledonian Horticultural Society that friendly spirit and community of interest that can add so much to the enjoyment of your garden.

Form for Application for Membership may be obtained from : John Turnbull, Esq., D.S.O., D.F.C., C.A., Secretary, The Royal Caledonian Horticultural Society, 44 Melville Street, Edinburgh, 3.

Review of the Year

by THE PRESIDENT

IT IS VERY satisfactory to be able to state that the extremely adverse conditions of the past winter and spring had less ill effects on Club activities than one might have feared. Most Group activities during the winter season were reasonably well attended in spite of weather conditions and all the meetings seem to have been greatly enjoyed. The first spring Show, that at Penicuik on 9th March, produced a surprising and very satisfactory number of high quality exhibits, and seemed to suffer less than later Shows from the disastrous weather conditions which persisted till late in the spring. Some later Shows, though all containing first class specimens, showed a decided thinness in the number of exhibitors and plants in the general classes.

Visitors to our Shows this year would notice that not all Forrest Medal and leading Trophy winning plants came from the same few exhibitors. This is as it should be, and ought to encourage our plantsmen members to renewed efforts when they see their lead is being followed with success by other competing members.

The first meeting in Scotland this year of the Joint Rock Garden Plant Committee was at the Club's Show in Aberdeen on 9th May, when a large number of very excellent plants were presented. The Chairman, Mr. W. G. Mackenzie, expressed his very warm appreciation of the large number of good plants on display, and his regret that such excellent plants were debarred from the recognition of which they were worthy by the fact that awards had already been granted, in some cases, as much as seventy years ago—probably to much inferior plants. At the same time, he mentioned as outstanding the array of first class plants to be seen, generally, on the show benches.

The second of this year's Joint Rock Garden Plant Committee meetings in Scotland will be held in Dundee on 4th October. This late Autumn meeting has been arranged at the express desire of the Joint Awards Committee in the hope of a good display of late season plants and plants in fruit and with ornamental foliage. This interesting group of plants, which prolongs our rock garden season, has till now been prevented from receiving consideration for any Award by the fact that the Committee did not meet at that time of year. The schedule for

this late Show is compiled to allow for a wide range of plants likely to be in good form then, so I appeal to all growers to endeavour to produce at least a few entries each. It is the Club's earnest hope that members will rally round in helping to make the Show at Dundee a memorable occasion for our friends from the South.

Club membership has continued to rise slowly but steadily month by month and has more than outweighed our losses by death or resignation, so that in the seven months November to May the net total has increased by 165—a sound if not spectacular state of affairs. It should be mentioned here that in these times of constantly increasing costs everywhere a growing membership is necessary to meet the ever-rising expenses connected with all Club activities. None of us, I am sure, wish to have to contemplate the only other obvious alternative of an increase in subscription, so it behoves all members to do their utmost to introduce new members to the Club. Since the average age of Club members is rising yearly, an inflow of enthusiastic younger people is particularly desirable. Nevertheless, a warm welcome awaits all who are in any way in the least interested in rock garden plants or gardening.

A very large proportion of our recent new members are from Overseas countries, ranging from Japan and the Antipodes on one side of the world, to Canada and the North West States of the U.S.A. on the other, with—nearer home—a considerable number from Iceland, Sweden, and other parts of Europe. To these new friends I feel it will be the desire of members that I wish them a warm welcome to the Club with the hope that they will always find it a source of much interest and pleasure.

Members will also wish that I express thanks for the generous donations of seeds so regularly contributed from overseas and home members to the Seed Exchange Scheme. This is one of the Club's most popular activities and involves an immense amount of laborious work through the winter months for the Distribution Manager and those who help. Miss M. Robertson, who took over from Miss J. A. Halley, has completed her first year and knows what heavy demands the distribution makes on one's time. We are all grateful to those who help in this arduous but greatly appreciated task.

The yearly Discussion Weekend continues to grow in popularity and the attendance to increase. Again this year it is to be held in the Hotel Dunblane—on 19th October—under the able management of Mrs. Spiller. Please note that owing to the proximity of the late

Autumn Show at Dundee on 4th October there will be no Show at the Weekend this year.

To end—I wish to thank all Office-bearers, Show Secretaries, Group Conveners, etc., for the loyal and often time-consuming work they put in on behalf of the Club. To mention all by name would be a lengthy business and involve the risk of some omissions, but my thanks go to all. Particularly, I wish to thank my immediate predecessor, Dr. James Davidson, for the fund of help and advice he has so willingly given me this year. Also I should like to wish success to Mr. Alfred Evans in the editorial chair, and to plead with all members to give him their help and support.

THE ALPINE GARDEN SOCIETY

**IF YOU ARE INTERESTED IN ROCK
GARDENS AND ALPINE PLANTS**

free Folder from :

**The Secretary,
The Alpine Garden Society,
58 Denison House,
296 Vauxhall Bridge Road,
London S.W.1.**

Our Former Editor and the Club's Publications

WE HAVE a new Editor, not because our former one has left us (he is still very much with us), but he is now our President—John L. Mowat, S.H.M., V.M.M.

When I first joined the Club the Editor was the late Kenneth C. Corsar of Cairniehill. He was the Club's first "full editor", taking over the Club's publications in 1936, producing the "Publication No. 2" and, thereafter, the *Journal*. From the very first we have had a strong policy of producing publications on our own and the first production was the *George Forrest Book* which came out in 1935 under the guiding hand of the late Roland E. Cooper. These two early issues are now, I believe, "collectors' items".

Kenneth Corsar edited the *Journal* up until 1950, when he resigned as Editor and was succeeded by Dr. H. R. Fletcher, who produced the "Review" in 1950 and the *Journal* in 1951. In the winter of 1948-49, with a view to taking the more ephemeral detail out of the *Journal*, Major Walmsley and I produced a roneo'd "Proceedings" and the "Review" was a more formal version of this.

In 1951 the whole question of publications was gone into in much detail. In addition to the *Journal*, the Club had, from its earliest years, annually produced its "Show Schedules and List of Members" and in 1948 this was re-styled "Year Book and Show Schedules".

As a result of these discussions, the whole publication policy was revised and in 1951 John Mowat took over as Editor. For 16 years he has held that office and laid down his Editor's pencil only on his election to the Presidency.

Into his hands was placed the task of carrying out the Committee's recommendations that the *Year Book* should contain the Show Schedules, Constitution and Rules, List of Office-Bearers, Announcements of Meetings, Accounts, etc.; in other words, the practical working details of the Club and, when we had enough funds, the full list of members, otherwise only the new members were to be listed. The *Journal* was to contain Articles, Plant Notes, fully detailed Show Reports and all the more permanent material the Club had to record. John Mowat gradually fashioned this new conception into its final form and from then onwards the *Journal* went from strength to strength.

A short time ago John retired from the office of Curator of the St. Andrews University Botanic Garden, where he had been for some forty years. During that time he built up the Gardens to their present excellence and, in the process, acquired a wealth and width of knowledge of plants such as is gained by very few. When he assumed the Editorship this stood him in good stead for, between the correspondence in which he was involved as Editor and the close contacts he made through the Botanic Garden's Seed List, he was in touch with gardeners and gardening circles all over the world and he had friends with specialised knowledge on a very wide range of subjects. All this was soon apparent in the changed new *Journal* and contributions began to come in from far and wide. Previously almost all the articles had come from this country, but gradually we began to read the views and ideas of our Members in the Americas, Australia and New Zealand, Eastern Europe and elsewhere.

One of the greatest difficulties in editing a Society's journal is that the flow of contributions tends to be "a hunger or a burst". At one time the unfortunate Editor may have enough material in hand for two issues and a short time later have to write all over the place begging for articles, notes—anything to fill the pages. Many years ago, for my sins, I had the job of editing a Hospital Magazine and I know only too well how agonising a decision it is—whether to have a "bumper issue" or to hold back some of the contributions against a future shortage?

To his credit, in the sixteen years he edited the *Journal*, only once or twice were the issues thin, and one or two were in the "bumper" group. During this period, I think, we pioneered coloured illustrations in our *Journal*. These proved a real headache for the Editor, however, for the maddening thing is that one whole page of colour costs much the same as four "quarters". Apart from this there is the problem that if there are four transparencies to be used on one block they must match in shade, tint, intensity and so on. This means that the Editor must collect a fairly large number of colour transparencies that *he thinks* are closely enough matched and submit them to the colour printing experts, who are quite likely to throw out all the most interesting slides and perhaps recommend that those listed last, in order of preference, are most suitable for printing. This result, not unnaturally, is rather exasperating for the Editor.

Printing in colour is costly and John Mowat had the inspiration to use the colour blocks already published in the *Journal* to produce

Christmas cards, and offer them to members. This not only greatly helped to offset the cost of the blocks but, on occasions, even made a profit and, in the way printing costs rocketted, we really needed it !

In 1951 one issue of the *Journal* cost just about £100 and the *Year Book* a mere £70, while in 1967 one *Journal* cost £750 and the *Year Book* £485. And yet in the face of these terrific increases in printing costs many members objected when the annual subscription had to be raised.

By far the biggest job of all was the Conference Report in 1961. This was a mammoth effort—so much so that the Alpine Garden Society, who shared the Conference with us and also the editing of the Report, issued it as a double number of their *Bulletin*. We sent it out as one of our issues and, as a result, went very nearly bankrupt. Finance apart, it was an outstanding effort on the part of John Mowat and Roy Elliott, the A.G.S. Editor, who shared the anguish of first trying to extract and then to edit the written versions of the talks given at the Conference. It is quite surprising how unwilling many speakers are to provide reasonable and readable texts of their talks and how long they take to do this. The promptness with which the Report appeared was quite remarkable ; as one who has attended many Conferences and frequently had had to wait years for the Report, Proceedings, or whatever it may be called, to appear, I was most impressed at the short time intervening in this case.

One side effect of the Conference Report, so to speak, was the joint publication by the A.G.S. and ourselves of Mr. H. G. Hillier's "Dwarf Conifers", which was an amplification of his talk at the Conference. This came out at a time when existing books on this subject were either out of print or obsolete, and proved a great success and was another notable effort on the part of the Joint Editors.

Now, after sixteen distinctly gruelling but interesting years, John Mowat has demitted office as Editor. We all owe him a deep debt of gratitude for all he has done for us. At the same time we extend a most hearty welcome to his successor, Mr. Alfred Evans—and can't we make his job just a little easier by sending him contributions without his having to plead for them ?

HENRY TOD

Rock Gardening - “from the ground up”

by HENRY TOD, Ph.D.

PERHAPS the first thing one thinks about in rock gardening, apart from the plants, is the stone. From the point of view of the plant, so to speak, this is grossly unsound for, to grow, the plant must have food and moisture and these come from the soil in which the plant has its roots.

What then is this material called “soil”? Soil is no inert substance but is a living entity, infinitely variable and varying, and composed of mineral matter, organic matter, water, air and countless numbers of living subjects from worms down to the tiniest micro-organisms. By far the greater number of these are both useful and helpful. As we will see, the soil is in a constant state of change, sometimes for the better, sometimes for the worse, sometimes wet, sometimes dry, warm or cold, but *never* static.

So let us consider these different components of soil, find out what they are and how they arise and, taking them in the order given above, see just how they interact to reach, more or less, a state of equilibrium. This balance, however, is a very transitory and unstable one, changing with the weather, the growth of the plants, and the seasons.

The mineral part of the soil is composed of rock in various stages of disintegration brought about by the processes of weathering, i.e. the action of frost and ice, running water, chemical change, varying temperature and so on. Thus the particles range from large stones, through smaller broken stones, gravel, sand and silt to the smallest particles of all, clay. This mineral matter may be derived from the breakdown of the underlying rock or from the disintegration of material moved by glacial action during the various glaciations, by running water or, in some rather rare cases, by wind. Once these materials have been deposited the weathering process continues so that the particles gradually become smaller and smaller. This goes on regardless of whether they have been transported in any of these ways or have arisen by the breakdown of the surface of the bedrock. The various components of the weathering mixture become mixed by the action of worms and other soil fauna, to say nothing of the larger animals

such as moles and mice, rabbits and foxes, and to this purely mineral mixture organic matter is added.

The organic matter of the soil is derived from plant and animal remains which, on falling on to the soil surface, begin to decompose. In addition dead and dying roots of plants are constantly being added to the soil and the process of decomposition, both in and on the soil, is brought about by soil micro-organisms. Although the actual mixing of the humifying and humified organic matter is to some extent effected by its being washed into the surface layers by rain, a much greater part is played by worms and other fauna and microfauna of the soil.

Thus a "good" soil is composed of mineral and organic matter intimately mixed with the mineral matter made up of a suitable mixture of sand, silt and clay fractions. If there is too much sand the soil will be too "open"; in other words, it will hold little water or foodstuffs for the plant and be droughty and starved. On the other hand, if there is too much clay the soil will be "heavy" and be cold and too retentive of water. It may seem paradoxical but a clay soil is normally rich in plant foods and able to hold large amounts of water, up to ten times the amount held by a pure sand, but this water may be so firmly held that plants growing in such soils will wilt and die. Their roots are not only unable to exert a pull strong enough to get the water they need out of these soils, but they are denied the dissolved foodstuffs as well.

Silt soils lie between these two extremes but they, too, present problems. They may go to sticky mud on wetting and form a firm surface skin or "cap" on drying, upsetting the subsequent penetration of water and air. The clay soils tend to dry in heavy blocks and crack badly, the silts cap and form smaller blocks, while the sands dry quickly and adopt a loose, moving consistency, therefore the "best soil" is composed of a mixture of sand, silt and clay with the addition of organic matter. Soil must also have a good "structure", i.e. it should dry to a consistency of crumbs so that water may be held in it for the plants to draw on, and yet excess moisture should be free to drain away and be replaced by air. Plant roots must have air to live.

Thus good structure is dependent on a sound balance of the mineral fractions, plus enough organic matter to promote crumb structure in the soil and so control drainage, water-holding ability and aeration. Unfortunately this ideal is only too seldom attained in new gardens. Many old ones, too, are far from perfect; they may be "worked out", short of organic matter and with their structure destroyed by over-working.

Only too often the gardener taking over a new garden is initially confronted with a jumble of intractable clay, builder's rubbish, various tin cans, broken bricks and tiles and, most probably, a large bed of plaster. The problem that has to be faced is how to reduce this to some semblance of order.

The first stage is to hand-pick items such as broken bicycles or barrows, stray pieces of wood, tiles, bricks and the like, and clean up generally. If the "plaster-bed" is present and identifiable, it is just as well to dig it out completely, and promptly, before too much lime percolates into the surrounding soil. This will avoid much trouble later on, for I lost nearly a dozen dwarf rhododendrons through planting them about a foot above a forty-year-old buried plaster-bed of which I was totally unaware.

The next stage is to try to assess the quality of the soil—heavy or light? If, as frequently occurs, it is patchy with clay here, sand there, and odd areas of "decent" soil, a judicious mixing of heavy and light may help provided the total amount is not too great. If this can be carried out in summer the task will probably be lighter than it would be when the soil is wet and heavy.

A uniformly heavy clay soil can be greatly improved by mixing in sharp boiler ash and peat. This must be done on a fairly intensive scale, e.g. a stiff, heavy clay soil will require about 20 lb. of ash and 20 lb. of peat per square yard. This has to be dug in or, if possible, rototilled in and, in a year or so, the change can be startling. If ash is not available, really rough coarse sand, actually fine gravel $\frac{1}{8}$ in. to $\frac{3}{8}$ in. size will be a great help though, most probably, it will not be quite as effective as ash.

A very light sandy soil will require the addition of heavy dressings of organic matter in the form of leaf mould, peat or compost. It should be dug well in, in much the same amounts as quoted for treating clay. A very light soil must be watched carefully, since added organic matter disappears at a surprising rate in such soils and regular dressings are required to keep them in condition.

If, as occasionally happens, the soil in the garden "lies wet", i.e. if water tends to lie in puddles after heavy rain, it may require draining. This is rather a complicated problem but if there is a low-lying part of the garden, and the soil is really wet, it may be possible to lay drains so that excess moisture may be led away to this lower part which could then be utilised as the site of a pond or a bog garden. Failing this, ordinary field drain tiles laid to "draw" with the natural slope

of the land can be led to a deep sump filled with rubble and then covered over. Fortunately, however, this is a job which does not often require to be done and expert local advice is worth obtaining if it has to be faced.

In general a garden developed from a grass field will most probably have a reasonable soil with a good organic matter content derived from the grass roots. Sometimes this can be found underneath the heavy subsoil excavated from the house site, which builders are only too often apt to "spread out to weather" and which it generally does not do.

While the gardener who yearns to grow massive vegetables or outsize dahlias and similar plants will most probably consider that any soil worked up from a bare site will require heavy feeding, this is much less important for the rock gardener. Over-feeding of rock plants usually leads to trouble, whereas working up a soil to a good type of structure, as has been described above, is much more valuable.

This now brings us to the two complementary constituents of the soil, water and air. These lead a "Cox and Box" existence, for when there are large amounts of water in the soil the air has to be displaced and, as the water drains away, other air is drawn in to replace it. A really good soil structure behaves like a sponge which, for much the same total volume, can contain a lot of water and little air or, on draining, little water and much air. In the case of soil the whole problem is much more complex as the various texture components—sand, silt and clay—have differing abilities to hold water in and on their particles. The crumb structure, where these components are bound into aggregates or "crumbs" mostly by organic matter, establishes the balance mentioned earlier.

In soil possessing a good texture, i.e. where suitable proportions of sand, silt and clay are present, and good structure, where these mineral components are bound into crumbs, the water-air balance will be most suitable for plant growth and the moisture will carry the mineral foodstuffs into the plant by means of its root system.

There is one factor, however, which affects the rock gardener more than it does any other type of gardening enthusiast, and that is stone. As will be seen later, we have stone both *in* and *on* our soil, and stones have an important part to play in the supply of water to the plants growing close to them.

If at any time a stone is lifted off the surface of the soil it will be found that the soil below will be darker in colour than the surrounding

soil surface ; it will be damper. This is because, wherever there are stones, there is a film of moisture just on and adjoining the stone's surface. Similarly, even at some depth in the soil, this film of moisture clings to stone surfaces so that stone helps to retain moisture in the soil. Obviously, however, a lot of stone displaces a lot of soil so that the roots of a plant must range far and wide in search of moisture and food. This, of course, is the characteristic habit of a rock plant—a small “top” and a vast root system.

For larger-growing plants such as ordinary garden annuals, perennials or shrubs, such a dilution of the soil with stone would seriously weaken their growth. An example of this is seen in the stunting of groundsel when growing in a gravel path, but in the case of the rock plant this factor does not have so severe an effect and, in actual fact, produces a type of growth which is “in character” as will be discussed later. Because of this, the grower of rock plants has much more latitude in controlling the drainage of his soil and he can produce the desired condition by adjusting the amount of stone, grit, coarse sand or whatever it is he wants to use. It must also be remembered, that to a very great extent, the moisture content of the soil controls the supply of mineral nutrients, the “foodstuffs”, to the plant. There was an advertisement a number of years ago of which the “punch-line” was “Plants do not eat, they drink” and this embodies a very fundamental truth. Nutrients are absorbed through the plant's roots, but for a plant to be able to do this the nutrients must be dissolved in the soil water and be in the immediate vicinity of the roots themselves.

Perhaps, at this point, it would be worth while looking at the question of plant nutrients, in other words the foodstuffs on which the plant lives. There are five major nutrients, namely, nitrogen, phosphorus, potassium, calcium and magnesium, but to these must be added, though in smaller amounts going down to the merest traces, the so-called minor elements which are, iron, manganese, boron, copper, zinc and others.

Nitrogen roughly controls the *amount* of growth of the plant. Where there is a shortage of nitrogen the plant is stunted and pale, but if a larger amount is present the plant becomes soft and unduly leafy. Phosphorus, as phosphate, while aiding the formation of fruit and seed, also promotes root growth, whereas potassium not only encourages strong, healthy foliage, it also controls quality of growth and produces well-developed plants.

Magnesium is involved in the build-up of chlorophyll, the green

pigment of the plant. It is an integral part of the actual chlorophyll molecule and its deficiency causes chlorosis, a paleness of the leaves. Since the plant depends on chlorophyll to utilise the sun's energy to build up its actual structure of roots, stem and leaves from the carbon dioxide of the air and from water, its deficiency could cause a severe if not fatal check to the plant's growth. The minor elements, too, are essential, as they are mostly involved in the growth processes and internal chemistry of the plant. Perhaps the best example of this is the inter-relation of magnesium and iron. As mentioned above, magnesium is actually a *part* of the chlorophyll present in the plant, but chlorophyll cannot be formed *by* the plant unless there is an adequate amount of iron present. The iron is involved in the process by which chlorophyll is produced, although it is not "built in" to the chlorophyll molecule. Accordingly, unless iron is available to the plant as well as magnesium, chlorophyll cannot be formed—hence the essential nature of both magnesium and iron to the growth of the plant.

The other minor and trace elements are involved in the plant's chemistry in various ways and to be truthful many of their actual functions are still unknown. They are absolutely essential, however, as a deficiency of any one of them can cause serious upsets in the plant.

Where strong or quickly growing plants are being grown or large crops are being taken, the demand for these various plant foodstuffs is heavy. If, however, the plants are smaller and slower-growing, the demand is correspondingly less and any ordinary soil will have quite adequate nutrient levels available for normal plant growth. So, while a heavy crop will require regular dressings of fertilisers, it is only in exceptional conditions, for example in a badly-worked-out old garden, that *any* feeding is likely to be required by rock garden plants. The real problem lies in over-feeding, as this leads to lush growth and as this growth is soft it is liable to fungus and other disease infections. Lower though adequate nutrient levels allow the plant to develop in a tougher and more compact way which makes it more resistant to disease attack.

Another difficulty is the question of nutrient balance as an excess of one nutrient may cause, or "induce", a deficiency of another. Thus, too heavy dressings of potash can induce a deficiency of magnesium, although this can also be caused by calcium. This, probably, is one of the main causes of the chlorosis of "lime-haters" and is brought about by the presence of free lime in the soil. Similarly too much calcium in the form of lime or lime-rich substances can induce

a number of other mineral deficiencies each of which can cause plants to fail. The main aim, of course, is to keep a good balance of all the nutrients in the soil and, as long as none is in excess, almost all soils will attain and hold that balance. If plants are showing signs of real "starvation" a well-balanced general fertiliser applied, and in really small dressings at that, in the order of an ounce to the square yard at most, is all that is likely to be required.

This then, is the relevant background to the "soil" where ordinary soil conditions are required, but for some of the more specialised groups of plants particular mixtures are used. Basically they are "dilutions" of normal soil and are intended for plants which require particular drainage conditions. To take them in order of sparseness, they can be listed as follows :—

(1) *Farrer's Scree Mixture* :

16 parts chips (granite or whin), 1 part loam, 2 parts peat or leaf-mould, 1 part sand.

This gives very rapid drainage of the surface layers so that the plant itself and particularly its "neck" at ground-level remains dry, while at depth the soil mixture, and its accompanying dampness, is there awaiting the probing of the roots.

(2) "*Rich Scree Mixture*" introduced by Stuart Boothman.

This is composed of 2 parts chips, 1 part loam, 2 parts peat or leaf-mould, 1 part sand.

Here, again, we have sharp drainage, but with more and better feeding below the surface.

In both cases the rain beating on the surface of the mixture washes the soil, etc., down among the chips so that surface conditions are similar but, with a smaller proportion of chips in the Rich Scree, it never gets quite so far below the surface, thereby making food more readily available. This rich mixture will grow many tricky plants extremely well.

(3) The "*Peat Bed Mixture*" is almost the ideal medium for Asiatic primulas, members of the Ericaceae (especially dwarf rhododendrons), *Meconopsis*, *Nomocharis* and many other genera. A liberal dressing of peat and/or leaf-mould should be worked into the surface layer of the soil. It should be at least four to six inches thick before being dug in and should be applied regularly especially if the soil with which it is mixed is of a light nature. This gives a rich mixture which holds a lot of moisture and suits those plants which prefer an acid, relatively rich, and at the same time moist soil.

Gesneriaceous Plants at Keillour

by W. G. KNOX FINLAY, F.L.S.

NAMED many years ago in honour of the famous Swiss botanist, Conrad Gesner of Zurich, this large family of beautiful plants is well known to most gardeners. It is widely distributed throughout the warmer and more humid countries of the world, especially in South America where many genera are to be found. Over fifty species of one genus alone are located in Brazil, which gives a fair indication of their degree of hardiness. Luckily for us there are a few genera, outliers as it were, found in other less tropical countries, as well as Europe ; it is of these I am now writing and, in particular, the few that we cultivate at Keillour. Here they must be hardy enough to put up with our unpredictable climate and far from ideal conditions and be able to exist outside with little or no protection. We do not grow plants to maturity in pots or pans.

There is only one part of our garden suitable and acceptable to these plants and that is the top part of the deep east gorge. This is a steep narrow gully down which a path leads, between rocky cliffs, to a burn running down to the large waterfall. The whole area is shaded by large coniferous trees. Most of our plants are growing on ledges, natural and man-made, on the north-facing whinstone cliff of which a large portion is "rotten rock" crumbling into a very coarse sand that seems to encourage rooting and retain moisture. Leaf mould, compost, peat and a little bone meal are added to this detritus.

As there are no special areas exclusively occupied by any one genus I propose to deal with the plants in alphabetical order ; most of them flower, if not very freely, every year.

Asteranthera ovata (fig. 28) is not generally considered to be hardy out of doors except in the more sheltered gardens, but we received this species about ten years ago and since that time it has been grown outside. It is an evergreen shrublet with a creeping habit, rooting as it spreads, and here it is to be seen hanging over a mossy rock proving that, provided the site is suitable, it can be encouraged to grow in the open even in Central Scotland. I very much regret to report, however, that it has not as yet produced any of its lovely large, rich

red, funnel-shaped flowers. These are borne in pairs and each flower may measure as much as one inch across. *Asteranthera ovata* is native to Chile, where it grows in the permanent shade of dense evergreens.



Fig. 28

Haberlea is a genus containing two species, closely related to *Ramonda*, but with tubular five-lobed flowers. *Haberlea ferdinandicoburgii* was introduced after *H. rhodopensis* and is said to differ from that species in being larger. Its pale lilac flowers measure one to one and a half inches across. The colour of the corolla is darker above than beneath and its white hairy throat is densely spotted with yellow dots. It is to be found growing wild in the Balkans. The other species, *H. rhodopensis*, has long been popular. Its leaves are much lighter on the undersides where the veins are extremely prominent and, as the leaves are all basal, they form a tufted rosette. Up to five flowers are

produced on each drooping umbel and every plant may send up a number of these six-inch high scapes. It was first collected in a remote valley in Thrace. Like most species it has small variations, a number of which have been given varietal names, but the most desirable variety is *H. rhodopensis* var. *virginalis* with beautiful pure white flowers.

Jankaea consists of a single Greek species, *J. heldreichii*, with a habit of growth closely resembling that of *Ramonda*. It is densely hairy, however, and without doubt it is this character more than any other that makes it a much more difficult plant to grow and keep alive. It certainly prefers—in fact it must have—a tilted position, and here it is lodged in a crevice under an overhanging rock where drainage is acute. It does not appear to mind being soaked during the growing season, as it gets plenty of this in its habitat on Mount Olympus, but it would strongly object to this sort of treatment when in a state of dormancy.



Fig. 29

The Chilean *Mitraria coccinea* (fig. 29) is an evergreen sub-shrub of doubtful hardiness which has been outside at Keillour for many years. It occupies a well-drained site in semi-shade, but apart from that receives no other protection. This species blooms quite freely and during the summer displays its numerous bright orange-red, tubular flowers lightly suspended on pendant pedicels.

Oreocharis contains about twenty species, most of which are native to China, where they grow at an altitude of 11,000 ft. or thereby. *Oreocharis forrestii* (fig. 30) (of which *Roettlera forrestii* is a synonym), although recommended for alpine house culture has proved to be perfectly hardy and has been grown out of doors for many years. It was received as a very small plant, but in May it sometimes produces umbels of widely cylindrical, nodding, yellow tubes. These are effectively displayed against the background of hairy and crinkly dark green leaves which form a close rosette. *Oreocharis forrestii* is figured in the Botanical Magazine, tab. 8719, and although well-flowered plants were recorded in the past, it is now an extremely rare species. It was discovered in Yunnan by George Forrest in the early years of this century.

The genus *Ramonda*, of which there are three species, is native to S. Europe. It is somewhat similar in habit of growth to *Oreocharis forrestii* but is much more easily grown and may be cultivated in almost any shady position. It is probably the most popular of the hardy Gesneriads. *Ramonda myconii* belongs to the Pyrenees and has been known for more than 200 years. In the garden it produces a large, flat plate-like arrangement of dark green leaves, deeply toothed and with reddish hairs. This is surmounted by several six- to seven-inch high scapes each of which bears many purple flowers. There are several varieties listed but the best and most distinct are *R. myconii* var. *alba* and *R. myconii* var. *rosea*. *Ramonda myconii* is often offered under its most appropriate synonym, *R. pyrenaica*. *Ramonda nathaliae* is an attractive Balkan species. It has foliage which is much more corrugated than that of the previous species and the leaves, although hairy, are glossy green above. The flowers, invariably composed of only four petals—a factor which immediately distinguishes it from *R. myconii*—are lavender blue with a yellow eye. It is also on record that there is a white variety. *R. serbica* is very closely allied to *R. nathaliae*—in fact some authorities doubt whether these plants are sufficiently different to warrant specific rank. It has the same form of growth as the others but is a much more insignificant plant; the pale lilac flowers, like the leaves, are smaller in this species. It is necessary to provide the same conditions of shade and moisture to grow this plant successfully.

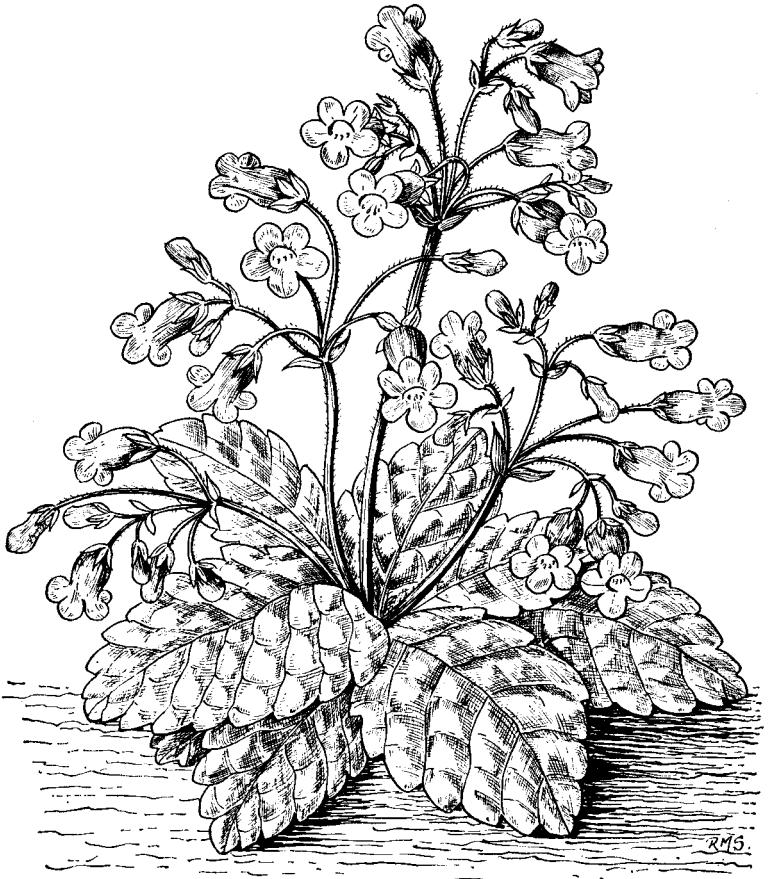


Fig. 30

The Raised Beds at Windsor

by M. McRITCHIE

VISITORS to the Savill Gardens, Windsor, are able to inspect at leisure a widely varying collection of hardy plants; for the rock garden enthusiast, however, keen to see dwarf and slow growing plants, one of the features over which he is likely to spend some time is the arrangement of raised beds (see frontispiece) close to the propagating area. The section of the garden in which these beds are located lies to the north of the rest of the planting. At this part of the garden boundary a high wall was built in which were incorporated a number of stout buttresses, and on this wall a collection of shrubs and climbing plants has been trained. The well-drained borders at the base of this wall are sheltered by the buttresses and so can accommodate species of *Crinum*, *Paeonia*, *Agapanthus* and many bulbous plants. In addition, certain hypericums, *Carpenteria* and other shrubby genera which prefer a Mediterranean-type climate are to be found here. The wall runs east to west and it is in front of its warm south-facing side that this series of raised beds is constructed. The frontispiece clearly illustrates the setting and shows the sheltered yet open situation. These beds may be large and their dimensions out of keeping in smaller gardens but replicas could be incorporated in most of them if suitably scaled down. They blend into a formal garden with ease, and, by their type of construction, afford suitable planting places in their walls for both sun loving and shade tolerant species and cultivars. Furthermore, if it is desired to grow plants requiring different soil conditions in different beds, the pH of the soil may be varied with relative ease.

The more conventional type of rock garden can be expensive and difficult to build satisfactorily, but the construction of raised beds is relatively more simple and very much cheaper. At Windsor the choice of stone fell to a hard grey sandstone and once this had been decided and an adequate supply was at hand, work started in the autumn of 1952. At the outset drainage was considered to be vastly important and in the first instance a layer of rough material was laid down at ground level, in approximately the shape the beds were to take. On

top of this, soil of no particular type was added, and after a foot of earth had been filled in so another layer of drainage material was put on top. This went on until the heaps were approximately nine inches short of the intended height of the beds. It was only then that the walls were started. The beds measure 18 ft. by 9 ft. at their bases but, as a precaution against the sides falling outwards, they were given a lean—of approximately 10° from the perpendicular.

The stones for building were now put in place, and as work progressed and the walls of the beds got higher, the soil used to fill in immediately behind the walls and in the crevices was up to the standard of John Innes potting compost. To this was added some really sharp grit in proportions of one to three, so that acute drainage was assured. In addition to filling in the sides, this prepared soil mixture was used for the final top nine inches of the beds. To finish off in this way would have left a flat featureless surface, so rocks, showing some interesting characters in their faces, were used to produce the effect of an undulating plateau.

The whole construction was spread over a period of months so that the soil had ample time to settle before actual planting took place. The shrubby plants were the first to be put in and these included a number of dwarf conifers. They were followed by the more low and slow growing evergreen perennials such as saxifrages, sedums, penstemons and helianthemums, and finally the herbaceous plants and various types of bulbs which are invisible during winter. If one proceeds in this way there is less likelihood of inadvertently planting a conifer or dwarf Rhododendron or broom on top of recently planted bulbs. When all the planting was completed a dressing of small grit, of a type which blended in colour and texture with the stones used in the construction, was applied to the surface. This not only improved surface drainage but weeding, too, was made a simpler task.

The area surrounding the beds has been made part of the scheme and here both gravel and paving stones have been used. Many of the plants have seeded on to this part and these self-sown seedlings have helped to knit the whole into one. Without doubt the protection provided by the wall behind these beds helps enormously. On the supporting walls of the beds, the plants which appreciate maximum sunlight are catered for in the south-facing crevices, while ramondas, haberleas and certain ericaceous species enjoy the cracks which are north-facing and consequently cooler.

Maintenance is very much easier than with ground level plants and there are other obvious advantages in the work being at a much more convenient height. This is particularly appreciated as one gets older. As the plants grow and spread they tend not only to smother the weeds but also to restrict them by reducing the amount of open space in which they could grow. At the outset careful attention was paid to watering, as many of the plants had shallow roots and would have suffered if they had been allowed to dry out, but once they were established with roots actively searching for food and moisture, this problem was not so acute. A system of watering has been incorporated in the construction using perforated plastic piping laid inside three-inch land drains. This was laid nine inches below the surface at the stage before the John Innes Compost was added. It not only ensures that the soil in the centre does not dry out, but also encourages the roots to penetrate deeply into the cool compost.

At Windsor there is a very interesting collection of dwarf conifers and among those growing well in the raised beds are specimens of many different genera. They include a fine plant of *Chamaecyparis pisifera* 'Plumosa Nana Aurea' measuring 18 inches high and 15 inches wide. The slightly golden colouring, more obvious in winter, is most attractive. *Chamaecyparis pisifera* 'Nana Aureovariegata' is a very slow growing cultivar, the pale green leaves and shoots being decorated with golden flecks, and there is a shapely specimen of *Chamaecyparis pisifera* 'Squarrosa Intermedia' with soft grey-green foliage. The junipers, too, are well represented. Amongst them are *Juniperus communis* 'Compressa' retaining its slim cylindrical shape after many years, and always a good colour, even in winter; *J. communis* 'Minima', another fine plant, but in this instance with a prostrate habit, so useful in this type of layout, and the slow growing *J. communis* var. *saxatilis* from the alpine regions of Europe, N. Asia and N. America. *Juniperus recurva* var. *viridis*, syn. *J. recurva* 'Embley Park', found at Embley Park, Romsey, had been raised from seed sent home by George Forrest. It is a magnificent plant with dark green foliage and branches up to 18 inches long rising irregularly from the centre. The North American *J. horizontalis* has a close spreading habit and remains completely prostrate. A young plant of *Cryptomeria japonica* 'Globosa Nana' has been recently acquired and it will be interesting to see how it develops. *Picea abies* 'Maxwellii' is dome-shaped, measuring four feet across and slightly more than two feet in height, and is of a soft green colour. It is particularly attractive when decorated with its new season's growths.

Sequoia sempervirens 'Prostrata', sometimes listed as *S. sempervirens* 'Cantab', occurred as a bud-mutation in the Cambridge Botanic Garden. It is effectively draped over the corner of one of the beds. There it forms a permanent feature effectively clothing the stones while retaining its prostrate habit of growth. Another good plant in a similar situation is *Tsuga canadensis* 'Pendula'. In this instance the foliage is firm and not so dense as in the Sequoia, but it produces extremely graceful pendulous branches. The list of conifers cannot be concluded without mentioning *Taxus baccata* 'Pygmaea', a very slow growing shrub with dark green foliage. It may not be listed amongst the most handsome of evergreens, but it is an interesting cultivar and worthy of its place in this collection of dwarf and slow-growing conifers.

In such a small area one may be tempted to include too many plants, but as the stones are as much a feature of these beds as the plants this must not be allowed to happen. Among the shrubs growing well is *Daphne x burkwoodii*, a hybrid between *D. caucasica* and *D. cneorum* and sometimes offered under its synonym *D.* 'Somerset'. The specimen here covers an area of between four and five feet across and is not more than two feet in height. It blooms well every year and here, at least, is considered one of the easiest daphnes to grow. *Daphne oleoides* is a very fine plant with an upright habit and waxy leaves and even in winter it is much admired. The pale pink flowers are produced in clusters. Mature plants of this species grow to approximately two feet in height. *Daphne retusa* has very similar foliage, but there the resemblance ends, for this is a much stiffer, smaller shrub. The colour on the outsides of the flowers of *D. retusa* is an attractive shade of purple, but when they open the insides of the starry petals are seen to be white. The flowers are very fragrant. Another fascinating shrublet is *Hypericum coris*, a South European species. It possesses light grey-green foliage and when the clear golden flowers are open the stature of the plant is not more than six inches.

One plant which I believe is admired more than any other is *Genista lydia* from East and South-East Europe. It gained an Award of Merit in 1937 and a First Class Certificate twenty years later. The leaves are so small as to be barely noticeable, but in early summer, when the long drooping branches are covered with golden yellow flowers, this species is all the more eye-catching because of the colour contrast between it and the rose-pink flowers of *Clematis montana* 'Rubens' on the one hand, and the deep blue flowers of *Ceanothus austro-montanus* on the other. Both of these complementary shrubs are growing on the

buttressed wall behind the beds. Other dwarf genistas are *G. pilosa* and *G. villarsii*. The first species has been in cultivation for almost 200 years. It has a long flowering season and is most effective when planted so that its branches overhang a wall or rocks where it will eventually develop into a very dense, heavily matted shrub only a few inches high. *Genista villarsii*, although native to S. Europe, has proved to be quite hardy here. It must be given a dry sunny position if it is to survive outside, but even then it does not flower well in every garden. The foliage and branches are greyish in colour and sometimes the twigs are terminated in a spine. *Genista villarsii* slowly assumes a dense low shape.

The closely related genus, *Cytisus*, is well represented and the hybrid *Cytisus* 'Cottage', thought to be a cross between *C. ardoinii* and *C. x praecox*, is one of the outstanding shrubs in these raised beds. It was acquired from that home of well-grown alpine—Jack Drake's Nursery at Inshriach—and is a plant of dwarf habit which has retained this form as it developed into maturity. *Cytisus x kewensis* (fig. 31) (*C. ardoinii* x *C. albus*), is another very fine hybrid which flowers well every year and has a prostrate habit of growth. The mass of creamy-yellow flowers are most attractive. A third *C. ardoinii* offspring, *C. x beanii*, whose other parent is *C. purgans*, is neat with arching branches which bear many golden yellow flowers in early summer. Its maximum height is in the region of nine inches or thereby.

Saxifragas, naturally, have been incorporated into this setting, and, as with the conifers and other shrubby plants, provide a great deal of interest. Amongst those growing here is *S. oppositifolia*, a British native species. It is not one of the easiest plants to grow in this part of the country, but few species are more rewarding when conditions suit it. The plants form dense mats of foliage and when in flower these are decorated by the small almost stemless, heather-purple blooms. The Italian variety from the Appenines, *S. oppositifolia* var. *latina*, is not quite so difficult in cultivation and the flowers are more freely produced, but they appear to be a little paler than the species. *Saxifraga x haagii*, a hybrid between *S. ferdinandi-coburgii* and *S. sancta*, is a vigorous growing plant and is very free flowering. It has spiny, dark green leaves which form a perfect background to the golden-yellow flowers which appear in March and April. *Saxifraga cotyledon* var. *caterhamensis* is a distinct variety which thrives here. The rosettes are always attractive and the white flowers, borne on spikes sometimes as much as two feet long, are so heavily speckled

with red spots that they appear to be deep pink in colour. Another saxifrage, closely related to the last mentioned variety, is *S.* 'Southside Seedling'. This hybrid also produces long arching sprays of white flowers, heavily marked with crimson in the centre, and is so outstanding that it received an A.M. in 1953. One could use up a lot of space writing about the saxifragas growing in the Savill Garden, but enough have been mentioned to show that the collection is varied.

The shrubby penstemons are used to good effect in the beds and although many species are included hybrids are not neglected. A particularly fine one, very much a favourite of mine, is *P.* 'Weald Beacon', a selected form of *P. newberryi*. This cultivar was raised by the late Mr. A. G. Weeks at Weald Cottage, Limpsfield, Surrey.

Gentians, generally, are not the easiest of plants to cultivate under our conditions, but *G. acaulis* 'Coelestina' with its large pale blue flowers, nicely marked with green in the throat, is well established. This plant may flower in January and again during the summer, and for anyone who finds the species difficult this cultivar goes a long way towards making up for the shortcomings.

One plant which appreciates the excellent drainage is *Verbascum* 'Letitia', a hybrid whose parents are *V. dumulosum* and *V. spinosum*, and which was awarded a First Class Certificate in 1965. This was a chance seedling which appeared at the R.H.S. Gardens at Wisley. It is apparently sterile; even if it did set good seeds it would be unwise to increase stocks in this way, but there is no difficulty in raising young plants as it comes readily from cuttings. The grey leaves of this plant are most attractive. These are very hairy and soft and although *V.* 'Letitia' will survive out of doors without shelter in some areas, here it is felt the protection afforded by a pane of glass in winter is worthwhile. *Verbascum* 'Letitia' is extremely free flowering and the spikes of yellow flowers blend admirably with the grey foliage.

Another very interesting and colourful plant is *Tropaeolum polyphyllum*, a species which, once it appears above ground, grows very quickly. Its young shoots are dark purple but when the foliage expands it is seen to be an attractive shade of blue-grey and this makes an ideal foil for the beautiful, golden-orange flowers. The habit of this *Tropaeolum* is trailing and it provides a bright splash of colour as the shoots spill over the faces of the walls. Once flowering has finished, however, the leaves, as well as the flowers, disappear quickly and the area is again left clear of vegetation. This has the advantage of freeing the surrounding plants from any long-term entangling branches which

otherwise would be inclined to smother them. The only way, it appears, to propagate this species is by the division of its fleshy roots and as these bury themselves feet into the soil the uncovering, or even the finding of them, is no mean task.

Sedum spathulifolium 'Purpureum' is always attractive and is an ideal plant for this situation ; being much nearer to eye-level one is more able to appreciate the lovely rosettes formed by the leaves. These are deep claret at the tips, paling to a light shade of green at the bases, and form a colourful backcloth to the radiating sprays of golden flowers. Each helps to accentuate the colour of the other.

As stated earlier, one useful factor of this type of gardening is the ability to make up and vary the soil mixtures to suit particular kinds of plants and, of course, a wide selection of acid-loving plants has been accommodated in a bed containing a lime-free compost. Many of the plants grown there are of great interest and high amongst these I favour the cassiopes. *Cassiope selaginoides*, native to the Himalayas and W. China, was given an A.M. when shown at the Chelsea Flower Show in 1954. The plant had been raised from seeds sent home by Ludlow and Sherriff and carried their field number L & S 13284. The North American *C. mertensiana* var. *gracilis* from Oregon, Montana and Idaho has a habit much finer than that of the species, and forms little mounds of light green, firm, whipcord-like branches, whereas *C. mertensiana* is a much more open plant. Two hybrid cassiopes growing well are *C.* 'Edinburgh' and *C.* 'Clara Muirhead'. *Cassiope* 'Edinburgh', assumed to have as its parents *C. fastigiata* and *C. tetragona* subsp. *saximontana*, was awarded an A.M. in 1957. It was a chance seedling which appeared in the Royal Botanic Garden, Edinburgh, around 1937. *Cassiope* 'Clara Muirhead' is one of the progeny of crossing *C. lycopodioides* and *C. wardii* and was raised by Mr. R. B. Cooke, Corebridge, Northumberland. This cultivar was awarded a First Class Certificate in 1962. It is intermediate between the parents as far as foliage characters and spiky growths are concerned, although it does tend to spread in the manner of *C. lycopodioides*.

Rhododendrons are also acid-loving and amongst the species grown here are *R. keleticum*, meaning charming. It belongs to the *Series Saluenense* and is a slow spreading shrub which barely reaches twelve inches in height. It has rich purplish-crimson, open flowers one inch in diameter, borne in clusters of up to three. When shown at an R.H.S. Show as long ago as 1928 it received an A.M. S.E. Tibet, Yunnan and Upper Burma are given as its natural distribution.

Rhododendron microleucum belongs to the *Series Lapponicum*. The specific name, meaning small and white, describes the flowers which appear in April. These are arranged in clusters of two or three and in time the plant will grow to 18 inches in height. It is said to come from Yunnan but there appears to be some doubt about its precise place of origin. In 1939 it was awarded a First Class Certificate.

A *Primula* admirably suited to these conditions and growing happily at Windsor is the small British native *P. farinosa*. This species gives its name to the section and, generally, is not considered to be an easy plant in cultivation. Here it grows to about four inches in height. It flowers during March and April and has rosy petals surrounding a yellow eye. The foliage is silvery and heavily powdered.

A fine example of plants which enjoy a north-facing site is the Pyrenean *Ramonda myconi* (fig. 32). It is also sometimes known as *R. pyrenaica*. This gesneriaceous species forms a flat rosette of rough, broad leaves with deeply toothed edges and bears a number of sprays of between three to five flowers on short, stiff stems. The flowers are lavender blue and have prominent golden centres. Thrace is given as the place of origin of *Haberlea rhodopensis* (fig. 47) and is the name applied to a area of S.E. Europe which includes parts of Greece, Turkey and Bulgaria, but the species is said to be very local in its distribution. The leaves are soft and hairy and form a rosette from which clusters of up to five pale lilac flowers are carried in a drooping umbel.

One could go on writing about the many interesting species to be seen in this fine collection of dwarf and slow-growing plants. So many genera are well represented that there is the danger of compiling a list, but I hope enough has been written to whet the appetite of the rock garden and alpine enthusiast so that, should the opportunity arise, he will be sure to visit the Savill Gardens and, in particular, the raised beds.

The season starts early with *Iris histrioides* 'Major' and *I. reticulata* 'Royal Blue', followed quickly by many *Crocus* species and cultivars, but no matter when the visit is made, the true plantsman will always find plants to interest him.

Sheer Mischief

by A. D. REID

ADVANCING age and the arrival of the *Journal* may well promote reminiscences, but whatever the cause, some laudatory comments in a recent *Journal*, anent *Pleione formosana*, took my mind back to earlier Shows, where, with designs on the top table silverware, I had the temerity to display *P. formosana*, only to be told to “get that stove house plant out of here”. I can therefore take a somewhat wicked delight in recalling that, nothing daunted, I continued to be enthusiastic about this plant, a feeling now shared by many growers who still derive much pleasure from this orchid and give enjoyment to Show visitors by continuing to exhibit both the species and its ally, which used to be called *P. pricei*. Here authority lays down that they are one and the same, which merely indicates that as herbarium specimens they may be, but to the grower there are differences which can be seen at five feet with glasses, if worn, plus the fact that, in my experience, *P. formosana* has always been easier to grow and has multiplied steadily. To satisfy the horticulturist, cultivar names have been applied to the different forms so that now names like ‘Polar Sun’, ‘Blush of Dawn’, ‘Serenity’ and ‘Oriental Splendour’ are used. However, I must not dwell on this botanical ruling as time and succeeding generations have a habit of reversing decisions arrived at by authority, and scars have been collected in sundry brushes with the experts while endeavouring to alter their deep-rooted convictions. It is probable that the theory of “the other fellow” would not stand up to close examination either.

Similarly, over the years, a slightly defiant attitude to authority has been noted regarding pronouncements on hardiness. Much pleasure has been experienced from seeing plants, which earlier had been contemptuously described as too tender for even cold house conditions, arrive at maturity in exposed and windswept gardens. It may be that plants progressively become more tolerant of their environment, or it may be that gardeners, like doctors, bury their mistakes ; whatever the answer, certain plants which, according to the pundits, should have been written off years ago, still flourish and give pleasure. Mark you, it is with some trepidation that in certain years examinations have been made on sundry mornings in January, February and March. Which, of course, poses the question—how does one combat all these

people who over the years have been issuing half truths and obvious inaccuracies and, in opposition to this if that happens to be one's bent, how does one set oneself up as an authority ?

It has become increasingly more difficult to summon up the failing reserves of strength which I now must do to attend Shows, lectures and the like where, although to no avail, I can verbally try to put over these jewels of experience. Therefore I must really accept the Editor's invitation, or is it bludgeoning, and write in the *Journal* about my frustrations.

I have long felt that the gift of "green fingers" is not something a gardener is born with, but can be acquired. It is merely a case of observation. If you choose a spot where you feel your cherished plant will be happy and once planted it continues to grow well, your friends will christen you "green fingers". It is as simple as that. So, when visiting gardens, make a point of noting where difficult plants flourish and on returning home try to select similar positions. You may be surprised at the results and receive some pleasant shocks.

I can recall an example of this when, on a visit to a suburban garden in England, I was shown a shrub literally perched on top of a mound of soil. This heap was decorated with random rocks and stones, festooned with nasturtiums, etc. I was asked to name this plant, which in itself made my day, as no one could remember where it came from or whether, like the nasturtiums, it had originated from a packet of seed supplied by a well known store, which boasted the slogan "Nothing over 6d". With conviction and certainty, having recovered my breath, I pronounced the plant to be *Kalmiopsis leachiana*. Obviously it had been there for many years, in fair weather and foul, and was quite the finest example of this species I have ever seen. Now I am not going to suggest that, in the struggle to become "green fingered", one should slavishly copy such extremes, but it does serve to confirm an old gardener friend's observation that more plants are killed by coddling than climate.

Similarly I have often found myself at odds with plantsmen and writers of articles who state that the majority of alpine natives are natives of rock and scree, and therefore must exist on a meagre diet. When shown a lush well-grown specimen which has been reared in contempt of this theory, they promptly pronounce it out of character, a tetraploid, mutation, etc., etc. Surely this "character image" is the plant as we expect to see it in nature. Its form, determined by the spartan existence it has been forced to lead, is preserved in cultivation by the

artificial environments constructed to maintain this particular shape decreed by these authorities.

I subscribe to the theory of cultivation covered by the reply to a question put to one of our foremost plant collectors, which was to the effect that the best examples of a certain *Primula* were always found where the yaks had been. Recently I met with a striking instance of this where the season's growth on some rhododendrons was exceptional, and later learned that in error and without supervision, a youngster had transplanted them to a position which had received a heavy application of fowl manure. I am sure authority will quell any future lapses of this nature on his part, which I think is a pity, as this young man has a future as an alpine gardener. Still on this theme, have you ever seen, as I have, a plant of *Lewisia tweedyi* regularly fed with copious quantities of liquid manure? Of course it was out of character, but it was the most magnificent *Lewisia* I have ever seen.

I believe the origin of this theory that alpinists do not like rich soil lies in the fact that basically we are mean and object to paying too frequently for replacements, for undoubtedly the brighter and richer life is the shorter one, where alpinists are concerned, at least. Personally I would rather see a magnificent specimen for a limited period of time than a puny under-developed one dragging out an existence and incapable of putting on a display.

The extraordinary position is, while holding such ideas, I have not increased my circle of nurserymen friends. Perhaps this is because they too are overawed by authority, either on the technical side, because of lack of information, or on the Income Tax side resulting from greater profits if everyone subscribed to my theories.



DOUBLE PRIMROSES : OLD LACED PINKS
DWARF RHODODENDRONS : ALPINES

**Mrs. McMurtrie, The Rock Garden Nursery,
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Scottish Rock Garden Club

Boonslie,
Dirleton,
East Lothian,
21st August 1968.

DEAR SIR/MADAM,

The ANNUAL GENERAL MEETING will be held in the CARLTON HOTEL, NORTH BRIDGE, EDINBURGH, 1, on Thursday 7th November 1968, at 2.15 p.m.

In accordance with Rule 7 (a), the Council have nominated Sir George Taylor, D.Sc., V.M.H., F.R.S., as Honorary Vice-President for election by the Annual General Meeting, in recognition of his exceptional services to the Club over a period of years.

In accordance with Rule 4 (a) all Office Bearers retire annually but are eligible for re-election. The following have been nominated for election :—

<i>President</i>	Mr. J. L. Mowat, S.H.M., V.M.M.
<i>Secretary</i>	Mrs. L. C. Boyd-Harvey
<i>Treasurer</i>	Mr. D. Elder
<i>Subscription Secretary</i>	Mr. R. H. D. Orr, C.A.
<i>Editor</i>	Mr. A. Evans
<i>Publicity Manager</i>	Mr. J. B. Duff
<i>Seed Distribution Manager</i>	Miss M. R. Robertson
<i>Curator of Slide Library</i>	Mrs. C. Davidson
<i>Publications Manager</i>	Mr. F. C. Barnes

In accordance with Rule 4 (b) four Vice-Presidents to serve on the Council are to be elected annually from the list of Vice-Presidents. The following have been nominated for election :—

Major-General D. M. Murray-Lyon, D.S.O., M.C., S.H.M.
Mr. David Livingstone
Dr. James Davidson, F.R.C.P.
Dr. Henry Tod, F.R.S.E.

In accordance with Rule 5, five members to serve on the Council for three years are to be elected. The following have been nominated for election :—

Mr. J. H. Hall
Mrs. M. J. Lunn
Mr. W. L. Morton
Mrs. I. Simpson
Mrs. G. B. Spiller

Afternoon tea (price 4/6) will be served at 3.15 p.m.

Mrs. L. C. Boyd-Harvey has been invited to give THE CLARK MEMORIAL LECTURE at 4 o'clock. The subject will be "Twentieth Century Trends".

Yours faithfully,

L. CHRISTIANA BOYD-HARVEY,
Honorary Secretary.

AGENDA

1. Minutes of the Annual General Meeting held in Glasgow on 1st November 1967.
2. Consider for adoption the Accounts for the year ending 30th September 1968.
3. Election of Honorary Vice-President.
4. Election of President.
5. Election of Office Bearers.
6. Election of four Vice-Presidents to serve on Council.
7. Election of five Ordinary Members to serve on Council.
8. Appointment of Auditor.
9. Annual General Meeting, 1969.
10. Intimation of Show dates in 1969.
11. Intimation of dates and places of R.H.S. Joint Rock-Garden Plant Committee meetings in Scotland in 1969.
12. Consider and, if thought fit, adopt a resolution to alter, repeal and add to the existing Constitution and Rules. The terms of the resolution are stated in the appendix to this notice.



Photo—R.B.G. Edinburgh ▲
Fig. 38—*Phyllodoce nipponica*

Fig. 39—*Lewisia cotyledon* hybrid
▼ Photo—R.B.G. Edinburgh





Photo—R.B.G. Edinburgh ▲
Fig. 40—*Genista pilosa*

Fig. 41—*Penstemon scouleri* 'Albus'

▼
Photo—R.B.G. Edinburgh





Fig. 42—*Androsace imbricata* ▲

▼ Fig. 43—*Viola biflora*





Photo—Gordon Finney

▲
Fig. 44—Primula 'Linda Pope'
Forrest Medal, Edinburgh 1968

Fig. 45—Display of Conifers by Mrs. J. G.
Neilson, Edinburgh Show 1968

▼
Photo—Gordon Finney



Dwarf Shrubs for Windy Places

by BASIL FOX

WE ALL know that the grass grows greener on the other side of the fence, but why should those who garden in exposed situations vie with one another in competing for the title of the windiest garden? If, when showing these people round your garden, they eventually have to raise the hoods of their anoraks, then of course you reign triumphant, but what of the plants?

In these unprotected environments the smaller shrubs, being closer to the ground, escape much of the violence of the wind; in fact, some creep along the ground and hug it so closely that their branches follow every little fold as they flatten themselves against the uneven surfaces of the rocks and boulders. One of the best examples of this shelter-seeking habit is to be found in *Cotoneaster congestus* var. *nanus*. The young shoots of this variety are red in colour, while the leaves in winter are tinged with purple. There is some doubt as to the validity of this name as, on occasion, it has been sold under the name of *C. cooperi*. This, of course, is a tall shrub and is in no way synonymous with the variety under discussion. It is not wholly satisfactory growing a plant under a doubtful name, but this uncertainty should not be used as an excuse for ignoring a splendid dwarf shrub. *Cotoneaster congestus*, itself a plant of some merit, has a much more open habit and grows about a foot high. Generally, the foliage turns a deeper colour than in the variety, but in addition, during winter, the branches are usually enhanced by a number of bright red or even scarlet leaves. Although this species flowers quite freely, very few fruits are produced and the explanation of this is that the form in cultivation is triploid.

The prostrate *C. dammeri* is much better for berries but it is also useful as a ground cover plant. At first there is a tendency for the long shoots to spread over a wide area and root rather insecurely, but later, once the plant has been established for a year or two, it will thicken up to form a compact mat and force out the weeds that, initially, were a nuisance. At least, during the first few years, the spaces left by this open habit of growth can be used for growing dwarf bulbs. One *Cotoneaster* that really smothers the ground effectively is *C.*

cochleatus. This species grows much more slowly than *C. dammeri*, but the soil is densely covered with its dark shiny leaves which make a good foil for the bright red fruits. *Cotoneaster cochleatus* is considered by some to be a variety of *C. microphyllus*, though it differs distinctly from this species in a number of ways. In exposed places one cannot afford to spurn the more common plants and *C. microphyllus*, a shrub that will grow almost anywhere, is a persistent garden escape and so is frequently referred to as growing wild. Our only true native Cotoneaster, *C. integerrimus*, is indeed wind resistant—it would have to be to exist on Great Orme's Head, its only British station—but it is not a very imposing plant and certainly not one to be recommended for planting in our gardens. *Cotoneaster microphyllus* can be trained effectively up walls, left to trail over retaining walls or rock faces, and can be used to root into, and so bind, steep soil banks. This can be a most invasive species but where there is a problem corner, in which other plants have failed to survive it is well worth trying. Bees visit its flowers regularly, and in spring a good place to trap those drowsy queen wasps is in its vicinity. Have you noticed the "marzipan" scent of the crushed wood?

There are many other obliging cotoneasters (fig. 33) but enough has been written to illustrate their value; however, there are other genera still within this plant family to be considered. We all know that the "Mountain Ash" is supreme as a tree on our windswept hillsides, but so too, it would seem, is its lowly relative, *Sorbus reducta*, a miniature of rock garden stature. This dwarf species is no more than a twiggy upright shrub which fruits well at an early age. It is still not widely planted and is usually regarded as a curiosity, but, correctly sited, it can be of considerable garden merit.

Another genus that is normally associated with trees is *Prunus*, and one that is a great success in my own garden is the dwarf Russian Almond, *Prunus tenella*. The brightest coloured form is listed as *P. tenella* 'Fire Hill' which I believe is the same as the cultivar *P. tenella* 'Gessleriana'. The colour is not as deep as one might at first imagine, but nevertheless it is considerably darker than the type, especially when in bud. Although inclined to be straggly when grown in a sheltered border, it keeps its compact habit on an open windy site. Hares are particularly fond of this plant and one must be vigilant lest the plants assume a most undesirable form of compactness.

Plants which have a very different general appearance and yet are still members of the *Rosaceae* are the shrubby potentillas. *Potentilla*

arbuscula (fig. 34) is a species with a low sturdy habit and grows well in exposed places, giving a long display with its generously produced large, clear yellow flowers. *Potentilla fruticosa* is an extremely variable plant indeed and, as a gardener, I find it impossible to recognise where the forms begin or end. Some forms breed true from seed but others produce offsprings of such varying height, shape and flower colour that it is difficult to believe they are not of mixed origin. Small forms frequently grown on rock gardens and in exposed situations are *P. fruticosa* var. *mandshurica* with white flowers and grey foliage, and *P. fruticosa* 'Beesii' with silver leaves and flowers which are golden. On open windy sites some of the normally taller growing forms stay compact and it is those with a naturally twiggy growth that are best—an example of this type is *P. fruticosa* 'Primrose Beauty'. The cultivar *P. fruticosa* 'Tangerine', the colour shade of which is not appreciated by everyone, grows well with me and I find the tangerine colour is intensified in the low temperature prevailing on the bare hillside. These shrubby potentillas are excellent for binding the soil, and the fallen leaves which are trapped and remain below the plants form good leaf mould. These plants, along with the cotoneasters already mentioned, cover the ground most effectively and, where the surface of the ground is not stony, prevent the erosion by dry easterly gales of the finer soil particles.

There is just one other plant in the *Rosaceae* I want to mention and that is *Spiraea bullata*, an excellent small shrub, though not as showy or decorative as many other members of the genus. It is an extremely interesting plant with small, dark green bullate leaves which have an unusual appearance, and compact heads of rose-crimson flowers in perfect proportion to the general appearance of the plant.

The genus *Berberis* is a very variable one and includes plants of practically every shape and size. There are both evergreen and deciduous species and with such a wide choice it follows that some, at least, must be suited to harsh conditions. *Berberis thunbergii* is a truly tough species and in itself shows great variation. Most forms are of a spreading nature, and bear yellow flowers followed by sealing-wax red fruits. In the autumn, especially on an open site in poor soil or where the root run is restricted, the foliage graduates through a series of brilliant shades before being cast. Where space is limited, or where a much smaller form is desired, *B. thunbergii* 'Atro-purpurea Nana' or *B. thunbergii* 'Little Gem', both of which bear purple leaves, are suitable. A recently introduced cultivar which appears

to be a green leafed version of these two dwarf shrubs is *B. thunbergii* 'Kobold'. It is now available, but as far as I am concerned its ability to withstand severe conditions has still to be proved. *Berberis verruculosa* is an excellent evergreen and is particularly attractive in winter when a large percentage of the leaves turn red. During spells of severe weather some of the foliage is inclined to drop, but in my experience this does not happen very frequently. All who grow this shrub will find out sooner or later that the branches are fiercely spiny. A truly dark-leafed evergreen species, *B. candidula*, is also of interest. The form commonly cultivated assumes a low dome shape, so symmetrical in fact that one could not be blamed for believing that it had been clipped. The flowers, though inconspicuous, are worth a closer look and one interesting feature about the leaves is that their undersides are almost white, but because of the compact habit of the plant this factor is usually hidden. As a rule it is slow growing, though I have actually seen a specimen four feet high and ten feet through, but this was a very old plant and had been growing in rich soil.

Many willows not only survive but will actually thrive on windy hill tops and they seem to flourish on the poorest of soils, including mine spoil heaps and open cast coal mine sites. They vary considerably in habit and here, where we are mainly concerned with prostrate forms, we need look no further than to one of our native plants, *Salix repens* (fig. 35). There are numerous varieties of this species, but for planting in exposed area I much prefer the type and, of course, as with all willows, it must be the male plant if it is to produce a show. Bad weather is one of the chief drawbacks, just when the catkins are out. So often, at the time they are in full bloom, we get torrential rains which leave the catkins bedraggled and less attractive, but if the weather remains dry these willows will flower for a very long time. The form I grow is now, after ten years, a wiry mat twelve inches high and four feet across. The catkins are not as large as in some other varieties but are produced in such numbers that they more than compensate for this. Unfortunately, as the plant spreads, it does not root as it goes and can therefore suffer the fate of many similar plants by having its carpet of shoots lifted and broken by very strong winds. A little judicious pruning, immediately after flowering, especially in the first year or two, will reduce this risk. This fate could not befall *S. reticulata* (fig. 36), which really hugs the ground and anchors itself as it spreads. It is slow growing with curiously broad, deeply veined leaves that lie flat on top of the prostrate branches and consequently make it a most suitable

plant for the very windiest of sites. Although of quite different appearance, *S. lapponum* also prospers. It has an upright habit of growth and foliage that is at first silvery. In this species the catkins are relatively large and are well displayed on the tip of the shoots.

Birch, a close relative of the willow, is capable of withstanding similarly harsh conditions and the dwarf native species, *Betula nana*, a twiggy shrub with interesting rounded leaves, is ideal for our purpose.

Other individual plants that have proved themselves reliably hardy include *Chamaecyparis obtusa* 'Gracilis', a common enough dwarf conifer, but one which is worthy of mention. With me it has come through some of the worst winters unscathed while dwarf varieties of *C. lawsoniana* and *Thuja* have suffered badly.

Juniperus communis var. *saxatilis* (syn. *J. communis* 'Hornibrookii') is a sturdy prostrate cultivar, very ordinary in leaf character but thoroughly reliable. Even although we may prefer to dream of varieties like *J. horizontalis* var. *douglasii* with its steely blue leaves turning purple in winter, we must remember that its branches can easily be blown about by the gales and, to retain its attractiveness, it must have shelter.

Ilex crenata, though ultimately large, grows extremely slowly and its small dark green leaves are unusual for a holly. A plant I did not expect to see growing well is *Ligustrum japonicum* var. *rotundifolium*, for when I planted it I thought it was sure to be damaged, but over the past five winters, which have not been all that kind, it has suffered no set back and I am now optimistic about the future.

Although this concludes my selection of small shrubs chosen at random, I have omitted whole groups of plants such as callunas and ericas which are certainly garden-worthy. Those mentioned seem to me to be promising propositions in situations fully exposed to the south-east and east. Being on a slope there is little hope of protection from the wind that sweeps along the open valley carrying with it as it goes strands of "Purple Moor-Grass", *Molinia caerulea*. Picking the dead leaves of these grasses from the shrubs in spring gives one time to contemplate on what to plant next and where. Of course, the wind does not blow on every garden from the east; a good sou'wester can bring its own problems, but that is another story.

Alpines in Pots for the Beginner

by JOHN B. DUFF

GRADUALLY, as one's interest in alpine plants broadens, species and cultivars which cannot be cultivated satisfactorily out of doors are added to the general collection. These constitute a challenge to the grower, and if he accepts this challenge he will find that a frame or small alpine house becomes an essential part of his equipment. It is with a view to helping the enthusiastic newcomer over his first hurdles that these notes are offered.

It must be borne in mind, however, that once accommodation is available, more ambitious plans will formulate and the desire to grow rare and difficult plants will be strong. The cultivation of these less common plants is outwith the scope of this article, for here the aim is to provide brief cultural hints on a number of less difficult plants which, if gathered together, could form the basis of an alpine house collection. Furthermore, they have been chosen because of their early flowering habit so as to ensure that there will always be something in bloom in the alpine house from the beginning of February to the end of May. In addition, all the plants are readily available, are of easy culture and, in the case of many, their flowering season is long. With the exception of some bulbs, all should survive to give pleasure for many years and, if so desired, be suitable for exhibition at the Club Shows.

While the beginner should proceed with caution and gather his experience as cheaply as he can, it would be a mistake to have too few plants in pots the first year. This could lead to disappointment and self-incrimination when, in spring, the plants come into flower. Initially, from twenty to thirty would constitute a manageable number and be sufficient to maintain interest throughout the first year. If, at the end of the season, the bug for growing plants in pots has bitten deeply, the collection will grow at an alarming rate ; usually faster than accommodation can be provided. Golf clubs and fishing rods may have to be sold to meet the insatiable demands on time and money, but suddenly, amongst his plants, our beginner finds himself in a new and better world.

Before describing the collection in detail it is perhaps advisable to state that all the plants included could be grown and flowered in frames. The alpine house is really a luxury, mainly for the convenience and physical comfort of the grower. Even when there is an alpine house, the majority of plants should spend the greater part of the year plunged in frames and should only be brought into the alpine house for their floral display. The frame lights, too, will be off from April until autumn and opened on good days during winter and early spring, so that the plants will be exposed for as long as possible to the weather and direct light from the sky. Only in this way can sturdy, vigorous plants be obtained. Here, in the east of Scotland, the frame lights can be removed with safety at the beginning of April as the rainfall is consistently low then. The time for returning the lights to the frames will depend on the weather in October, for if a period of heavy rain is experienced early in the month the lights must be put on, but, if the weather improves, they may be removed again for a short spell.

Very few plants require the protection of an alpine house all the year round and in the main it is the older cushion plants that need to be looked after, since they would rot if drenched with water.

The frames should contain material into which the pots may be plunged and this can be either rough sand or sifted boiler ash, whereas, in the alpine house, pots may be placed on a staging, preferably in trays of damp gravel. When daily attention cannot be given, however, it will be found that less watering is required if plunging material is provided here also ; in addition, this gives cooler and more constant temperature conditions to the roots in summer and protection from frosts in winter.

Pot sizes are often confusing to beginners and at this stage a word about pot nomenclature may not be out of place. In ascending order of height we have pan, dwarf pot, pot and long tom. If we take as an example the five-inch top diameter size, the respective heights are pan 3 inches, dwarf pot 4 inches, pot 5 inches and long tom 6 inches. The dwarf pot is sometimes called the "Azalea" pot and sometimes, erroneously, the half pot. Except in the large diameter sizes, a pan is seldom deep enough to accommodate alpiners. When considering the size of container, the amount of depth required for the root development of an alpine plant is the deciding factor and the most commonly used receptacle is probably the pot. This is followed by the dwarf pot, then, in special cases, by the long tom. Long toms would probably be used more often if they were easier to come by. There is a fifth type

of pot called the chimney pot, much longer than the long tom and occasionally used for some rare, deep-rooted plant. The word pan, as used in the Club's Show schedules, covers all forms of containers.

As it is thought the beginner may be encouraged more by the quick and almost certain results obtained from early flowering bulbs, the following recommended list of plants includes a fair number of bulbous species and cultivars.

In a previous *Journal*, September 1967, page 286, a way was suggested by which the novice who wishes to grow alpines in pots could best deal with the preparation of soil mixtures. In the notes that follow, therefore, soil mixtures, as lettered in that article, will be quoted.

When considering value for money, *Cyclamen coum*, frequently offered under the name *C. orbiculatum*, is undoubtedly one of the best plants available. Apart from the type plant, which has glowing carmine flowers, I have the variety *album* which is white with a dark red centre. It blooms from November to April and the species from January to April. Although maybe slightly more costly, it is better to buy growing plants than cheaper dormant corms. *Cyclamen* can be grown in a dwarf pot in mixture B with half the grit rough sand and the other half limestone grit. When re-potting, just cover the corm with compost. Always water sparingly and do this by standing the pot in two inches of water for a few minutes. When grown in the alpine house allow no water to fall on the flowers or leaves and, if hard frost is expected, carefully cover the plants, which will be in flower at this time, with newspaper. These *Cyclamen* are quite hardy so after flowering plunge the pots into an outside frame but continue to water until the foliage withers. They should then be removed to a closed frame and the pots plunged in moist sand, but the plants themselves should be given no water for about two months. In July a top dressing with leaf mould should be given after which watering can be restarted and, when growth is active, a sprinkling of a balanced fertiliser can be applied. I find it pays to re-pot *Cyclamen* every third year.

Iris histrioides 'Major' has large blue flowers which first appear in February and last a long time. At least six bulbs in a five-inch pan are required to give a display and, while they last, they make excellent companions for the *Cyclamen*. Mixture A, limy, is recommended and, at the beginning, it is better to buy fresh bulbs every September. After flowering they may be planted in the garden, where they will flourish and multiply and, in later years, this outside colony can be raided to supply bulbs for the alpine house.

Among the early flowering rockfoils *Saxifraga burseriana* is a worth-while species and any one of the following cultivars, 'Brookside', 'Gloria', 'Major Lutea' and 'Sulphurea' can be recommended. These bloom in February and March and are best grown in mixture B, limy. Every year after flowering, and using dwarf pots, the plants should be moved on into the next size, after which they may be placed in a frame. These saxifragas should receive plenty of direct sunshine except in June, July and August, when they should be shaded from the mid-day sun. By August their growing season will be completed and the plants may be moved to the alpine house or covered frame so that they may be protected from the heavy rains expected at that time. This treatment is recommended for all saxifragas of the Engleria and Kabschia sections. Two Kabschia saxifragas that I have found particularly free flowering are *S. x irvingii* and *S. x jenkinsae*.

Saxifraga x chrystalae is another best buy, for even when out of flower this is an extremely handsome silver-leafed plant.

The purple-red of the calyces and stem leaves starts to show in the centre of the rosettes in early January and the plant continues to provide a delightful decoration for the alpine house until the end of April. By this time the arching stems are fully elongated and flowering is over. It responds to the same cultural treatment as *S. burseriana*.

Plants offered under the name of *Pulsatilla vulgaris* 'Budapest' (fig. 37) vary a great deal, but if a good colour form can be obtained it is really magnificent. This cultivar flowers in March and is best grown in a deep pot in mixture A, limy. Except when in bloom, this form of the "Pasque Flower" appreciates full sun. Pulsatillas benefit from being re-potted after flowering and given an occasional liquid feed while the leaves are still developing. These colour forms are slow to increase in size.

Pulsatilla vernalis is everybody's favourite. It is nearly impossible, here, to flower it well in the open, but it makes a delightful show in the alpine house. Even on the mountains the plants normally bear only one, two or three flowers, but in a pot a well-grown plant should produce up to a dozen blooms. I use a full size pot and Mixture A, for a compost, and re-pot after flowering. *Pulsatilla vernalis* likes the sun.

There are a number of dwarf daffodils suitable for growing in pans but none gives me more pleasure than a clump of *Narcissus cyclamineus*. This is an easily grown species, about four inches in height, which has proved to be so amenable when used for hybridisation that

many excellent, taller cultivars are now available. The influence of *N. cyclamineus* is always evident as the genes controlling the long trumpet appear to be dominant so that this character is conspicuous in all its progeny. These hybrids add height and colour to the March/April display in the alpine house. Fresh stocks should be bought every year—the bulbs are not expensive—and grown in garden soil. After they have finished flowering they may be planted in the garden.

Primula marginata var. *caerulea* blooms in March and, as the varietal name implies, has blue flowers with just a hint of lavender. The jagged, heavily powdered leaves add to the elegance of this plant and last the whole year. *P. x marven*, a hybrid between *P. marginata* and *P. x venusta*, with deeper blue flowers and a white eye, blooms a little later and is also well worth including in the collection. Full sized pots and mixture A, limy, should be used for both primulas. Water sparingly at all times as the stems are inclined to rot at soil level, and re-pot annually after flowering. As the plants age, the stems grow long and lanky, but their appearance can be improved by top dressing with lumps of attractive rock. This will restore the illusion of compactness and, at the same time, allow air to circulate round the stems. Although these primulas appreciate a spell outside in the sun, they should be protected from continuous rain and, consequently, must spend longer in the alpine house than the average plant.

Primula auricula 'Blairside Yellow' is a neat little cultivar, always generous with its flowers. These appear in April. It multiplies quickly, and after flowering the clumps should be divided, the roots washed clean of soil, and the smaller pieces re-potted in fresh compost using mixture A. About six plants in a six- or eight-inch pan or dwarf pot is probably the best way to grow this Primula. Shade should be given until the plants are established and making growth, after which they can be transferred to the sunny part of a frame. Liquid fertiliser may be applied occasionally and the plants must never be allowed to become dry during the summer.

The name *Primula x pubescens* embraces all hybrids between *P. auricula* and *P. rubra*. It includes a wide range of first rate rock garden plants which bloom in April. At least one of the following cultivars, 'Mrs. J. H. Wilson', 'Rufus', 'The General', 'Christine', 'Red Indian' and 'Marlene' should be part of any alpine collection, but my personal choice falls on 'Marlene', with dark violet flowers, and 'Mrs. J. H. Wilson', with flowers of a lighter shade. Cultivation is the same as for *P. auricula* 'Blairside Yellow', but these *P. x pubescens* forms are large enough to grow one to a pot.

Primula 'Linda Pope', of uncertain origin, but thought to have *P. marginata* as one of its parents, is so outstanding that it deserves to be mentioned separately. Few primulas enjoy being grown in pots for long periods, but *P.* 'Linda Pope' is one of the exceptions. It will thrive for years and, if re-potted annually or biennially into a larger-sized pot just after the flowers have faded, will develop into a very large plant. Unlike *P. marginata* var. *caerulea*, it is not susceptible to stem rot. *Primula* 'Linda Pope' is best grown in a deep pot in mixture A, and appreciates the sun and an occasional application of a liquid fertiliser.

Tulipa praestans 'Fusilier' may be too large a plant to class as an alpine but it frequently appears at Club Shows. Five or six bulbs in a six-inch pot in mixture A can produce a gorgeous April display in the alpine house. After flowering is over, remove the seed heads and plunge the pot in a frame, but don't forget to water and feed the bulbs while the leaves are green. Once the foliage has died down the bulbs should be rested, like Cyclamen. If these suggestions are carried out the bulbs may be re-potted in October and will flower a second year, but on this occasion the flowers will be much smaller. After their second season the bulbs are better planted in the garden and fresh stocks obtained for the next year's display.

Schizocodon soldanelloides 'Magnus', still seen at Shows under its old name *S. macrophyllus*, need only be brought into the alpine house to flower. At other times it can be plunged in a cool semi-shaded position and watered when necessary. The beautiful, rose-pink, fringed bells open in April. At all times this is an excellent foliage plant, but particularly so in autumn and winter when the leaves turn a glossy bronze-red. Re-pot every year in a dwarf pot in mixture F, and cut off any leaves which are withered. This *Schizocodon* will also benefit from a top dressing of leaf mould in spring and, as a safeguard against slugs, it is advisable to protect with slug pellets.

Rhodohypoxis have a long flowering season and bloom from April to the end of summer. This genus consists of a single species, *R. baurii*, which is well worth cultivating, but, in addition, there are many lovely forms. They look best when massed in a dwarf pot but if one buys, say, three bulbs, they will soon multiply. Divide the bulblets in February and re-pot in mixture E, after which growth will restart. Allow them plenty of water when they are growing strongly, but gradually withhold it in summer and give none at all in winter.

Phyllodoce nipponica (fig. 38) is a small evergreen shrublet—neat and compact in habit—which, if growing happily, covers itself with glistening white, bell-shaped flowers in April and May. It should be re-potted every year in a full-sized pot in mixture F. It is taken into the alpine house to flower, but apart from that it should be plunged in a cool corner where it gets the afternoon sun. It should be top dressed with leaf mould in spring, but handle the plants with care as the twigs are so fine and brittle that they are easily knocked off.

The New Zealand *Cyathodes colensoi* gives a long display of pinkish buds before opening its flowers in April. These last for another month. This is a dwarf evergreen sub-shrub with an unusual leaf colour, the leaves being bluish-grey above and whitish on the undersides. The flowers are urn-shaped and should be followed by red or white berries, but so far my plant has never fruited. This may be due to its being grown in a pot, yet it appears to flower better than specimens cultivated out of doors. I grow this species in mixture D, and make a point of protecting the young shoots from late spring frosts. *Cyathodes* belongs to the family *Epacridaceae* which is closely allied to *Ericaceae*.

Anemone obtusiloba var. *patula* is often referred to as the “Blue Buttercup” but, as it is an extremely variable plant, unless a good deep blue form can be had the plant is not worth having, in my view. Try to choose a young plant in flower and grow it in mixture A, using a full-sized pot. It responds to a liquid feed when in full growth. This *Anemone* may be plunged in a frame during winter, but as soon as the flower buds appear it should be fully exposed to the weather in order to keep the stems short and the flowers a rich colour. It is best re-potted annually, after flowering, and will eventually develop into a large plant. *Anemone obtusiloba* var. *patula* flowers in April and May and often a second crop of flowers is produced towards the end of summer.

Cassiope ‘Clara Muirhead’, probably one of the most floriferous hybrids, blooms in April and May. This is an instance where a pan may be used as cassiopes are shallow-rooted plants. Re-pot this shrublet every year in mixture F and, as growth is rapid, allow plenty of room for the horizontal spread of the roots. A top dressing of leaf mould in spring is obviously appreciated by the small surface roots. *Cassiope* ‘Clara Muirhead’ must be given plenty of water during the growing season, but does not like a compost which is too wet in winter. Grow this cultivar in half-shade where it gets the afternoon sun and, in hot weather, spray overhead in the evenings.

Cassiope selaginoides is more upright than the last mentioned *Cassiope*, but it is not so fast growing. It has much larger flowers and, in my garden, blooms slightly later. Try to get *C. selaginoides* L & S 13284, a magnificent form with large creamy white bells introduced around 1950 from the Himalayas.

Those who grow *Soldanella montana* should never fail to make it flower. Grown in a pot in mixture E, the clump develops fairly quickly, so that re-potting will have to be carried out every year. During summer, plunge the pots in a cool, moist but not completely sunless spot and, in winter, place in a covered frame. The flower buds are formed in autumn and nestle all winter at soil level and therefore must be protected from slugs. The individual flowers, which open during April and May, do not last long, but they are produced in such quantities that this shortcoming is hardly noticed.

Glaucidium palmatum, somewhat taller than the usual alpine but grown by rock garden enthusiasts is, in fact, a woodland plant from Japan. It should be accommodated in a pot in mixture D, and I re-pot my plant every year after it has finished flowering. *Glaucidium palmatum* grows quickly and soon requires a large-sized pot. Flowering time is April and May and a semi-shaded site where the sunlight is filtered suits this species.

One free-flowering *Lewisia* can add considerably to the colour in an alpine house and a wonderful range of colours is available among the hybrids of *L. cotyledon* (fig. 39). If possible, it is better to buy the plant in flower for only then can one be certain of the colour. Re-potting is best carried out in winter or early spring, but first shake the roots clear of any soil and completely renew the compost. Use a deep pot or long tom and compost mixture A. These plants respond to feeding, and the use of old cow manure in the compost and an application of liquid manure at regular intervals are certainly beneficial. Such feeding may lead to the need to re-pot a second time, later in the year. *Lewisias* in Scotland require the sun. Start watering the plants in March and give a plentiful supply until July, after which time the amount can be reduced. No water need be given from October to March. When re-potting keep the neck of the plant well above soil level and fill up the space with stone chippings—not limestone.

Ramonda myconii, a member of the *Gesneriaceae*, is available in three colours, viz., mauve, the type; white, var. *alba*; clear pale pink, var. *rosea*. I prefer *R. myconii* var. *rosea*. A pot, larger in diameter than the size of the roots would suggest, is needed to support the wide

rosette of leaves which spreads out over the surface of the soil. Annual re-potting in mixture D is recommended. Although very little water is required in winter, never allow the soil to dry out. *Ramonda myconii* and its varieties require shaded conditions and are often grown under the staging in the alpine house all the year round except when they are in flower. I prefer to let them see the sky for a month or two in late summer or autumn—although never in hot sunshine. The flower buds are formed in autumn and remain tucked between the leaves until May, when the stems quickly elongate and the flowers open.

No collection would be complete without a silver-leaved plant. There are many advertised in catalogues, but I consider *Leucogenes leontopodium* as good if not better than any other. It has a neat habit and is a true "silver". A full-sized pot is required and mixture A, limy, is a suitable compost. Annual re-potting is essential and as the plant ages it must be planted deeper every time to retain a compact appearance. If the space at the top of the new pot is filled with a mixture of half sand and half peat the stems will quickly root into it. Grown in this way the plant will not flower but, as it is cultivated for its silver foliage, this is not important. A well-flowered specimen, which had been grown outside, was exhibited last year at a Club Show where it was awarded not only a well deserved Forrest Medal, but an Award of Merit Certificate by the Joint Awards Committee.

The rich green of well-grown dwarf or slow growing conifers in the alpine house is invaluable as a foil for flowering plants and brightens the duller days of winter. There are many from which to choose but I recommend that at least one of the following should be procured: *Chamaecyparis obtusa* 'Caespitosa'; *C. obtusa* 'Intermedia'; *C. obtusa* 'Juniperoides'. They are all true miniatures so there is no likelihood that they will outgrow their usefulness. Use a dwarf pot and mixture A, and re-pot annually, in August, using the same sized pot for as long as possible. This is done by gently removing some of the old soil from the outside of the ball of roots, thus allowing fresh compost to be added every year without increasing the pot size. Dwarf conifers should not be left too long in the dry atmosphere of an alpine house, but should spend most of their time plunged out of doors in partial shade, never being allowed to dry out.

This completes my list of plant suggestions and to my mind the best time to buy plants is spring. Some resent root disturbance in autumn, but in spring, just as they start into active growth, most plants may be re-potted with safety. If the soil in which the plant is

growing when it comes from the nursery is of a clayey nature or in any other way looks unsuitable, I have no hesitation about washing the roots clean before re-potting.

To encourage plants to grow symmetrically and flower all over, the pots should be rotated a quarter turn at regular intervals, say every fortnight ; the plant labels can be used as markers in this operation.

With the exception of Cyclamen and, to some extent, *Primula marginata* cultivars, all the plants mentioned can be watered overhead from late spring onwards using a watering can with a fine rose. In this way the plants and plunging material are moistened. In winter and early spring, however, when the plants are either dormant or growing very slowly, regular watering must be curtailed and only the sand kept moist. If any plant should appear to require water, and some evergreens do, the pot should be stood for a few minutes in about two inches of water or, if the pot is large, in slightly deeper water.

One disadvantage of the plunge bed system is the damage that can be caused to clay pots from frost. The rim of the pot, which projects above the plunging material, is subjected to stresses set up by repeated cycles of freezing and unfreezing and, eventually, it is shattered. Damage can be minimised by (a) sinking the pot deeply so that the rim is completely covered ; (b) using one particular make of pot which has a very thick round rim ; (c) ensuring that the plunging material is only slightly moist and certainly never sodden. The ideal state would be to have the first two inches dry and damp underneath. Therefore moistening of the sand should never be carried out if frost is expected. If a prolonged spell of frost is anticipated it is advisable, for the sake of the pots, to provide some form of temporary insulating cover to the frames.

To cater for the varying needs of plants it is necessary to have a minimum of two frames, one situated where it will get full sun and the other shaded.

Pests can be troublesome to plants in pots, so a sharp look-out must be kept for greenfly and whitefly and, if seen, the plants should be treated with a systemic insecticide. I do not have much trouble from these pests and only use insecticides when necessary, but some enthusiasts take preventive action and fumigate their alpine houses at regular intervals.

Slugs I find most troublesome. They are introduced into the alpine house when plants are brought in from the frames. Slug pellets may

be laid about the frames, and no doubt they take their toll, but the most effective way to deal with them, I find, is to go slug hunting with a torch after dark. It is surprising how many slugs will be found in this way, particularly in the autumn. When a pot is removed from the plunge it should be first examined to see if any slugs are harbouring on the outside under the rim or in the drainage hole. If earthworms invade the plunge beds, Chlordane is a certain cure.

When properly organised, the amount of work involved in maintaining a small collection of alpine plants is not onerous. Plunged pots need to be watered only twice a week in summer or perhaps, very occasionally, three times in the hottest weather. There is little that can be done between October and March, but from April to June, which is the time for re-potting, one can be kept extremely busy.

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 Lawrence Hochheimer, Ridge Farms Road, Norwalk, Connecticut 06850, U.S.A.

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

More Spreaders - A Note for Beginners

by J. D. YOUNGSON

THE ARTICLE by Dr. Tod, "They're good—but need watching", printed in last September's issue of the *Journal*, brought to my mind some other worth-while plants which, in my garden, require watching.

Most nurserymen in their catalogues give an indication of the height of various plants, but very few give any idea of the probable spread. Even if they did, this could only be taken as a rough guide, as soils and situations have varying effects on plants in different gardens and both height and spread present a lot of problems for beginners which only experience can solve.

Most of us who are keen growers of alpine plants like to find room for as many species and varieties as possible, but when planting a new area the fatal mistake is often made of not allocating sufficient space. Some plants soon encroach on their smaller neighbours and this is particularly annoying if the defaulter is a beautiful plant which one does not have the courage to cut back.

The first plant which occurs to me in this connection is *Lithospermum diffusum* 'Heavenly Blue' which certainly, as one catalogue warns, makes wide mats—in my case at least four feet across. Planted at the foot of an Azalea or a small Rhododendron it will even grow up through the branches. I may be wrong, but I imagine this is one plant which does not take kindly to hacking back.

Two willows come to mind, one the bearer of an appalling name, *Salix wehrhahnii*, and the other *S. apoda*. The first is a lovely plant in spring when its bright silver buds grow into inch-long fluffy yellow catkins. One catalogue says it is slow growing, reaching 30 inches after many years, but I had sufficient knowledge to plant it outwith the confines of the rock garden. In half a dozen years it had grown to a height of five feet and a good deal more across. Last summer I removed a number of outside branches and reduced the height pretty drastically.

Salix apoda probably has as lovely catkins as any willow; they measure two inches in length and appear to be made of soft grey fur decorated with orange and yellow stamens. I have never seen any

indication given of the spread of this willow in a catalogue. In six years one plant grew to at least six feet across but was of no height worth mentioning. This species now gets an annual prune. One cutting which has been in a trough for about three years is only about a foot across.

Some of the dwarf brooms, even the prostrate types similar to *Genista pilosa* (fig. 40), in the course of a few years spread over a considerable area. If necessary they can be easily controlled by cutting back the long shoots after flowering.

Another spreading plant, although on a smaller scale, is *Arenaria montana*. It is a lovely sight in early summer when it is completely covered with masses of glistening white flowers. It is a good trailing plant, but where it is happy it freely spreads underground and the brittle roots are not easy to eradicate. I have one which threatened to take possession of a plant of *Cytisus x beanii*, climbing through its branches so vigorously that I had to pull it out by the handful.

Penstemon scouleri forms a loose bush 12 inches high and produces large spires of violet trumpets in long succession. One catalogue describes it as neatly shrubby and evergreen, but with me it spreads to about five feet across and has to be pruned to keep it within reasonable bounds. This is a lovely species when in flower, but is definitely not one to be put near small plants. There is a beautiful white form, *Penstemon scouleri* 'Albus' (fig. 41) which is altogether a different proposition and much smaller in every way.

Grovemount Alpine Nursery

J. G. M. IZAT, M.A.

Rock Plants

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Heathers

The Heather Garden at Ness

by J. K. HULME

Director, University of Liverpool Botanic Gardens

THE GARDENS at Ness were founded by the late A. K. Bulley, Esq., and presented to the University by his daughter, Miss A. L. Bulley. The house stands on a sandstone hill commanding views of the Dee Estuary and the hills of North Wales. The hillside was mostly covered with an impenetrable thicket of gorse, broom and bramble, which the Bulley family retained for the cover it provided for badgers and foxes, and shelduck from the Dee Marshes regularly nested in old rabbit holes on parts of the hillside.

The decision to remove the wild vegetation, and so eliminate the problem of further encroachment, was taken in 1958. The first step was dangerously simple ; a match was placed under a gorse bush on a dry day in late winter and the greater part was burned out in less than an afternoon. *x Cupressocyparis leylandii*, planted to screen the entrance to the main badgers' set and with a view to encouraging the badgers to remain, failed to achieve the desired result, for they returned only on rare occasions ; some two years later rabbits had occupied the set and shortly afterwards the sets were filled in.

The soil on the hillside is extremely light, consisting of very little more than fragmented sandstone and, at points, it is only a few inches in depth. Some time elapsed before further development could take place and successive germinations of gorse and broom seedlings were destroyed when only a few inches high. The total area of the west-facing slope is a little over an acre and, in these early days of the establishment of the Botanic Gardens, large stocks of plant material were not available. The area would have to be treated in stages and this proved of considerable benefit in several ways. Reconstruction of the two acre rock garden was in progress and regular winter excavations produced untold supplies of huge irregular blocks of sandstone. In 1959 a trial planting of heathers survived the drought and grew reasonably well. More extensive plantings were planned but various preparations were essential. As much peat as possible was spread on the site, but, where an area of over an acre has to be covered, a vast quantity

is required to give even a relatively light dressing in terms of volume per square yard. With such dry and shallow soil and the site set at such a gradient, irrigation facilities were extremely important. An underground alkathene pipe was laid across the site with taps fitted at intervals to feed oscillating sprayers.

In 1960 about 1,000 heath and heather plants of various types were available in nursery rows and these were set out on the sandy hillside. The site was rather exposed in the early days and at times the north-westerly gales sweeping down the estuary seemed likely to blow the plants right out of the ground. Plantings of birch, conifers and broom cultivars have gradually increased the protection in the area. The original stocks of heather plants were primarily obtained through the kindness of the late Edward Plummer, Esq., who made a very fine heather garden at Fiddleston Lodge, Burton, Wirral, and, later, Mr. D. N. Grindley, who purchased Fiddleston Lodge shortly after the death of Mr. Plummer. We propagated plants of 168 varieties from this source. In each of the winters of 1960-61 and 1962-63 about 6,000 plants were produced. The permanent site was vacant, water was available and, in spring, the rooted cuttings were planted directly into their flowering positions. Planting was carried out to give cover as quickly as possible and with some varieties only 5-6 inches were allowed between the plants. The ground was dressed with approximately 3 ozs. per square yard of John Innes Base Fertilizer and this dressing was repeated in the season before the plants grew into each other. In the first year the plants were set out from 2 or 2½ inch clay pots. The labour involved in collecting and returning pots proved considerable and attempts to knock the plants out of the pots in the nursery led to a certain amount of ball disintegration in transit. Since then compressed peat containers have been used exclusively for rooted cuttings ; this has simplified planting work and has given us confidence in the fact that the plants receive less disturbance when being set out.

The young plants became established surprisingly quickly. Photographs of *Calluna* cultivars in flower eighteen months after being set out as rooted cuttings illustrate the remarkable transformation achieved. Early in September 1964 visitors came in large numbers to see the new heather garden. I was told that one lady had seen the patchwork of colour from across the estuary on the North Wales coast road !

The assets of the site for the development of a heather garden were immense, yet in the early days the eye could take in too much at one glance and so the addition of trees and tall shrubs was urgently

required to provide scale and perspective. Today the appearance of the garden is greatly enhanced by the white trunks of *Betula papyrifera*, *B. ermanii* and *B. mandshurica* var. *szechuanica*, which have grown to reasonable size. *Pinus contorta* and *P. mugo* are now sufficiently large to make a contribution, and prostrate forms of Junipers and *Chamaecyparis* give an interesting variation in texture. *Cytisus x kewensis*, *C. x praecox*, *Cistus laurifolius* and *C. x purpureus* provide colour in early spring and clothe the arid areas of the hillside. In the more favoured situations the dwarf species of *Rhododendron* grow extremely well and flower very freely, and *R. pemakoense*, *R. ciliatum* and *R. impeditum* cover themselves completely with flowers each spring. Generally speaking, we get less severe frosts at Ness than inland districts and many of the tree heaths grow well with us. At the time of writing (mid-February), *Erica x veitchii* is covered with sprays of white flowers which will soon open fully if the weather follows the usual pattern. The best of all the tree heaths for quality of flower is *E. australis*, with its large clear pink flowers borne along the upright shoots. *Erica australis* 'Mr. Robert' has pure white flowers and a limited number of plants of this variety are useful for contrast. *Erica arborea* var. *alpina* makes a considerable contribution with its feathery light green foliage. Several cultivars of *Erica hibernica* (syn. *E. mediterranea*) grow to approximately 4 feet in height at Ness. The principal virtue of the varieties in this group is that they flower in spring when few other heaths are in bloom. The white-flowered forms such as *E. hibernica* var. *alba* and *E. hibernica* 'W. T. Rackliff' make excellent dense hummocks of deep green foliage. One hesitates before comparing forms of *E. hibernica* and certain cultivars of the winter flowering heath, *E. carnea*. Some three years ago an unknown group of people, (no one person could have done so much in the time available), removed several hundred labels from our heather garden and arranged them in a seemingly endless row along the edge of the herbaceous border. Two points arise from this incident ; one is that it is always advisable to have a planting plan, the other that some cultivars, particularly of *E. carnea*, are not sufficiently distinct to warrant separate names. We have found it impossible to restore to the original positions all labels of the cultivars in this group. Similar confusion, I believe, exists with the white forms of *Calluna vulgaris* ; we have found a multiplicity of names and not nearly so many distinct plants. The catalogue compilers struggle on with their descriptions despite the fact that in the end they mean very little when one tries to use them as an aid to identifying plants.

In planting I prefer to concentrate to a certain extent on the varieties that flower simultaneously. The value of this is apparent when applied especially to the winter and spring flowering groups. At the moment we have *Erica carnea* 'Springwood', *E. carnea* 'Springwood Pink' and *E. carnea* 'King George' planted together and I think they look better grouped in this way, than if they were set out as isolated patches of colour. Where many cultivars are grown together I prefer to arrange the outline of each one as irregularly as possible. If only 50 or 100 plants are to be used in a planting scheme I would consider it ideal to select one or two varieties and plant large numbers of these and use only very small numbers of plants of other forms to complement the main plantings and provide continuity of flower. In addition to the cultivars of winter heaths mentioned, *E. carnea* 'Aurea' is worth growing for the combination of bronzy-gold shoots and pink flowers produced in late winter. *Erica carnea* 'Vivellii' is also a very useful plant with its dark tinted leaves and deep pink flowers which are at their peak a short time after other cultivars of this species are past their best. Those already mentioned may be classed as the standard well-tried cultivars, but there are others worth considering. *Erica carnea* 'Eileen Porter', for instance, carries very vivid flowers but in most gardens it literally struggles to keep alive. *Erica x darleyensis* is an excellent plant with a flowering season often extending throughout the winter and into spring. In habit it is more or less intermediate between its parents, *E. carnea* and *E. hibernica*, with perhaps a bias to the former. *Erica x darleyensis* 'George Rendall' is recommended for its deeper coloured flowers, while *E. x darleyensis* 'Arthur Johnson' has longer flowering shoots, and the young growth under good conditions is a pleasing cream tinted with a faint suggestion of pink. Under poor conditions many anxious amateur growers would worry in case some pathogen were responsible for the chlorosis. We have supposedly received, from different sources, three white-flowered cultivars belonging to this group: *E. x darleyensis* 'Alba', *E. x darleyensis* 'Norman Webster', and *E. x darleyensis* 'Silberschmelze'. In fact, we acquired three names and identical plants from each source, the problem now being to establish which of the names was correct, but as a result of trials recently concluded at Wisley these cultivars along with a further white form listed as *E. x darleyensis* 'Knockomie', are now all to be known as *E. x darleyensis* 'Silberschmelze'.

It is an accepted fact that *E. carnea*, *E. hibernica* and their hybrids are more tolerant of soils containing free lime and of heavy soils than

any of the summer flowering heaths. One of the principal assets of our heather garden lies in the fact that the peak display occurs in late summer when many other features are past their best. There is, however, a steady build up throughout the summer ; indeed, certain plants included in the heather garden start to flower in early summer and continue to do so until the frosts come. *Daboecia cantabrica* and its cultivars are prime examples. The leaves of this plant are broader than in any other hardy heath or heather ; the flowers are also large, with an apparently inflated, rounded appearance, and have a constricted opening to the corolla. *Daboecia cantabrica* 'Atropurpurea' has slightly deeper purple flowers than the typical specimen growing wild in the west of Ireland. There is a white cultivar called *D. cantabrica* 'Alba' and also the interesting *D. cantabrica* 'Bicolor'. The latter clearly demonstrates a chimaeral nature in having some flowers entirely pinkish-purple in colour, others completely white, and a whole range of flowers in which both colours are exhibited in distinct zones of varying sizes. In our climate the excellent cultivar *D. cantabrica* 'R. L. Praeger' grows well, the rich pink bells being produced in greater profusion after a mild winter. In severe winters, however, the foliage is prone to browning, but recovery is quite rapid in spring and the distinctive colour of the flowers is worth waiting for—even in 'off' years. *Daboecia cantabrica* (Porter's Form) has darker foliage and short racemes of crimson flowers.

The varieties of the cross-leaved heath, *Erica tetralix*, also start to flower in early summer. *Erica tetralix* var. *alba* 'Mollis' is generally first off the mark with its white flowers held above the silver-grey shoots. This cultivar is worthy of inclusion in the heather garden for its foliage alone. I like the distinctive pale pink flowers of *E. tetralix* 'L. E. Underwood', though it is not nearly as robust in growth as the darker flowered *E. tetralix* 'Con. Underwood'.

The bell-heather, *Erica cinerea*, is represented by many more cultivars. The main cultural requirements of this group are excellent drainage and a good supply of moisture in the season of active growth. When these basic requirements are provided, prolific displays of flower can be expected. In a large collection the white-flowered forms of *E. cinerea* are worth growing for their fresh green foliage, and both *E. cinerea* 'Alba' and *E. cinerea* 'Alba Minor' are represented at Ness. For a display of flowers they are completely out-classed, however, by the white-flowered *E. cinerea* 'Domino', which has dark sepals and foliage, and by *E. cinerea* 'G. Osmond', similar to the former

except for a faint touch of mauve in the corolla. *Erica cinerea* 'Eden Valley', with a combination in flower colour of pale lilac and white, and the more uniformly coloured *E. cinerea* 'Lilacina' are interesting colour variations. I have come to appreciate the soft pink shade of the flowers of *E. cinerea* 'C. G. Best', which compares well with other cultivars. We are assured that our stocks of *E. cinerea* 'P. S. Patrick' are now smothered with self-sown seedlings of a very ordinary form of *E. cinerea*. In our collection the form with the richest red flowers is *E. cinerea* 'Plummer's Seedling'; unfortunately it is not vigorous and cannot be recommended for general planting. *Erica cinerea* 'Joyce Burfitt' bears interesting dark red flowers. For those who wish to provide a vivid display, *E. cinerea* 'Atrorubens' is, in our experience, the best cultivar for the purpose. There are two golden foliage forms in general cultivation: *E. cinerea* 'Golden Drop', slow growing and semi-prostrate with excellent copper-tinted shoots, and *E. cinerea* 'Golden Hue', upright with paler shoots and a decided reluctance to flower. It now appears that one batch at Ness masquerading as 'Golden Hue' is distinctly different, for it has deeper golden shoots than the cultivar we had taken it to be and it flowers much more freely. Given a little time to check names and produce more plants, we may find we can announce the existence of a third form with golden foliage.

Erica vagans is found growing wild on the Lizard peninsula above the basic serpentine rock and one would expect it to tolerate lime. It certainly grows well on our acid soils and several garden varieties are in the top rank. We grow two white-flowered cultivars, *E. vagans* 'St. Keverne' (White Form) and *E. vagans* 'Lyonesse'; the former is dwarfer and more compact and shows off its flowers very well. The pale clear pink flowers of *E. vagans* 'St. Keverne' are most pleasing and I would try to include this cultivar in any planting scheme. The darker *E. vagans* 'Diana Hornibrook' is also worth considering in a select list, as is *E. vagans* 'Mrs. D. F. Maxwell', which has long been acknowledged the best deep coloured variety of the group. The late Mr. Plummer introduced his selected form *E. vagans* 'Fiddleston', described by some as a brighter edition of *E. vagans* 'Mrs. D. F. Maxwell'. Unfortunately we are not in a position to compare the two as the plants we have variously labelled 'Mrs. D. F. Maxwell' and 'Fiddleston' are identical. Like all members of the group it produces attractive fresh green leaves and flower spikes and wet seasons appear to encourage these shoots to elongate more than usual so that the flowering season is prolonged into autumn.

Two forms of *Erica ciliaris* have held a permanent place in our collection. The first of these, *E. ciliaris* 'Aurea', produces vivid golden shoots which can appear excessively bright, while the other cultivar which has persisted with us is the white-flowered *E. ciliaris* 'Sto-borough'. Ten years ago we propagated *E. ciliaris* 'Mrs. C. H. Gill' from Fiddleston Lodge, but unfortunately, after a short time, the plant died. I carried a mental picture of a plant with deep crimson flowers, which would one day be restored to our collection. On seeing the name in a list I marked it and received a plant with much paler flowers and which we grow already as *E.* 'Dawn', a hybrid between *E. ciliaris* and *E. tetralix*. Whether my memory has played a trick or a nurseryman has inadvertently done so is a difficult point to establish.

Other summer flowering heaths we grow include *Erica mackaiana* 'Plena', which in some years produces an encouraging display of pink and pale pink double flowers, but generally it is not a very dependable plant. *E.* 'Gwavas', reputed to be a hybrid between *E. vagans* and a form of *E. tetralix* and *E. x williamsii* (*E. vagans* x *E. tetralix*), are fairly similar with golden-green shoots and pink flowers. One might reasonably describe them as of interest only to collectors. Two taller growing species worthy of inclusion in all but the coldest heather gardens are *Erica umbellata*, which carries its pale lilac flowers above glaucous shoots in early summer, and *E. terminalis*, which produces its pink flowers from mid-summer onwards.

The main flowering season of the Scottish Heather or 'Ling', *Calluna vulgaris*, marks the climax of the display in the heather garden. There are well over one hundred cultivars listed in catalogues, showing considerable variation in foliage and flower colouration and habit of growth. Of the white-flowered forms we grow I will mention only two, *C. vulgaris* 'Alba Plena', which generally has double flowers but may at any time produce single ones, and the upright growing single *C. vulgaris* 'Mair'. Both can be compared favourably with other white callunas in general cultivation. I have yet to see several of the newer ones, which have received awards, grown under the conditions of our site. One of the earliest purple, double-flowered cultivars to bloom is *C. vulgaris* 'Tib'. This is closely followed by *C. vulgaris* 'Mrs. J. H. Hamilton', of semi-prostrate habit and producing fresh green shoots. The clear pink double flowers of this plant are unrivalled by any other in the group. Regrettably it is prone to suffer if conditions are less than ideal and for this reason it must take second place to the other forms. *Calluna vulgaris* 'Ralph Purnell' is another early flowering member of the vulgaris section, and this helps to focus attention on the dense upright spikes of purple single flowers. *Calluna vulgaris*

'Joan Sparkes' has double flowers of pale mauve and has fresh green foliage, but it is outclassed by many modern cultivars. *Calluna vulgaris* 'Mullion' is really quite ordinary in that its flowers and foliage colours are very similar to those of the wild ling. It has, however, proved to be a tough and reliable form with short dense flower spikes. By mid-September several notable double-flowered cultivars hold sway. *Calluna vulgaris* 'County Wicklow' is a very free flowering plant with soft pink double flowers borne along its semi-prostrate shoots. The plant we received as *C. vulgaris* 'Radnor' has very similar flowers to those of *C. vulgaris* 'County Wicklow', but it has a much neater habit of growth, the flowers being densely arranged on a short curving spike. The most famous cultivar of all, *C. vulgaris* 'H. E. Beale', is, in colour, very similar to *C. vulgaris* 'County Wicklow', but in the case of *C. vulgaris* 'H. E. Beale' the double flowers are borne on elongated spikes, especially when the plants are young. The flowers are also long lasting and, in October, as they start to fade, we are very near the end of the flowering season of the ling. Although a superb flowering heather, the foliage of this cultivar is often decidedly dull in late spring. *Calluna vulgaris* 'Peter Sparkes' is a deeper coloured selection from *C. vulgaris* 'H. E. Beale' while *C. vulgaris* 'Elsie Purnell', from the same parent, is paler. *Calluna vulgaris* 'Elsie Purnell' is extremely attractive just before the flowers are fully open, as then the buds show up as silver beads along the stem. There are several cultivars of *C. vulgaris* with crimson-purple flowers, amongst which are 'C. W. Nix', 'Goldsworth Crimson' and 'Alportii'; the last, with more upright growth and prolific flowering quality, is more generally known. Some years ago Mr. M. C. Pratt of Ness Holt gave us cuttings of a spontaneous seedling from his garden which he had labelled 'Dark Seedling'. We have several clumps of this form which is similar to *C. vulgaris* 'Alportii' but has denser spikes of flower which are slightly brighter. The plant is now available from some nurseries under the name *C. vulgaris* 'Darkness'. *Calluna vulgaris* 'Hyemalis' is extremely useful in a mild district as it carries its pale lavender flowers throughout November.

We claim that with average conditions it is possible to find flowers on some heath or heather on every single day of the year. *Calluna vulgaris* 'Hyemalis' is still in flower when the winter heaths start to bloom. There is, of course, in many cases, the additional value of coloured foliage, a fact which can hardly be over-emphasised. Among the cultivars of *C. vulgaris* grown for this purpose are 'Gold Haze',

with white flowers and pale golden foliage which can look rather harsh, 'Beoley Gold' and 'Golden Feather', both of which seem promising. *Calluna vulgaris* 'Searlei Aurea' and 'Ruth Sparkes' grew well with us for several years. The former, however, has suffered badly from browning of the foliage and the latter reverts to green, which quickly results in groups taking on a speckled appearance. *Calluna vulgaris* 'Spitfire' has deeper gold foliage than any of the above-mentioned cultivars, the shoots become bronzed in winter and the flowers are pinkish-purple. We have several copper foliage cultivars, 'Multicolor', a short dumpy plant, often displaying an interesting combination of colours, 'Sunset', similar in colouration to 'Multicolor' but producing many more spreading lateral shoots, and 'Blaze-away'. In our experience, however, the best of all is 'Robert Chapman'; the golden bronze shoots turn to copper bronze when the purple flowers appear, and as winter sets in they change to a glowing copper-red. The colouring is always more vivid on the plants in a more open situation and where there is excellent drainage. Mr. J. W. Sparkes has produced a remarkable range of new varieties and has excelled with the coloured foliage cultivar types, presumably by using the old *C. vulgaris* 'Cuprea' as one of the parents. We would like to have the opportunity to grow one of his very recent raisings named 'Sir John Charrington'. There are several individual plants one might mention, such as the tiny compact *C. vulgaris* 'Foxii Nana', the prostrate 'Sister Anne' with feathery glaucous shoots, and 'Mrs. Pat', which produces delightful pink-tipped shoots. These cultivars are interesting but are not recommended for general planting. The last-named of the group proved to be an excellent plant with us until two years ago when it succumbed to disease; the foliage became discoloured and all attempts at propagation from that time onwards ended in failure. We have managed to obtain a very healthy plant from a nurseryman and we hope we may repeat our previous successes.

The heather garden has certainly proved to be a feature which will flourish with the minimum of attention. Established areas may be described as requiring virtually no weeding. Some labour is necessary for irrigation in dry periods if maximum results are to be obtained. The major requirement is a thorough trimming of all summer and autumn flowering cultivars, an operation we carry out in spring and one which ought never to be neglected. The ling, particularly, becomes disgustingly "leggy" if this practice is omitted even for one season. For quick results close planting is desirable, but with such treatment replanting becomes necessary every eighth or ninth year. However, for the most natural results close planting is essential, and I remain an inveterate "packer" of heathers.

Breakdown of the Seed Distribution

by MARGARET R. ROBERTSON

No, THIS is not news of a disaster. I am hoping, like some of the Sunday press, that a sensational headline will make you read on. The Seed Distribution has not broken down, nor (though there were moments when she nearly could have) has the seed distribution manager. The breakdown is a statistical one, but I am going to burden you with very few figures. I give you only the tale the figures told. If the Seed Distribution satisfies a demand, surely it could satisfy it even better if the seed donors had some clues about what was demanded ?

Here then is an account, thrown at you informally, of the plants most asked for in 1967-68. Some of the choices were obvious, some a little surprising. There was, for example, a steady demand for gentians : but would you have guessed that out of fifty-six kinds a white-flowered species would lead all the blues ? *Gentiana saxosa* headed the gentian popularity poll by an easy margin, with *G. verna* and then *G. bavarica* as next favourites quite some way behind.

My Meconopsis list, in which I took some pride, was, except by one or two specialists, rather poorly patronised. But a Meconopsis had the distinction of being the plant of which I was sent the biggest bulk of seed. For *M. betonicifolia* my scales touched the half-pound mark. Perversely, the Meconopsis you wanted was *M. quintuplinervia*, and I had not half a pound of that.

For lilies the demand, on the whole, was low, except for one or two of the smaller kinds : you wanted *Nomocharis* more than lilies. But you all wanted primulas. How you wanted them ! Top of the poll were those double primroses (demand most pressing from the U.S.A.), followed by *P. reidii* var. *williamsii*, *P. nutans*, a selected form of *P. sieboldii*, *P. rosea* and *P. marginata*. You liked campanulas, giving preference to *C. allionii*, *C. aucheri* and a *C. raineri* hybrid. Among *Edraianthus* the first choice was *E. pumilio*, followed by *E. serpyllifolius*. All *androsaces* were asked for : the top two were *A. ciliata* and *A. imbricata*, with *A. cylindrica* and *A. pyrenaica* bracketed third. I had not quite enough of any of them.

Two plants that were shouted for from every side were cyclamen, in all varieties, and lewisias, with the shout rising to a scream for *L. "Sunset Strain"*. Other gentle creatures for whom the demand far exceeded the supply were soldanellas, hepaticas, schizocodons, ramondas, haberleas and omphalogrammas. I hold out my begging bowl for more of these please !

A set of plants stood out with a quiet, persistent demand that was all their own. Indeed, "set" of plants is inexact, for they were individualists with no common denominator except a certain distinction—and you wanted them : *Kirengeshoma palmata*, *Dierama 'Hermia'*, *Glaucidium palmatum*, the pleiones, *Euryops evansii*, *Rhodohypoxis*, *Raoulia eximia*, *Cyananthus* (all), *Douglasia laevigata*, *Arnebia echioides*, *Eritrichium strictum*, *Sanguinaria canadensis*, *Adonis vernalis*.

There was a steady demand for small shrubs, and even for some that were not so small ; but I do not think you would easily guess what shrub headed the list. It was *Salix reticulata*. Fortunately its collector had been lavish and I was able to supply everybody. The next most sought after shrubs were all the ericaceous tribe, and the demand for small rhododendrons outran the supply. Now, I well know that no one grower is likely to give me half a pound of seed from, say, *Rhododendron ludlowii* or *R. lowndesii* ; but if each of us contributed our speck of dust we might achieve, amongst us, half an ounce. . . . And a half ounce could furnish a great many gardens. So send forward all the small rhododendrons please ! And I want cassiopes and kalmias and leucothoes and leiophyllums and phyllodoces—the lot. I am watching all my own small ericaceous hummocks like a miser. Another shrub I should like more of is *Sorbus reducta*.

If anyone familiar with the Seed Distribution has bothered to read thus far I can imagine them muttering to themselves : "What ails the woman ? She has forgotten to mention the treasures we wanted most of all !" But I have not forgotten. I am shirking. At the names *Calceolaria darwinii* and *Aquilegia jonesii* my typewriter stutters. I grew to dread them. I had so little seed, you see, especially of that much sought after *Aquilegia*, and the demand was so different in kind, so fierce.

There was an awesome uniformity about the lists that began with those two names. They all ran something like this : *Calceolaria darwinii*, *Aquilegia jonesii*, *Claytonia nivalis*, *Dicentra peregrina pusilla*, *Draba mollissima*, *Saponaria x olivana*, *Phyteuma comosum*, *Primula minima* (and perhaps *P. forrestii* and *P. tschuktschorum*), maybe

Campanula waldsteiniana, and certainly anything that was 'very rare in Japan'. . . I grew to know these lists by heart. I wondered if they followed a horticultural fashion book that prescribed what the high class garden would be 'wearing' in 1968. *Calceolaria darwinii* haunted my dreams. *Aquilegia jonesii* nagged in the small hours. I had a nightmare vision of plants as status symbols. Could gardeners, those earthy sons of Adam, simply be—keeping up with the *jonesii*? Perish the thought! So please send me more and more of the 'treasures' and banish my bad dream. They will then, you see, lose their scarcity value, which is surely an empty kind of value anyhow, the least lasting, the most deluding; and when we have made the treasures common we will know their worth.

A treasure can be common and a weed can be a treasure. One day, late last year, I noticed still lingering against a north wall the last handful of blue berries on that lovely, licensed weed, *Tropaeolum speciosum*. So I gathered them and added the name to the seed list just before it went to press. It turned out that across the world *Tropaeolum* is anything but a weed. Overseas members wanted it very much indeed; and I had collected only that handful and missed the main crop. How much else had I missed? How much do others miss? Think about it, seed donors. Can it be partly because of our last minute harvests that spring bloomers, like the soldanellas, are in short supply?

So much for the seeds that were the favourites in the 1967-68 distribution. Let no one think, however, that the seeds I have not mentioned were not asked for, or that I do not want them next year. They were asked for, all right, and I want nearly everything—truly, VERY NEARLY EVERYTHING. Out of 2234 kinds of seed listed, only 165 were not asked for at all.

I am not going to tell you which the 165 unwanted plants were, because they may be the very ones that are wanted next year, but there was one small group of rejects that deserve a special apology. These were the plants whose names carried that unfairly detrimental question mark, or which were labelled with the horrid little spitting word "sp.". Could we not resolve that next year everything will be accurately named and no plant rejected because of a doubt? Let us try, anyhow, and, except when the collection of something new and unnamed justifies the usage, let's spit "sp." right out.

Now, one more glance at those "wanted" and "not wanted" figures, this time the other way round: they look heart-warmingly

different. Out of the 2234 kinds of seed which S.R.G.C. members sent me for distribution, 2069 gave pleasure to some other gardener, somewhere. And it was a very wide somewhere. This makes me happy and should make our seed donors more than a little proud.

Joint Rock Garden Plant Committee

ABERDEEN—9th MAY 1968

AWARDS TO PLANTS

AWARD OF MERIT

To *Viola biflora* as a flowering plant for the rock garden, exhibited by Major and Mrs. W. G. Knox Finlay, Keillour Castle, Methven, Perthshire.

PRELIMINARY COMMENDATION

To *Petrocallis pyrenaica* (white form)*, subject to a cultivar name being given, as a flowering plant for the rock garden and alpine house, exhibited by Messrs. Jack Drake, Inshriach Nursery, Aviemore, Inverness-shire.

AWARDS FOR EXHIBITS

CERTIFICATE OF CULTURAL COMMENDATION

To H. Esslemont, Esq., 9 Forest Road, Aberdeen, for fine pans of *Androsace villosa* var. *arachnoidea* 'Superba' and *Androsace imbricata*.

To J. D. Crosland, Esq., Treetops, Torphins, Aberdeenshire, for well grown plants of *Calypso bulbosa* and a fine plant of *Haastia pulvinaris*.

*Ed. Note :

Petrocallis pyrenaica (white form), as shown at Aberdeen, was a most attractive plant and was admired by all who saw it. A white form, however, has been recorded and described as *P. pyrenaica* var. *leucantha*, and this is no doubt the correct name for the plant shown by Mr. Drake. The reference for this varietal name can be found in Hegi's Flora of Mittel-Europa.

DIONYSIA ARETIOIDES

Dionysia aretioides, syn. *D. demawendica*, was first introduced by Per Wendelbo in 1959.

The plant illustrated (fig. 46) was grown from seed collected by Admiral Furse in the Elburz Mountains near the Caspian Sea, where he states "it was flowering on the cliffs like nuggets of gold".

Dionysia aretioides is one of the easier *Dionysia* species and varies considerably in form.

My plant, now in a 6 in. pan, is one of about a dozen which germinated in 1964 from seed sown the previous November. It has been treated as a crevice plant and at all stages has been kept tightly potted in a mixture containing about 50% soft tufa lumps.

The pot is plunged in sand in a reasonably shaded alpine house and the plant is well watered in summer but kept fairly dry in winter. Under these conditions the species is completely hardy.

In summer it seems to appreciate being exposed to a mild shower which may serve to remind it of its wet and cloudy Caspian home.

Dionysia aretioides received an Award of Merit in 1965.

H. E.

JACK DRAKE

INSHRIACH ALPINE PLANT NURSERY

AVIEMORE, Inverness-shire



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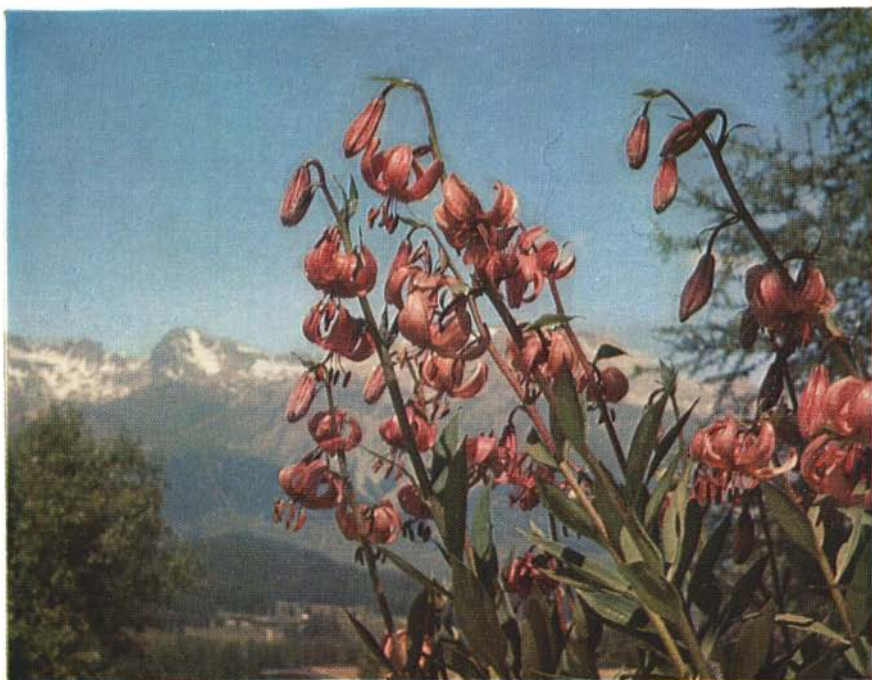


Fig. 26 — Martagon Lilies at Pontresina

Photo — H. Esslemont



Fig. 27 — Geum reptans

Photo — H. Esslemont

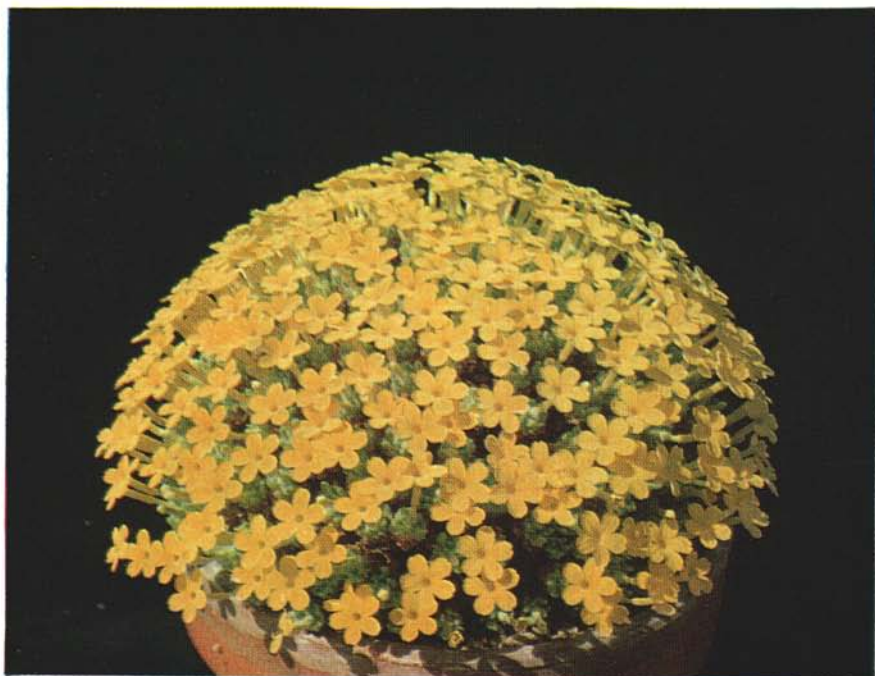


Fig. 46—*Dionysia aretioides*

Photo — H. Esslemont



Fig. 47—*Haberlea rhodopensis*

Photo — A. Evans

Show Reports

ABERDEEN

THE FORREST MEDAL for the most meritorious plant was awarded to *Androsace imbricata* (fig. 42), exhibited by Mr. H. Esslemont. This plant was as near perfect in growth and presentation as the most fastidious critic could desire.

The same high praise might well be extended to the six plants which carried off the Aberdeen Bronze Medal for Mr. Duff of Broughty Ferry. While the individual plants could not be said to be difficult, they were presented at the very peak of condition and were a tribute to the obvious care and attention given them by the grower. They were *Gentiana verna*, *Cassiope* 'Edinburgh', *Glaucidium palmatum*, *Lewisia heckneri*, *Cassiope* 'Clara Muirhead' and *Lewisia cotyledon*. Among J. Crosland's six plants, which took second place, were *Calypso bulbosa*, *Trillium rivale* and *Paraquilegia grandiflora* var. *alba*. Mr. Esslemont, whose plants were placed third, exhibited outstanding examples of *Rhododendron* 'Chikor' and *Androsace arachnoidea* var. *superba*, this latter variety securing a Cultural Commendation when placed before the Joint Awards Committee. Class II, which was for three pans of rock plants, was won by Mr. Esslemont and included in his entry were the Forrest Medal-winning *Androsace imbricata*, a minute, extremely well flowered form of *Cassiope lycopodioides*, and a white-flowered *Lewisia* which we look forward to seeing when it is more mature.

Further along the same show bench were quite outstanding examples of pot culture in the form of cushion plants. Included amongst these were *Draba mollissima*, *Raoulia eximea* and *Dionysia diapensifolia* which, when older and larger, will undoubtedly make a rich contribution to this genus.

To illustrate the measure of the entries a Cultural Commendation was awarded to J. Crosland for *Haastia pulvinaris*, despite the fact that an admittedly small but very healthy *Raoulia eximea*, exhibited by one of the youngest competitors, Miss Brenda Gibson, was also competing. It seems only a few short years ago that the mere mention of the name of this *Raoulia* was sufficient to make the stoutest heart quail.

The standard was maintained as one proceeded around the show and other praiseworthy plants noted were *Primula aureata*, exhibited by Mrs. Dyas, and a Soldanella by Mr. Esslemont. Pleiones were much in evidence and excellent examples of *P. formosana*, its forms, and *P. limprichtii* were on view. In spite of the cold and frosty weather immediately preceding the Show, some very good miniature rhododendrons were shown. These included *Rh.* 'Chikor', *Rh. sargentianum*, *Rh.* 'Scarlet Wonder' and *Rh.* 'Elizabeth'.

The keen plantsman could not fail to note and appreciate the fine specimens of *Kalmiopsis leachiana*, *Harrimanella stelleriana*, the true *Anchusa caespitosa*, *Helichrysum coralloides* and *Lithospermum oleifolium*, and altogether one felt the three judges—Messrs. R. S. Master-ton, A. Duguid and A. Evans—had quite a task to separate and place in order of merit the many fine plants shown.

Our friends in the trade were not outshone, however, and some very well arranged stands and fine plants were noted. These brought recognition to their owners in the form of Large Gold Medals awarded to Messrs. Jack Drake of Inshriach and Miss Izat of Grovemount, Auchterarder. The former also secured a Preliminary Commendation from the Joint Awards Committee for an interesting white form of *Petrocallis pyrenaica*. As always, Edrom Nurseries and Mrs. McMurtree had very interesting exhibits.

At this Show we have always enjoyed the support of the Cruickshank Botanic Garden and their display of interesting plants gained for them a Certificate of Merit. Two plants in particular aroused a great deal of interest and these were *Celmisia webbii* and *Weldenia candida*; the latter appears to have been missing from the show benches for some time.

In addition to the plants already mentioned which gained awards when submitted to the Joint Awards Committee, a very fine example of *Viola biflora* (fig. 43), put forward by Mrs. M. Knox Finlay of Keillour Castle, received an Award of Merit.

One could not conclude a report on the Show without congratulating the Show Secretary, Mr. J. Pole, for the excellence of his arrangements, together with his willing band of helpers, and our thanks are also due to Mr. Welch, Director of Parks, Aberdeen, who with a brightly worded speech declared the Show open and presented the prizes.

The Show was held on 9th May 1968.

A. D. REID

DUMFRIES

THE SHOW was held at the usual venue, the Y.M.C.A. Hall, Castle Street, on 3rd and 4th May, after a season not too favourable for our early Show.

We were fortunate in having a good number of entries, although the figure was almost one hundred exhibits below that of our average. Most of the primulas and saxifragas had finished flowering and very few of either were exhibited.

The weather was mostly inclement ; it rained all day Friday, which considerably affected the attendance. Conditions on the second day were much better ; a record gate was registered and the hall was crowded for most of the time. The trade stands reported good business.

Miss E. H. King, Dr. Mavis Paton and Mr. Malcolm McDonald were the judges and their awards were well received by the exhibitors.

Visitors from outside the county have often commented on the friendly atmosphere at Dumfries and this Show was no exception. We were delighted to welcome among our visitors our townsman Dr. James Davidson and Mrs. Davidson, Mr. H. H. Davidian, Dr. Henry Tod, and Mr. David Elder, our Honorary Treasurer.

The Premier Trophies were awarded in the following manner :—

The George Forrest Medal went to *Cassiope wardii*, shown by Mrs. C. M. Clark, Mainsriddle, Dumfries.

The George F. Hutchinson Prize, awarded to the runner-up to the Forrest Medal plant, was given to *Armeria caespitosa*, shown by William McGinley, Esq., Dumfries.

The Walmsley Challenge Trophy, awarded to the winner of Class I for three pans of rock plants of different genera, was won by Mr. Alec Todd, Bearsden, for *Boykinia jamesii*, *Primula reidii* var. *williamsii* and a *Pleione* which has long been grown under the name of *P. pricei*.

The Summerville Trophy for the exhibitor gaining most points in Section I went to Mr. Norman M. Brown.

A yellow Polyanthus exhibited by Miss E. M. Templeton, Dumfries, was voted the best plant in Section II and received the Lewis Challenge Cup. Miss Templeton also won the Club Bronze Medal by collecting most points in Section II.

Certificates of Merit were awarded to Major and Mrs. Walmsley, Garlieston, for *x Phyllothamnus erectus*, Mrs. Ellison Clark for *Corydalis cashmeriana*, the Crichton Royal for an unidentified species of

Rhododendron, and Messrs. Ponton for a *Lewisia cotyledon* hybrid.

A Large Gold Medal was awarded to Messrs. Ponton for a display of rock garden plants in pots and a Gold Medal to Messrs. Longmuir & Adamson for a collection of shrubs.

The general high quality of the plants exhibited was a tribute to our local members. Class I for the Walmsley Cup went to Mr. Alec Todd, Bearsden. One of his plants, *Boykinia jamesii*, so seldom seen at our Shows, was particularly good and attracted much attention and comment. Second in this class was Mr. William McGinley, Dumfries, and third Mrs. S. Maule, Edinburgh. Class 2 was won by Mrs. Maule with *Calypso bulbosa*, very well presented in an attractive setting. Second prize went to Mr. Norman Brown for *Glaucidium palmatum* and third to Mrs. Ellison Clark for *Brachycome nivalis* var. *alpina*.

A well contested class for three easy plants was won by John Henderson, Esq., Dumfries, for *Cassiope lycopodioides*, *Primula* 'Rufus' and *Trillium grandiflorum*. Cushion plants were few and the class was won by *Draba rigida*, shown by Mr. William McGinley. As mentioned earlier, primulas and saxifragas were scarce. Amongst the Asiatic primulas shown were *P. aureata* and *P. chionantha*, while the European primulas included *P.* 'Linda Pope', *P.* 'Rufus' and *P. auricula*.

Anemones and dwarf bulbs were not in great quantity, but good specimens of *Anemone vernalis*, *Fritillaria kurdica* and *Triteleia uniflora* were displayed. The class for lewisias contained a larger number of entries and was of a high standard. Miss M. Rogerson, Dumfries, who was competing in Section I for the first time, took first place. She showed an excellent specimen of *Lewisia brachycalyx*. Sempervivums and sedums reached the high standard of previous Shows and the competition was such that the judges had difficulty in selecting the prize winners. A splendid pan of *Sedum dasyphyllum* in superb condition was shown by Mr. W. McGinley.

The collection of rhododendrons was the outstanding feature of the Show. The three pan class was won by Major and Mrs. Walmsley for *R. chamae-thomsonii*, *R. imperator* and *R. pumilum*; the two pan class by Mrs. Margaret Clark for *R.* 'Carmen' and *R. racemosum*, and the single pan class by Mr. Norman Brown for *R. chamae-thomsonii*. A particularly good plant of *R.* 'Elizabeth' was shown by Mrs. H. Drummond.

Shrubs and ericaceous plants were again a great attraction. The following plants especially were observed: *Daphne retusa*, the very lovely *D. collina*, *Cyathodes colensoi*, *Berberis thunbergii* 'Atropurpurea

Nana', *Polygala chamaebuxus* and *P. rhodoptera*, *Salix wehrhahnii*, *x Phyllothamnus erectus*, *Arcterica nana*, *Kalmiopsis leachiana*, *Gaylussacia brachycera*, *Pernettya tasmanica* and *Cassiope* 'Clara Muir-head', *C. wardii* and *C. selaginoides*. The *Cassiope wardii* was well grown and had exceptionally large flowers. The display of conifers was of a high standard.

Other plants noted in Section I included *Jeffersonia dubia*, *Draba mollissima*, *Orobus vernus*, *Iberis* 'Little Gem', *Schizocodon soldanelloides* var. *magnus* (Syn. *S. macrophyllus*), *Helichrysum coralloides* and *Plantago nivalis*.

In Section II competition was mainly between Miss E. M. Templeton, Dumfries, and Mr. P. Cooney, a welcome newcomer to our Club and Show; Miss Templeton won the Lewis Cup and Club Bronze Medal by a small margin.

The Crichton Royal staged an exhibit of high standard and included were plants of *Haberlea rhodopensis*, *Ramonda myconii*, both of which they grow exceptionally well, *Primula* 'The General', *P.* 'Broadwell Gold', *P.* 'Rufus' and *P.* Crichton Hall', a very fine seedling raised in the garden.

In a colourful display of shrubs, Messrs. Longmuir & Adamson showed *Cedrus atlantica* 'Glauc', various Clematis, *Magnolia stellata*, *Fothergilla monticola*, *Pieris forrestii* 'Wakehurst' and *Rhododendron* 'Baden Baden'. An interesting stand of rock garden plants arranged by John Ponton included many well-flowered plants of *Rhododendron haematodes*, *R.* 'Carmen' and the yellow *R.* 'Cowslip'. They attracted much attention. Also shown were *Rhododendron sanguineum*, *R. dasypetalum*, *R. racemosum*, *Fritillaria meleagris*, *F. assyriaca* and *Tulipa aucheri*.

Finally, the Show Secretary would like to express his thanks to the exhibitors, judges, nurserymen and members of the staff at Crichton Royal, also to the Show Committee and helpers who contributed towards another successful Show.

NORMAN R. BROWN

DUNFERMLINE

THE CLUB SHOW at Dunfermline on 24th and 25th May showed the effects of the hard, long-drawn-out spring by a decided thinness in parts of the show bench, particularly in Section II. Nevertheless, some excellent and very interesting plants were on view, and the fact

that four species of *Omphalogramma* were displayed in close proximity was especially interesting. The premier award, the George Forrest Medal, went to an outstanding 20 inch diameter plant of *Rhododendron yakusimanum*, which, along with *Omphalogramma elegans* and *Gentiana acaulis*, comprised Mr. A. Reid's winning entry in Class 1. Mr. H. Esslemont came second with *Asperula arcadiensis*, *Androsace ciliata*, and an unnamed *Rhododendron*, while Mrs. Maule took third place with an entry which included *Omphalogramma souliei*, *Phlox triovulata*, and a *Cassiope*.

In Class 2, *Omphalogramma vinciflora*, shown by Mr. A. Reid, was placed third to *Iris acutiloba*, exhibited by Mr. J. Crosland, and *Fritillaria recurva* by Mrs. Maule. Two very showy lewisias—one *L.* 'Marcel le Piniec' by Mr. Esslemont, and another by Mr. D. Elder—were first and second respectively in Class 8. Class 10 provided an array of sempervivums all of which were excellent, first place being awarded to the entry of Mr. and Mrs. R. Baillie, closely followed by that of Mrs. Niven. First and second in Class 14 went to two *Celmisia*s—*C. ramulosa* and *C. spectabilis*—shown by Mrs. A. Wilson and Mrs. Murdoch.

Kalmiopsis leachiana 'Umpqua', shown by Mr. Esslemont, was first in Class 15. *Oxalis* spp. took the awards in Class 16 with *Oo. patagonica*, *adenophylla* 'Rosea' and *oregana*, the last making a surprisingly neat and floriferous pot plant. A nice plant of *Verbascum dumulosum* was in Class 19 and *Celmisia ramulosa* and *C. hectorii* in Class 20. As is usual at Dunfermline, Class 21 was strongly contested, but an excellent specimen of *Abies balsamea* 'Hudsonia' was placed first.

Other interesting plants noted were *Gaultheria procumbens* in good fruit shown by Miss Thomson, a nice pot of *Fritillaria recurva* shown by Mrs. Maule, a pan of *Pinguicula grandiflora*, a *Tsusiophyllum tanakae* and an excellent, large pan of the old and well-known *Cytisus ardoinii* grown as a very close and compact plant in full bloom. The cactus class again provided some superior and colourful plants, as did the succulent class which followed. In Section IV Classes 49 and 50 were hotly contested, with 18 pans in 49 and 7 in 50—and all of them good.

Apart from the occasional shortage of entries in certain classes, it was altogether an admirable Show and reflected great credit on Mrs. Wilson and her helpers, to whom all Club members are indebted.

J. L. M.

EDINBURGH

THIS YEAR the Show was held in the Assembly Hall of the Napier Technical College, Colinton Road, on 16th and 17th April. It coincided with a rather cold spell of weather. The hall was a very satisfactory one in that natural daylight was adequate for most of the time and artificial lighting, which was excellent, meant a considerable economy in Show expenses as no supplementary light fittings were needed.

The number of entries were down considerably, but that was to be expected, for not only had we experienced a long, hard winter, but there had been a very severe spell of weather shortly before the Show. In particular the entries in Section II were seriously reduced.

The Forrest Medal was awarded to *Primula* 'Linda Pope' (fig. 44), shown by Mr. J. B. Duff, Broughty Ferry, who also won the K. C. Corsar Trophy with a most notable group of six plants. These were : *Primula rosea*, *Primula* 'Linda Pope', *Androsace imbricata*, *Draba mollissima*, *Rhodothamnus chamaecistus* and *Pulsatilla vernalis*. Mr. Duff's *Primula rosea* also won the R. E. Cooper Bhutan Drinking Cup for the best *Primula* species in the Show.

The Carnethy Medal was won by Mr. H. Esslemont, Aberdeen, with *Androsace ciliata*, *Draba mollissima* and a new pink colour-variant of *Wulfenia* still under an A.C.W. number ; he also won the A. O. Curle Memorial Trophy awarded for three pans of rock plants raised from seed sown by the exhibitor. These plants were *Saxifraga florulenta*, *Androsace helvetica* and *Saxifraga demnatensis*. The Elsie Harvey Trophy was won by Mr. J. D. Crosland, Torphins, with three plants which were classed as "new, rare or difficult" and were *Haastia pulvinaris*, *Raoulia eximea* and *R. mammillaris*.

The Reid Rose Bowl for the highest number of points in Section I was awarded to Mrs. B. B. Cormack, which also meant that she received the Special Bronze Medal for most points gained by a member resident in Edinburgh. In addition, Mrs. Cormack won the Kilbryde Cup for her floral arrangement, which was of a very high standard. The Boonslie Cup went to Mrs. J. S. Aitchison for her extremely well-designed miniature garden.

There was quite a large number of primulas entered in the Show, some of which were exceptionally well grown, as also were the Narcissus species scheduled as suitable for the rock garden. The dwarf rhododendrons were not in such large numbers as usual, but this was

probably due to the severe frosts and lack of sun prior to the Show ; those that were shown were in very good condition.

There was a large entry of dwarf conifers on display (fig. 45) in all classes open to them and in most cases they were in excellent condition. While on the subject of conifers, there was a most outstanding non-competitive exhibit of them at the Show. This consisted of nearly forty specimens of diverse shapes and sizes and was staged by Mrs. J. G. Neilson of Lady Road, Edinburgh. One of the plants in this exhibit won an award when it was first shown by Mrs. Neilson at Vincent Square thirty-seven years ago. The quality of these conifers was very good and some of them are rarely seen on the show bench. This comprehensive display was arranged as a final major effort to illustrate how varied and fascinating dwarf conifers can be, and thanks were certainly due to Mrs. Neilson. The Special Silver Medal presented to her for the display was well deserved.

There was a considerable number of pans of *Sedum* and *Sempervivum*, most of which were of good quality and one or two of them, slowly increasing each year, give promise of some very large exhibits in the future.

The Trade was not fully represented this year as some nurserymen were unable to be at the Show. Miss Izat of Grovemount Nursery, Auchterarder, received a Large Gold Medal for her exhibit, and Mr. Ponton a Gold Medal for his. Both had some very interesting plants to attract Show visitors.

On the evening of the Tuesday a very interesting and comprehensive lecture was given by Dr. Tod using plants from the show benches to illustrate his talk.

The move to the Napier College proved a big success and most of the visitors expressed their appreciation of the change. It is hoped that in time this Show will become larger and less expensive to run in its new hall. This year, possibly since it was the first Show in the new venue, the drawings were similar to those normally taken at the Music Hall. The overheads at the Napier College, however, are very much lower and it is hoped that, in time, it will prove to be the best move that could have been made.

Of course, there were the inevitable teething troubles, but these were relatively minor ones, quickly overcome. Apart from these irritations this new hall is an ideal place in which to hold the Show.

M. M. W. McLEOD

GLASGOW

THE SHOW was held in the McLellan Galleries on 9th and 10th April 1968. The weather in the weeks preceding the Show had been cold and wet and, to make matters worse, there had also been sharp frost on several mornings. These adverse weather conditions were reflected in a reduced number of entries and once again the Rhododendron section had to be cancelled completely. However, those plants which did reach the show bench were of good quality and the floral art section was well contested with a number of artistic and original arrangements.

Mr. John B. Duff, Broughty Ferry, won the Dr. William Buchanan Memorial Rose Bowl and Silver Medal with six well balanced rock plants. His *Pulsatilla vernalis* with some twenty-six blooms was outstanding and was awarded a well deserved Certificate of Merit. The hybrid European *Primula x marven* was also in good order, showing its dark violet flowers with a pronounced white eye to advantage over its silvery leaves. This *Primula* is not seen very often these days, which is surprising, as it does well in pots or in the rock garden in a rich vegetable soil. The so-called hardy orchid *Pleione pricei* was well flowered and well presented, as was *Draba mollissima*. Both of these plants are the better of alpine house or frame protection ; indeed, it is unlikely that the former would survive our winters out of doors although it will survive some frost if in a dry state. The latter resents persistent moisture on its little woolly rosettes of leaves.

Mr. Duff also took first prize and the Henry Archibald Challenge Rose Bowl for three pans of rock plants. His best plant here was a hybrid saxifrage of the Engleria Section, *S. x chrystalae*, which had many silvery rosettes of leaves and an abundance of flowering spikes not unlike those produced by one of its parents, *S. grisebachii*. *Saxifraga x chrystalae* was also honoured by the award of a Certificate of Merit. His other two plants, also in excellent condition and well flowered, were *Primula marginata* 'Beatrice' and *Draba polytricha*, which because of its hairy rosettes needs the protection of an alpine house in winter, if indeed not all the year round. Mr. and Mrs. Alec Todd, Bearsden, were placed second. Two of their plants deserve special mention. *Primula* 'Linda Pope', the well-known European hybrid, was a striking plant with its large silvery leaves and many beautifully symmetrical lavender flowers. *Rhododendron cephalanthum* var. *crebreflorum*, a good dwarf for the rock garden, was making one

of its rare appearances on the show bench. The form shown had little clusters of daphne-like pale pink flowers. My own specimen of this variety has flowers that are almost white.

The William C. Buchanan Challenge Cup for three pans of rock plants rare, new or difficult in cultivation, was won by Mr. Harold Esslemont, Aberdeen. Two of his plants were up to the very high standard which he has set over a good number of years now. The comparatively new *Dionysia aretioides* (syn. *D. demawendica*) (fig. 46), absolutely covered with clear yellow flowers, was awarded the George Forrest Memorial Medal as the most meritorious plant in the Show. Not far behind was *Paraquilegia grandiflora*, a seedling from one of the large plants which grew at Branklyn, Perthshire, to which the Judges gave, very rightly, a Certificate of Merit.

The class for one pan of rock plant rare, new or difficult, brought together an interesting collection. *Fritillaria michaelovskii*, brown flowers with yellow tips, took the red ticket for Mr. Esslemont. Mr. Jack Crosland, Torphins, gained second prize with a fine small plant of the New Zealand vegetable sheep, *Raoulia eximea*. Some of the plants of this species at earlier Shows have been doubtfully alive, but Mr. Crosland's specimen was very much alive, the little grey-green cushion glowing with health and demonstrating once again the skill of this exhibitor. Mr. and Mrs. Alec Todd were third with a good young plant of *Cassiope* 'Medusa', which may have been making its first appearance at one of our Shows. This is a hybrid which was given to the late Mr. Willie Buchanan by that great English plantsman, Mr. E. B. Anderson. My own plant of *C.* 'Medusa' is peculiar in that every year the normally white flower bells are tinged or tipped reddish-pink. What the reason is I do not know, but this characteristic is evident on plants raised vegetatively from it and grown in pots.

Another New Zealander, *Raoulia mammillaris*, shown by Mr. J. B. Duff, was judged to be the best plant with silver-grey foliage. Two others from the same country, *Leucogenes grandiceps* and *L. leontopodium*, also in top condition, were second and third for Mrs. Ellison Clark, Kirkgunzeon, and Mrs. May Lunn, Drymen, respectively. Mr. Duff was also a first prize winner in the class for a cushion plant with *Gypsophila aretioides*, which forms a green hard mound not very cushion-like to the touch but having the right shape. Mr. Neil Morris, Port Glasgow, was second with *Draba bryoides* var. *imbricata*, which had also the right shape but is soft and yielding to the touch.

Mrs. May Lunn was successful with two well known saxifragas,

S. grisebachii (Wisley Form) with its bold silver rosettes and reddish arching flower stems, always much admired, and *S. x irvingii*, a green cushion with small attractive pink flowers, a good beginner's plant. Mrs. K. M. Reed, Symington, was second with *S. x chrystaleae* and *S. x myra* 'Cambria' which has large reddish-pink flowers and which makes a good companion for the older and better known *S. 'Cranbourne'*.

In the class for one pan Saxifraga Mr. J. B. Duff was first with what I thought was one of the best-grown saxifragas I have ever seen. It was a large, beautifully flowered specimen of the Engleria hybrid *S. 'Bridget'*, which has silvery leaf rosettes almost as large and decorative as one of its parents, *S. stribnyi*, but it is much more generous with its pale pink flowers on crimson stems. This hybrid flowers over a long period and is therefore very desirable. The second and third prizes went to Mrs. Lunn and Mr. Neil Morris, who both showed that excellent yellow hybrid raised in Scotland many years ago, *S. 'Faldonside'*. It gives me great pleasure to record that Mr. and Mrs. Edward Darling, Port Glasgow, were first with three Asiatic primulas of the Petiolarid Section, all well grown and flowered. They were the hybrid *P. x scapeosa* and the two species *P. gracilipes* and *P. petiolaris*. All three were free flowering but they require a little special attention. The soil must be well drained and yet contain a good proportion of peat or leaf mould. During the summer they appreciate partial shade and in hot weather they are the better of a light spray of water, morning and evening.

The well-known and well-loved Himalayan *Primula rosea*, which relishes dampish conditions, won for Mr. Neil Morris and *P. gracilipes* was second for Mr. Robert Easton, Greenock. The writer came third with the comparatively new *P. warshenewskiana* with pink flowers. It lies, in a way, intermediate between *P. rosea* and *P. clarkei* and requires similar treatment. The name is off-putting, but it is a good plant both for the garden and the show bench. It increases quite rapidly by underground stolons.

Mr. and Mrs. Darling came out tops, too, with three pans of European primulas. Here they showed the large blue-flowered *P. 'Hyacinthia'* (not to be confused with the Asiatic *P. hyacinthina*), *P. 'Linda Pope'* and the self coloured purply-blue *P. 'Freedom'*. Mr. Neil Morris was second with the old favourite *P. x pubescens* 'Mrs. J. H. Wilson'. a plum-red form of *P. rubra*, and the species *P. frondosa*, a stronger growing version of *P. farinosa* which is still to be found wild in Yorkshire but, alas, no longer in Scotland.

In the two pan class for European primulas Mr. J. B. Duff was first with a fine specimen of *P. auricula* var. *balbisii* with bold yellow flowers nicely set off by a white eye, and *P. x pubescens* 'Mrs. J. H. Wilson'. The writer was second with *P. 'Dianne'*, a dainty hybrid from *P. x forsteri*, with large crimson flowers, which was raised and introduced by Jack Drake, Inshriach Alpine Plant Nursery, Aviemore, and *P. 'Barbara Barker'*, an excellent offspring from *P. 'Linda Pope'* with the same kind of large, beautifully symmetrical flowers, but without the meal on its leaves.

A superb plant of *Primula allionii* in a twelve-inch pan was judged to be the best single exhibit of European primulas and was also awarded a Certificate of Merit, which must have given great satisfaction to its owner, Mr. Harold Esslemont, who had obviously over many years given it the detailed care and attention which this species demands. A collected plant of *P. rubra* in good flower was second for the writer. Cyclamen were not forward in great numbers, but the winning pan of *C. coum* var. *album* shown by Mr. and Mrs. Edward Darling was fit to be seen in any company. This is a long-flowering species and its flowers are enhanced by dark green leaves slightly marbled white. Androsaces were in good order and Mr. J. B. Duff was just that little bit better with *A. pyrenaica* and *A. imbricata* than Mr. Jack Crosland, who showed *A. ciliata* and *A. hedraeantha*. All four plants demonstrated the skill of their owners and the necessity for alpine house culture for these rather difficult subjects.

The class for one pan of Ranunculaceae produced a variety of genera. Mr. Jack Crosland was declared the winner with *Hepatica media* 'Ballardii', closely followed by Dr. M. E. Gibson's *Pulsatilla vernalis*. Mrs. Ellison Clark was third with a good plant of *Ranunculus calandrinoides*.

Mrs. E. W. Maclean, Bearsden, had a field day in the classes for bulbous plants for the rock garden, taking five first prizes. Amongst those noted particularly were *Narcissus minor*, *N. triandrus* var. *loiseleurii*, and *N. 'Little Beauty'* and *Tulipa kaufmanniana*, *T. urumiensis* and *T. tarda*. In these classes Mr. Crosland showed a *Narcissus* which the writer had not seen before and which created very considerable interest. It was *N. bulbocodium* subsp. *albidus* var. *zaianicus*, with small white flowers and very prominent protruding stamens. Dr. Gibson had to be content with a second for a very good pan of the dainty little *N. rupicola*. Mr. Robert Easton, Greenock, prevented Mrs. Maclean from making a clean sweep by taking first with an excellent pan of the blue *Anemone blanda*, which is a good beginner's plant.

Mr. Easton won all three classes for sedums with plants which were well grown, well coloured and neatly presented. Amongst those he showed were *S. spathulifolium* 'Capablanca' and *S. spathulifolium* 'Purpureum', *S. dasyphyllum* and *S. oreganum*.

The three pan class for sempervivums was won by Mrs. May Lunn with *S. calcareum* 'Mrs. Guiseppi', *S.* 'Reginald Malby' and *S. arachnoideum* var. *tomentosum* (*S. laggeri*), and Mr. and Mrs. Alec Todd were second with *S. calcareum* 'Monstrosum' (*S. persicum*), *S.* 'Reginald Malby', and the cultivar with larged red, green-tipped leaves, *S.* 'Commander Hay'.

The very small *S. arachnoideum* var. *minor* collected at Verbier, Switzerland, was first in the one pan class for the writer.

Outside, rhododendrons had taken a beating from late frosts, but those on show were reasonably good. Dr. L. M. Dean took first prize with the old well-trying species *R. pemakoense*, the writer was second with the hybrid *R. repens* x 'Earl of Athlone', whose crimson flowers clearly show the *R. repens* blood in it. Mr. B. Kos was third with the well-trying and trusty *R. ciliatum*.

Cassiope, although small, were well flowered. Dr. Norman Holgate, Bearsden, showed in his first prize pair *C. wardii*, still scarce and not the easiest, and *C. mertensiana* var. *gracilis*. The hybrid *C.* 'Bearsden', raised by the late Mr. W. C. Buchanan, was adjudged first in the single pan class. Other plants to gain prizes in the Ericaceae classes were *Erica* x *darleyensis* 'Silberschmelze' and *Cassiope lycopodioides* (Mrs. May Lunn), and the sweetly scented *Arcterica nana* (Mrs. Reid).

The classes for dwarf conifers were hotly contested as usual. The red tickets here went to Mrs. May Lunn, our hard working efficient secretary Miss Margaret Thomson, and Mrs. E. W. Maclean. Second prizes went to Miss Thomson, Dr. Holgate and the writer. Specimens particularly noted were *Cedrus libani* 'Pendula Sargentii', *Picea mariana* 'Nana', *Abies balsamea* forma *hudsonia*, *Chamaecyparis obtusa* 'Nana Gracilis'. *C. obtusa* 'Hypnoides' and *C. obtusa* 'Caespitosa'.

Mrs. C. M. Clark had two first prizes with the fine little shrub *Polygala vayredae*, which has purple and yellow pea flowers, and *Polygonum tenuicaule*, well covered with spikes of white flowers, heath-like in appearance. The so-called hardy orchids were in good order, although not forward in great numbers. Mrs. May Lunn won the single pan class with *Pleione limprichtii* and Mr. W. McMillan the two pan class with *P. pricei* and *P. formosanum*.

The Crawford Silver Challenge Cup for most first prizes in Section I was won by Mr. Robert Easton by a very narrow margin from Mrs. E. W. Maclean.

In Section II for the less experienced exhibitor, Mr. and Mrs. W. Scott, Eaglesham, showed many fine plants which would not have been disgraced in the senior section, and it was no surprise that they won easily the James A. Wilson Trophy and the Bronze Medal for most points in the Section. Noted particularly amongst their exhibits were *Cassiope* 'Medusa', a hybrid to which I referred earlier in this report, *Chamaecyparis obtusa* 'Nana Kosteri', *Sedum spathulifolium* 'Capablanca', a large and well grown plant, *Narcissus minor* and *N. nanus*, *Iris reticulata* 'J. S. Dijt. (a very fine pan of this variety with deep reddish-purple flowers and yellow markings on the falls) and *Phyllodoce caerulea*. Other first prize winners who showed plants of note in this section were Mr. G. C. Small (*Saxifraga oppositifolia* and *Abies balsamea* forma *hudsonia*), Mr. Ronald Jewer (*Primula* 'Linda Pope' and *Rhododendron cephalanthum* var. *crebreflorum*), Mr. A. L. Macbeth (*Primula rosea*), Mrs. K. M. Reed (*Saxifraga x jenkinsae*) and Mr. W. L. Morton (*Erythronium dens-canis*).

We were again indebted to the Trade for fine exhibits and it is worth recording that their efforts were rewarded by good business. Miss J. G. M. Izat, Grovemount Alpine Nursery, Auchterarder, was awarded a Large Gold Medal for a built-up stand. Her construction was very pleasing to the eye and she had used a fine plant of *Salix wehrhahnii* as a crowning piece to the exhibit with great effect. Miss Izatt had a fine variety of plants, too numerous to mention in detail, but those noted particularly were *Hyacinthus azureus*, *Rhododendron* 'Gertrude', *R.* 'Elizabeth' and *R. pemakoense*, *Cyclamen coum* and *C. coum* var. *album*, *Saxifraga grisebachii* 'Wisley Form' and *S.* 'Boston Spa', lewisias in variety, *Tulipa violacea*, and the little pink daisy, *Bellis* 'Dresden China'.

Mr. J. R. Ponton, The Gardens, Kirknewton, had a fine stand of plants which maintained the very high standard we have come to expect from his firm and was awarded a Gold Medal. He used rhododendrons effectively and noted amongst them were *R. imperator*, *R. hanceanum*, well covered with its yellow blossoms, *R.* 'Pink Drift', a free flowering hybrid not seen as often as it should, and *R. keleticum*. Mr. Ponton also had an Azalea 'Vuyk's Scarlet' which evoked much admiration. Bulbs were prominent and among them were *Tulipa turkestanica* and *T. kaufmanniana* 'Ancilla', *Narcissus bulbocodium*

var. *tenuifolius* and *Muscari tubergenianum*. Other plants of special note were *Cassiope lycopodioides*, *Pleione formosanum* and *Erica x darleyensis* 'Arthur Johnson'.

Alpine House, Main Street, Bridgeton, Glasgow, had a stand at this Show for the first time and it is hoped that they will return. They had a fine range of conifers and a good selection of made-up troughs. Primulas for the rock garden predominated and amongst those noted were *P. x forsteri*, *P. x bilekii*, *P.* 'Linda Pope', *P. farinosa* and *P.* 'Freedom'. *Pulsatilla vulgaris* and *Sempervivum* 'Reginald Malby' were also noted. Alpine House also showed a good selection of cacti which were of interest to a growing number of members who cultivate these most intriguing subjects.

The Floral Art Section was well supported and there were many original creations which caused much talk amongst the ladies.

Our warmest thanks are due again to Glasgow Corporation Parks Department for a very fine general display of pot plants from Queen's Park and a most interesting well grown collection of orchids from the Botanic Garden.

We welcomed, too, the return of our friends of the Scottish Orchid Society, who brought along a really wonderful collection of exotic plants beautifully flowered. The Society's stand has become quite a feature of the Show and we hope that their efforts will result in their work becoming known to a wider public and lead to an increase in their membership.

D. L.

PENICUIK

THE FIFTEENTH Penicuik Show was held in the Eastfield School Hall, and for once it was a mild, sunny day. As the winter, in Midlothian and Peeblesshire at any rate, had been prolonged, entries for Section II were regrettably few, but the number of entries in Section I reached their highest level, and this year there were some entries in the Junior Section.

Mr. J. B. Duff of Broughty Ferry fairly swept the boards, his *Saxifraga x jenkinsae* being awarded the Forrest Medal. Three other Saxifrages of his gained Certificates of Merit (*S. burseriana* 'Sulphurea', *S. x chrystalae* and *S.* 'Faldonside'), as did his pans of *Androsace pyrenaica* and *Cyclamen coum* var. *album*. As far as I can recall, this is the highest number of Certificates of Merit ever awarded at any

one Show. In addition, Mr. Duff won the Midlothian Bowl for the highest number of points, by far.

The Midlothian Vase was awarded to the Show Secretary for his pan of *Cyclamen vernum* B.S.B.E. 513 which, incidentally, had won it in 1965 on its first appearance. The Adjacent Counties Medal for highest points attained was won by Mr. and Mrs. Baillie of Longniddry.

We were delighted to welcome exhibitors from very considerable distances : Messrs. Crosland and Esslemont from Aberdeen, Mr. Duff from Broughty Ferry, Dr. Cain and Miss Darrah from Newcastle-upon-Tyne, Mrs. Allan from Strathblane, and Mrs. C. M. Clark and Mrs. E. Clark from the Kirkcudbrightshire Group, as well as our more "local " exhibitors.

The standard and variety of the exhibits was really outstanding—no less than four pans of dionysias were shown in flower. Entries of *Cyclamen* were really notable—as were the irises and crocuses. The classes for *Tulipa* were very thin and the primulas, though good, were rather few in number. In general, the range of bulbs shown was extremely good ; presumably the hard weather, which had held back many of the other plants, had affected them less. In Class 1, for three pans of bulbs, the first prize went to Mrs. Ellison Clark for *Cyclamen coum* var. *album*, *Iris reticulata* and *Muscari azureum*. These bulbs were in peak condition and most beautifully flowered. The second prize was awarded to the Show Secretary for three fritillarias from the Middle East and still grown under collectors' numbers, while the three plants put forward by Mr. Esslemont and consisting of *Fritillaria M.1619*, *Merendera trigyna* and *Romulea bulbocodium* were placed third. This selection gives some idea of the wide range of bulbs shown.

As already reported, the saxifrages were quite outstanding, particularly when compared with last year when they were definitely weak. In general, however, the standard of the exhibits was extremely good to excellent.

A Gold Medal was awarded to the Edrom Nurseries for a stand of bulbs mostly suitable for the rock garden and exhibited in pots. This stand was the focus of great interest and the number of enthusiastic visitors was reminiscent of bees around a honey-pot !

The ladies of the Industrial Section staged their Bulb Show which was, if anything, better than usual, and in addition provided tea, which was much appreciated by visiting members and the public.

HENRY TOD, *Show Secretary and
G.C. Mid- and West Lothian.*

Book Reviews

“STARTING WITH ROCK PLANTS,” by Tony Venison, illustrated with photographs in black and white and colour, and numerous line drawings. Published for Collingridge Books by The Hamlyn Publishing Group, Ltd., Hamlyn House, 42 The Centre, Fellham, Middlesex. Price 25/-.

So many books are being written on horticulture that one could hardly be blamed for thinking that to publish yet another would be superfluous. But, just like meeting new people, it is interesting to read new books and to be once more introduced to a subject through the eyes of another.

Rock gardeners, generally, have been well catered for by enthusiastic authors, but this well written little book by Tony Venison is certainly worth reading both by those already possessing rock gardening experience and the novice whom, from the title, the author might originally have had in mind.

The chapters are so arranged that they take the reader step by step through an interesting and instructive introduction on rock formation to the actual building of a rock garden, screes, alpine lawn, dry wall, etc. The book progresses to shade and its effect on plants, simple propagation and, finally, the all important maintenance.

“Starting with Rock Plants” does not set out to be a comprehensive text book, yet it will be of help to many. Specific plants, too, are mentioned and particular species and cultivars are recommended, and reference made to selected sites and situations, but long lists of plants, so often comprising the bulk of books of this sort, have been curtailed, wisely.

All through this publication line drawings have been used both effectively and instructively as an aid to explaining a point more clearly.

A.E.

“HARDY FERNS,” by Reginald Kaye. Faber & Faber, 1968. Price 63/-.

Ferns for everyone: If a timely book can spark off new enthusiasms the ferns are in for a boom in the gardening world. The time for a revival of interest in ferns in the garden has been ripe for a while awaiting the right author. Reginald Kaye has produced the book so many require, full of enthusiasm, personal experience and helpful hints—not just the usual cribbed information of so many horticultural books today. His book is not one just for the fern addict, but for all keen gardeners; all his experience on methods of growing ferns, ideas on how to integrate ferns in other planting—not least in the rock garden—are developed at length. The author sails through a short account of the life cycle of ferns with a lucidity many botanists might envy, and then gives an excellent account of propagation and methods of hybridisation.

The great wealth of ‘forms’ of hardy ferns has in the past presented difficulties of identification. Mr. Kaye presents a simplified grouping of the various frond modifications, etc., which seems useful. All this is most helpful, but it is a pity in the extensive part devoted to description of species Mr. Kaye did not get help with his names. He may—with good reason indeed—grouse about botanical nomenclature, but he drops some ‘clangers’ himself and Scots will hardly excuse him from listing ‘Ben Almond’ (Ben Alder) as a locality for *Athyrium flexile* and Beinn Gjaordie (surely Meall Ghaordie) on p. 125, and unfortunately there are a few more such gaffs.

This is a beautifully produced book with good colour and black-and-white plates and useful blocks—a good present for a keen gardening friend.

D.M.H.

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Edward Hyams, Illustrated London News 63s

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