The Journal
OF
The Scottish Rock Garden Club

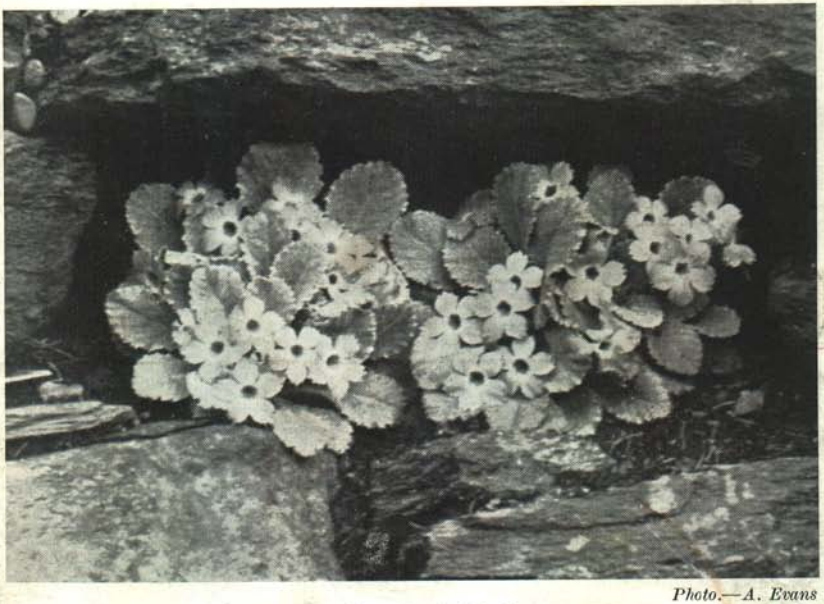


Photo.—A. Evans

Extra copies obtainable from
Squadron Leader J. J. BOYD-HARVEY, Hon. Secretary,
Boonslie, Dirleton, East Lothian
PRICE 2/6, post free 2/9

VOL. IV. PART 1 No. 14—April 1954

The Scottish Rock Garden Club

(Annual Subscription 10/-, Life Membership £10)

The Club's aims are to create an interest in Rock Garden Plants, and encourage their cultivation, especially amongst those who have only small gardens. Hundreds of such plants can be grown in a very small space, even in a few frames, and there is no more fascinating hobby.

By becoming a member of this Club you are entitled to :

1. Receive the Journals and other publications.

2. Attend all Shows free of charge and enter plants in any of the numerous classes, which include some for novices. Prizes are awarded and there is no entry fee for members.

3. Free advice on cultivation, etc., by experts through the Club's Information Bureau.

4. Participate in any organised visit to other members' gardens, and attend lectures and discussions.

5. Take part in the exchange and distribution of surplus seed.

County Representatives and District Sub-Committees, where the number of members justifies these, try to keep in touch with members' wants, and arrange local lectures, exhibitions, expeditions, etc.

TO ENROL OR RENEW

Fill up ONE of the Forms overleaf and send to

Honorary Secretary :

Sqdn.-Ldr. J. J. Boyd-Harvey,
Boonslie, Dirleton,
East Lothian.

The Banker's Order Form saves both the Member and the Treasurer trouble. Please send it to the Secretary, NOT to the Bank.

Member's Club No.....
(Inserted by Treasurer)

BANKER'S ORDER FORM

To .....
(Name and Address of your Bank)

.....

.....

Please pay to The Clydesdale & North of Scotland Bank, Ltd., George Street, Edinburgh (quoting my Club No.), for credit of The Scottish Rock Garden Club account, the sum of Ten Shillings (10/-), being my subscription to the Club, now, and on 1st September next, and in each succeeding year until otherwise ordered.

SIGNATURE ..... 2d Stamp .....

DATE .....

Mr., Mrs., Miss.....
(Please write in block letters)

Address .....

.....

County .....

This Form should be sent to Treasurer and **NOT** to Bank.

CASH PAYMENT FORM

This form may be sent with a remittance of 10/- as a subscription for one year, or £10 for Life Membership.

I, Mr., Mrs., Miss.....
(Please write in block letters)

Address .....

.....

County .....

enclose the sum of , being my membership subscription for the year.....

(Note.—The S.R.G.C. year ends on 31st August)

Date..... Signature.....

Colour photograph by N. K. Gould THE HEATHER GARDEN AT WISLEY *Photo by courtesy of R. H. S.*

The Journal

OF THE

Scottish Rock Garden Club

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

CONTENTS

VOL. IV. PART 1 **No. 14—April 1954**

Office-Bearers for Year 1953-54

Honorary President :
Professor Sir WILLIAM WRIGHT SMITH, F.R.S., V.M.H., Royal Botanic Garden, Edinburgh.

Honorary Vice-Presidents :
Professor J. R. MATTHEWS, Department of Botany, The University, Old Aberdeen.
Mr. R. E. COOPER, F.R.S.E., 40 Grosvenor Road, Westcliff-on-Sea, Essex.

President :
Lt.-Colonel J. C. DUNDAS, D.S.O., D.L., Ochtertyre, Stirling.

Vice-Presidents :
Mr. H. ARCHIBALD, Ogscastle, by Carnwath.
Mrs. J. HALLY BROWN, Craignahullie, Skelmorlie.
Mr. A. CAMPBELL, W.S., 18 Duke Street, Edinburgh.
Mr. K. C. CORSAR, Mauricewood, Milton Bridge, Midlothian.
Dr. A. O. CURLE, C.V.O., Weir Knowe, Melrose, Roxburghshire.
Mr. E. DARLING, Ravenswood, Port-Glasgow.
Major A. WALMSLEY, M.C., Culderry, Garlieston, Wigtownshire.
Mr. DAVID WILKIE, Royal Botanic Garden, Edinburgh.

COUNCIL

President :
Lt.-Colonel J. C. DUNDAS, D.S.O., D.L., Ochtertyre, Stirling.

Vice-Presidents :
Mr. HENRY ARCHIBALD, Ogscastle, by Carnwath.
Mr. K. C. CORSAR, Mauricewood, Milton Bridge, Midlothian.
Major A. WALMSLEY, M.C., Culderry, Garlieston, Wigtownshire.
Mr. DAVID WILKIE, Royal Botanic Garden, Edinburgh.

Ordinary Members :
(*To retire in October* 1954)
Mr. W. C. BUCHANAN, Douglasbank, Drumchapel Road, Bearsden, Dunbartonshire.
Dr. J. DAVIDSON, Linton Muir, West Linton, Peeblesshire.
Mrs. R. MCCONNEL, Knockdolian, Colmonell, Girvan, Ayrshire.
Mrs. A. PEEL, Eaglescarnie, Haddington, East Lothian.
Mrs. E. D. WILSON, 39 Townhill Road, Dunfermline, Fife.

(*To retire in October* 1955)
Mr. R. J. C. BIGGART, Malvaig, Kilmacolm, Renfrewshire.
Mr. JACK DRAKE, Inshriach, Aviemore, Inverness-shire.
Mr. DAVID LIVINGSTONE, 29 Ulster Crescent, Edinburgh.
Mrs. E. D. SHORT, Old Graden, Kelso, Roxburghshire.
Mrs. L. WALMSLEY, Culderry, Garlieston, Wigtownshire.
Miss J. C. YOUNG, Castlehill, Dalbeattie, Kirkcudbrightshire.

(*To retire in October* 1956)
Mr. A. CAMPBELL, W.S., 18 Duke Street, Edinburgh.
Mr. A. B. DUGUID, Edrom Nurseries, Coldingham, Berwickshire.
Mrs. G. K. FINLAY, Keillour Castle, Methven, Perthshire.
Mrs. I. M. KIRKUP, Middleton Hall, Wooler, Northumberland.
Dr. H. TOD, F.R.S.E., Carnethy, Seafield, Roslin, Midlothian.
Mr. A. TODD, 23 Thomson Drive, Bearsden, Dunbartonshire.

Honorary Editor :
Mr. J. L. MOWAT, University Botanic Gardens, St. Andrews.

Honorary Publicity Manager :
Major-General D. M. MURRAY-LYON, D.S.O., M.C., 28A Inverleith Place, Edinburgh.

Honorary Seed Distribution Manager :
Mr. R. S. MASTERTON, M.R.C.V.S., Cluny House, Aberfeldy, Perthshire.

Honorary Treasurer :
Mr. STEWART MITCHELL, 1 Muirfield Crescent, Dundee, Angus.

Honorary Secretary :
Squadron-Leader J. J. BOYD-HARVEY, Boonslie, Dirleton, East Lothian.

Honorary Show Secretaries :
Lt.-Colonel W. MITCHELL, 43 Hazledene Road, Aberdeen.
Mr. R. FORBES, Gracefield Lodge, Lovers Walk, Dumfries.
Major-General D. M. MURRAY-LYON, D.S.O., M.C., 28A Inverleith Place, Edinburgh.
Mr. E. DARLING, Ravenswood, Port-Glasgow, Renfrewshire.
Mr. STEWART MITCHELL, 1 Muirfield Crescent, Dundee.

Honorary Auditor :
Mr. F. W. CHRISTIE, C.A., 18 Alva Street, Edinburgh.

Editor's Notes

". . . GREAT INTEREST has been shown in the welfare of the Club from all over Scotland." This was written not of 1954 but of 1934, the second year of the Club's existence, by K. C. Corsar, Editor of the Club's first *Journal*. To make that quotation correct now in 1954, twenty years later, we would need to substitute for "Scotland" —"Scotland and many other countries." In its twenty-first year the Club numbers almost as many members furth of Scotland as was its total membership at the time of which that was written.

May we here and now, on behalf of all members at home, extend to our friends and fellow-members overseas our warm greetings and good wishes for their continued happiness within the fellowship of the Scottish Rock Garden Club. To those at home we would likewise pass on the good wishes and greetings contained in the many interesting and friendly letters received from our overseas fellows. To quote from all would be impossible, to quote from some perhaps invidious, but we know that many are in close touch with fellow-members here and hope that in the future many more will use the pages of the *Journal* to exchange ideas, information, and experiences. Among home members there is an ever-increasing activity in the various district groups, between one group and another, and in the Club as a whole ; and through it all there is seen that keen interest and friendly rivalry that arises from the fellowship of real enthusiasts engaged in the pursuit of a common object—the understanding and cultivation of plants.

This all goes to show how successfully the intention of the founders, that we should be really a Club in spirit as well as in name, has been preserved through the years. That this is so is largely owing to the efforts of the Council, and in particular to the far-sighted and unselfish labours of devoted stalwarts, who never allowed their own inclinations to overshadow their consideration for the welfare of the Club as a whole. There have been times in the Club's history when a danger of digressing from the founders' aim seemed imminent, but careful leadership and wise deliberations have always guided us back on to safe lines, just as they have enabled the Club to weather the various crises, financial and otherwise, through which we have passed in our twenty-one years of life.

During those twenty-one years the Club has progressed from very modest beginnings to a well-established position among the societies of garden enthusiasts throughout the world ; and this in spite of the deadly blow dealt to it by the upheaval of World War II. Only those intimately concerned with the administration of the Club at that time can have realised how nearly fatal that blow was, but their unquenchable enthusiasm and strenuous efforts put the invalid on his feet again to go forward with renewed strength.

Our post-war revival of 1946 saw us almost back to the level of the Club's early days. Conditions were completely changed from those of the pre-war age. Costs were higher all round ; plant collections were sadly depleted by neglect or wartime food production efforts, and

nursery stocks were at a low level. Under such conditions it took unlimited courage and effort to build up our shows again. Here let us all pay our homage to those Show Secretaries and their helpers who put in so much untiring effort to rebuild our shows and re-establish the prestige of the Club—and in return often got more kicks than ha'pence.

And our exhibiting members—what of them ? It has always been a matter for regret that so small a proportion of our members have given themselves the pleasure and the thrills that come from actively participating in Club shows. Those who have never competed at a show can have no idea how much they are missing in the thrill of fellowship and friendly rivalry that comes with showing. It has always been the policy of the Club that there should be an opportunity for the veriest novice to try his hand at showing without straightway having to pit his strength against the Club's experts, and sections and classes are provided at all shows for the beginners and less experienced. In this connection we would draw the attention of members to the Club shows this year at Aberdeen and Dundee, and suggest that those who can should make a special effort to compete at these shows. Aberdeen members are rather far from many of the Club activities and have not had a lot of support in past years from members outside their own area. For Dundee a Club show is an entirely new venture, replacing the usual show at Perth this year, and active response from all members within reach of Dundee will give great encouragement to those who are trying to launch a Club activity in a new setting.

Many of the Club's leading growers and exhibitors have brought honour to the Club by winning high awards in wider fields than our own shows ; we record our congratulations, coupled with the wish that many more such honours may come their way. We also extend congratulations to a fellow-member who in a wonderful way has done much for gardening, and for rock gardens in particular. First of all he introduced to our gardens a whole host of beautiful new plants from that wonderful garden of nature, the Himalayan region, and then he gave himself unsparingly to his fellow plant lovers and enthralled us all in Club meetings throughout Scotland with delightful colour films and talks about the plants he had seen and collected. All members must have felt a thrill of satisfaction when in February this year Major George Sherriff was awarded a well-merited V.M.H.

The Editor warmly thanks all those contributors who by their articles, their plant notes, and their illustrations, have provided a *Journal* which he hopes will prove acceptable ; but at the same time he repeats another quotation from Mr. K. C. Corsar, in *Journal* No. 3 : "It is quite impossible for the Editor and one or two of his friends to provide the whole matter for each issue ; in any case the greater the number of contributors that there are, the greater will be the appeal of the *Journal.* Will each member of the Scottish Rock Garden Club, therefore, consider carefully whether he, or she, could add something to the knowledge of others by writing even the shortest note for their own *Journal.*"

May 1954, the year of the Scottish Rock Garden Club's coming-of-age, mark the beginning of another stage of progress and advancement in its history, and may all members, old and new, and those still to come, long continue to find satisfaction and contentment in its fellowship of rock garden lovers and enthusiasts.

April, 1954.

The popularity of the Club's **Seed Distribution** is proved by the fact that Mr. R. S. Masterton has sent out to members this year approximately 6,000 packets. The success of this activity depends not only on Mr. Masterton but also on the full co-operation of members in collecting good seed throughout the season and sending it in correctly named and in good time.

Club Christmas Cards

These cards, in which use will be made of the four half-page colour prints appearing in this *Journal*, will be available to Members later this year. They will be supplied in dozens, either of one subject only or three each of the four subjects, complete with envelopes, at 6/6 per dozen post free. To help gauge the demand for this new service, early application, stating requirements, together with appropriate remittance, should be sent to the Hon. Treasurer.

Edinburgh Show Notice

THE USUAL classes for Cacti and Succulents were inadvertently omitted from this year's schedule. Will those interested please note that two extra classes as under should be inserted in the schedule in Section IV, page 42 of the Year Book :—
100 A 3 Pans Cacti or Succulents ; 100 B 1 Pan Cactus or Succulent.

American Primrose Society

THOUGH the name and address of the British Representative of this Society is included in the advertisement, members interested may be glad to have the information that the Secretary is Mrs. Earl A. Marshall, 1172 S. E. 55th Avenue, Portland 15, Oregon, U.S.A.

Since our Club has reciprocal membership with both the American Primrose Society and the American Rock Garden Society the publications of these bodies can be made available to our members on application to the Club's **Hon. Secretary, S/Ldr. J. J. Boyd-Harvey.**

Members are also asked to note that on page 94 is a list of back numbers of Scottish Rock Garden Club *Journals* which are available to those who wish them and can be obtained on application to the **Hon. Secretary.**

The S.R.G.C. Comes into the Scottish Scene

By R. E. COOPER

DR. DOUGLAS A. ALLEN gave a fascinating account of 'The Scottish Scene' to the British Association in 1951, which would seem to be of interest to members of the Club for, among other things, the rocks of Scotland are summarised. Giving lists of Societies engendered from the nineteenth to the twentieth centuries he says : "This is an impressive list of Societies . . . most of which have a major interest in local history and natural history, spheres in which the members have often given devoted service in field observations . . . and in stimulating enthusiasm in those to whom will fall the task of carrying on the good work." It happens that an opportunity is made for our publicity people because the good doctor does not record our existence ! He goes on to say that "it was natural that the studiously minded should go forth from the discipline of grammar" and here I would add, of merchandise and of figures "to an interest in life . . . and an appreciation of Greek and Roman civilisations," which of course includes plants.

About the 17th to 18th centuries the coffee-houses of Edinburgh saw gatherings of people with a common interest as their bond. Now-a-days it is the tea-houses but in the years between it was the 'pub.' Let us take our case. A certain horticulturalist named Eric P. Laird—may peace be to his bones—conceived the idea that there was enough interest in the hobby of rock gardening scattered about Scotland to warrant its being focussed somewhere. Consequently we read in the Club's 2nd Publication* "Preliminary enquiries divulged such interest that at a public meeting held on 14th August, 1933 the Club was created." Much lies behind that statement, for conception is one thing, whereas the pangs of birth are often quite different. There are also the usual troubles of infancy to be met. Mr. Laird invited me to a chatty meeting among a few people interested. We met in a darkish parlour at the back entrance to a 'pub' at the West End of Princes Street, where we sat below the high windows of the Rutland and commenced proceedings with a glass of beer. There was Laird, the nurseryman of Pinkhill, who through his travels about the country had his fingers on the pulse, as it were, of gardeners throughout the land. There was his great friend David Wilkie, foreman of the Herbaceous Department, R.B.G.—very knowledgeable on plants, and shortly to have a book on Gentians published. There was Francis Glass, a working gardener at Corstorphine, and both keen and knowledgeable on rock plants : he shortly afterwards found work south of the Border. There was 'Bill' MacKenzie of the R.B.G. in charge of the rock-garden, whose home was in the West. Now it is at Chelsea —Apothecaries Garden—and he is a strength in the land. Lastly

**The first was the book on George Forrest*

there was a one-time explorer for plants and now at the R.B.G., myself, a very mixed group you will grant. We chatted on the pros and cons, trod on each other's toes, told anecdotes and laughed at each other's ideas, but the focus got a little clearer. We solicited the help of the 'heid yins' of the R.B.G., but the Professor and his Curator, Stewart, left us to our own devices. We argued about what people wanted and put what we had to offer for help on the table—oh ! it was an awful business.

They made me 'chairman' of these informal meetings because then I could only listen ! Laird, since he travelled so much and had a private office and seemed to know where we were going, became Hon. Secretary. Glass offered to take charge of our funds and so became Treasurer. A local banker, keen on plants, was persuaded to audit the accounts and keep us straight ; "but," says he, "where is your money ?" Now we were getting down to it. What would people pay, and what could they have for their money ? Talks on plants ? Shows ! Walks round the rock garden of the R.B.G. with voluntary staff guides and demonstrators.

There was quite an academic discussion over what this association should be called. In the end (bless the Chairman) we agreed that our clubable spirit indicated the name to be 'Club' wherein all members were just folk keen on their plants. That was the dish to be put before our 'inaugural' meeting. The best Presiding Officer we agreed should be one without bias in any branch of our hobby and an amateur. 'A rich one,' stipulated Francis Glass, 'just to give us a substantial feeling !' In fact, we have never troubled the pockets of any of our Presidents. Our first was Mr. Andrew Harley and we were to be very grateful to him for his belief in us. Our inaugural meeting showed how much practical interest there was in rock plants and we soon felt strong enough to stage a little show.

It is comforting to see the strength of the Club now, more so as there has been a war in between 1933 and 1953. Apparently the Club caters so well for its members that people are joining it from all the countries of the world. International ? Yes ! and world wide. The Scottish Rock Garden Club has now become a worthy feature of the Scottish Scene.

The Torridon Mountains

By JAMES AITKEN

THE ANCIENT Torridon Sandstone mountains of Sutherland and Wester Ross form a conspicuous part of the scenery in that part of the country. They rise abruptly from an undulating plain of the still older Lewisian Gneiss, and soar to heights of 3000 feet and over. The sandstone is reddish brown in colour, and has a tendency to split vertically, giving rise to the fantastic array of rock pinnacles on the summits of Stac Polly and Liathach.

Suilven, the well-known sugar-loaf mountain, is another Torridonian Sandstone mountain, and its sides are so steep as to be fairly well unclimbable except at certain points.

While on my way to climb this mountain, about 8 miles of rough rocky "Gneiss" country had to be traversed. This rock is very hard and impervious to moisture, so every hollow left by glacial action is now a lochan. In the Lochinver parish alone there are almost 300 named lochs and innumerable smaller ones. The water is dark with peat, and white water lilies abound in them, even in the slow-moving streams that often join up a number of lochans.

In the shallower parts, the water lobelia—*Lobelia Dortmanna*—was in flower. Its red stems stood 6 to 8 inches above the water, the white flowers with a hint of blue in them, and at the very edge I found a solitary flower of the bladder-wort—*Utricularia vulgaris*. Boggy places were thick with *Pinguicula lusitanica*, Droseras *rotundifolia* and *longifolia*, with masses of *Orchis maculata* in the slightly dryer parts.

The most interesting mountain climbed was Liathach (see Fig. 2) (3456 feet), to the north-east of Loch Torridon. There was no long tramp to get to the foot of it. We simply came out of the house in the village of Torridon where we were staying, went round to the back, and started climbing.

The first 1000 feet or so was very rough going, with the steep slopes covered with deep heather and *Vaccinium Vitis-Idaea*. On rock outcrops we found the dwarf golden-rod (*Solidago cambrica*), and *Alchemilla alpina* filled every nook and cranny. As we got higher the view westwards down Loch Torridon was magnificent. The mountains of Skye stood out sharp and clear while between them and the mainland lay the island of Rona. Further north the outlines of the Outer Hebrides could be seen on the horizon stretching as far as the eye could see.

About this point we heard a stag roaring from the direction of a ridge some distance away and my companion suggested we do a spot of deer stalking and get a close-up photograph of a stag. We crept up the steep slope scarcely daring to breathe and speaking by signs till we arrived at the top of the ridge and started worming our way forward flat on the heather. Just when I was wondering what would happen if we found ourselves in the middle of a herd, we saw the cause of all the noise ; a stag with three or four hinds stood some distance away staring hard in our direction, and before I could bring the camera to bear on them they were off—but it was exciting while it lasted.

Prunella, Vaccinium, Lycopodiums *Selago* and *alpinum*, *Antennaria*

Arriving on a shoulder of the mountain close on 3000 feet we found ourselves walking on a perfect alpine lawn consisting of Thymes, *dioica* and *Polygala vulgaris*.

It was here we got a good view of a flock of Ptarmigan and were able to observe their beautiful colour markings through the binoculars. A little further on I was delighted to find *Loiseleuria procumbens*—the Creeping Azalea—in fair quantity, growing very tight and close to

the ground as it was on a very windswept position. Stronger growing plants have long since pushed Loiseleuria out of the sheltered and more favourable mountain slopes, until now it has to hug the ground for protection and warmth in positions too harsh and exposed for most other things. Not a shoot or a twig dare show above the surrounding level of minute foliage, and if one lifts up a creeping branch it springs back into place as if afraid of being caught by the wind unawares.

The final long slopes to the ridge of the mountain were like a gigantic scree composed of weathered sandstone ranging from huge blocks to red sand in places, and looked absolutely devoid of plant life. However, in the shelter obtained between the rocks we found the Parsley Fern quite snug and comfortable, also *Gnaphalium alpinum* and *Salix herbacea* : then a plant which neither of us had seen before with leaves like a miniature fern growing in a tight rosette, and which we later identified as *Arabis petraea*. This seems to be the only locality in Scotland where it is found and we later saw some quite large clumps of it, but never in any quantity.

We were now on the knife-edge ridge which led by way of the pinnacles to the true summit some two miles distant.

The north side of the mountain fell by sheer cliffs down into the Black Corrie—so called because the sun seldom reaches the bottom, and the dripping wet rocks make it darker still.

Far below the water of a small loch glinted up at us and we could now look down on the summit of the neighbouring mountain Beinn Alligin.

The passage along that pinnacled ridge is certainly not to be recommended for those unused to heights. Part of the way was on the sharp ridge, then turning and twisting among the pinnacles with sheer drops at every turn. In such places where one is trying his best not to put a foot into empty space plant life is apt to be missed, but we did see quite a lot of ordinary seaside thrift, *Armeria maritima*, and on damp rocks the Star Saxifrage—*Saxifraga stellaris*.

The final 50 feet or so to the summit consisted of a great mass of huge angular blocks of quartzite—a light coloured partly crystalised sandstone which is found capping a number of the Torridonian mountains. It is due to the weathering of this rock that some of the high tops look as if they had a light covering of snow, and is why Liathach is called "The Gray One."

On this lofty windswept place we found tight hummocks of *Arenaria sedoides* scarcely discernable from the grey rock around it, and still some tufts of *Arabis petraea*.

We had only a short time to rest and take photographs at the summit, as the day was well gone and the sun was setting behind Skye. The quietness and solitude of the high tops is no mean reward for having come thus far, and all the sweat and toil of the ascent seems well worth while as you sit and enjoy the glorious view.

10

Hardy Heathers

By NORMAN WEBSTER

INTRODUCTORY

WHEN I first began to grow hardy heathers thirty years ago, I thought I really had found something. Because of their ease of maintenance, their long life compared to most alpines, and the way they provide colour during at least ten months out of the twelve, I was convinced that within my lifetime I would see the heather garden replace the rock garden. I know it hasn't happened yet ; but then I'm not dead yet ! There are signs that the process is well under way. Nurserymen tell me that sales of heather plants have mounted steadily since the Second World War, and have increased very sharply in the last three years. I have been asked several times recently to supply lists of good varieties to owners of large rock gardens, who are turning over partly or entirely to heather gardening. Perhaps what the big rock gardener does today, the small rock gardener will do tomorrow.

A small point of nomenclature might be mentioned here, the use of the terms 'heather' and 'heath.' Some writers have tried to attach the name 'heath' to all plants which are botanically Ericas, and reserve 'heather' for the Callunas, that large autumn-flowering group covering the Common Heathers of Scotland. This would involve calling our familiar Scottish Bell Heather the Bell Heath, which would be unfamiliar and pedantic. My own view is that we should not attempt to differentiate sharply between heaths and heathers. Certain Ericaceae are familiarly known as 'heaths' and others as 'heathers.' Let us leave these common names undisturbed. If we want to be precise, the botanical names are available ; and these are neither obscure nor difficult.

This account of hardy heathers does not aim at being a work of reference. Such a book is already in existence, "The Heather Garden," by Fred J. Chapple (Collingridge), the outcome of a lifetime of heather growing, which is authoritative, comprehensive and up-to-date. Mr. Arthur Johnson's little book, "The Hardy Heaths", is being revised (the original edition of 1928 is out of print) and it should be valuable, although on a less ambitious scale. My own aim in these articles is rather to tell the average sort of rock gardener who would like to take an interest in heathers all he needs to know. I am often asked what led me in the first instance to specialize in hardy heathers, and the answer to that question may serve as introduction to this series of articles.

The reason is that heather is so closely associated in so many ways with the Scottish Highlands that it seems completely natural and right that a garden on the fringe of these Highlands should give heather pride of place. By this I do not mean the superficial association in the minds of visitors between the Scottish Highlands and a heather moor in full bloom. Rather do I mean the fundamental importance of heather to Scotland, and the Scot. It has long been and still is a plant of supreme economic importance to those who live and work in the Scottish Highlands. It provides the basic food of a vast population of blackfaced and Cheviot sheep, and so is the foundation of a

large proportion of crofting agriculture. It still provides the Highlander with much of his fuel at the cost of his own labour only. Until recently peat sods, with their binding of heather roots, were used to build houses, summer shielings and cattle byres.

It was used in the tanning of leather and the dyeing of wool, and still is in a few Hebridean strongholds of the old ways. Even in my lifetime heather besoms were in common use in farm house and byre. When land was drained, heather was packed round the stone or tile drains to prevent them choking up with silt ; heather used in this way has an incredibly long life before it begins to rot.

In ways less elemental, heather has served the Highlands well. It is the basic food of grouse, which have kept many a poor Highland laird on the right side of that thin dividing line between bankruptcy and solvency during the difficult first half of this century. It provides rich store of honey of distinctive flavour, now, I understand, featured in the expensive food shops of New York, Chicago and Los Angeles : not, perhaps, in its original purity, for heather honey is so strong that it is something of an acquired taste ; but mixed with milder types it has a delicious flavour which anyone can enjoy. Besides, it earns more dollars that way. Water from the heather hills helps to make Highland malt whisky, famed all over the world, and which, like heather honey, imparts its distinctive flavour to added ingredients of less exalted origin. Peat is used to fire the kilns at a vital stage in its manufacture.

When we consider how widely heather is distributed not only in Scotland but on the Continent—so widely in fact, that no other shrubby plant can compete with it in range—it is surprising that its management as a plant of crofting husbandry has been so extremely casual. Both sheep and grouse prefer young heather shoots from plants of from one to five years old ; so the ideal system of heather husbandry should renew by burning as much as one-fifth of the total moorland area each year. That this is not done is due to a false opposition between shepherd and game-keeper. The latter is slow to realize how vital young heather is to his game. The shepherd, on the other hand, is inclined to be too drastic, and will often fire a whole moor under the wrong conditions and without enough helpers to control it. Where rotational muirburn has been systematically practiced, the benefits both to sheep and game are so great that it is hard to see why the system has not become universal. Like so many forward steps in husbandry, it will take a few generations before the laggards catch up with the pioneers.

What has all this to do with heathers in the garden ? It is part of the answer to the question why I first became interested in them. Heather is an essential part of our Scottish cultural heritage and economic background. The Highlanders still depend very largely on it. What more natural, then, that we should, in our leisure hours, cultivate and study its many beautiful forms against the peace and contentment of a garden background ? Mention of its many forms suggests that this is a suitable place to list the chief groups of heather in cultivation, as they will be referred to throughout these articles.

WINTER FLOWERING HEATHS (*Erica carnea*). These are widely distributed in the Austrian Tyrol, Italy, France and Switzerland. Both flower and foliage are indestructibly hardy, and they need to be, since the flowering period of the thirty varieties now in cultivation varies from November to April.

TREE HEATHS, of which *Erica arborea* is typical, are mostly medium sized shrubs, their natural habitat extending over a wide area in southern and western Europe. Their use must be largely confined to the larger garden, but fortunately the Corsican Heath (*Erica stricta*) and the dwarfer forms of *Erica mediterranea* are suitable for background planting even in the smaller garden. They flower in spring and early summer with the exception of the Corsican Heath, which flowers in late summer and autumn.

BELL HEATHER (*Erica cinerea*). To avoid confusion, it must be emphasised that the Bell Heather of Scotland is the Common Heather of England, and vice versa. Some three dozen varieties are listed by nurserymen, all flowering from midsummer onwards, but many of them doubtfully distinct ; but there are sufficient really good ones to satisfy the most exacting.

CROSS LEAFED HEATHS (*Erica tetralix*). Widely distributed in Britain, and represented in cultivation by some fifteen varieties, this heath has a definite preference for damp positions, and is hardly worth growing in low rainfall areas. Although not as freely borne as in some other species, the flowers continue from June to October.

CORNISH HEATHS (*Erica vagans*). Although found wild in Britain only in Cornwall, this heath is completely hardy and very vigorous. About fifteen varieties are in cultivation, flowering in late summer and autumn. For those unfortunate enough to garden in industrial areas, this is the best group of all ; it seems to be completely unaffected by atmospheric pollution.

COMMON HEATHERS (*Calluna vulgaris*). From the garden point of view this is the largest and most important group of all. About eighty varieties are in cultivation, including some two dozen forms of white heather. Among them they cover a flowering period from July to December.

HYBRID HEATHERS are mostly curios rather than plants of garden merit, but two exceptions are *Erica hybrida darleyensis* (*carnea x mediterranea*) and *Erica hybrida Williamsiana* (*vagans x tetralix*).

SITE

The ideal site for a heather garden is where the house is situated in natural heather country and cultivated heather can be planted in bold groups by way of transition from more formal plantings near the house to the rough heather on the outskirts, which should be left undisturbed. In the vast majority of gardens this is not possible, but in any garden heathers can be used in all sorts of ways. The dwarf varieties of the Bell and Common Heathers and of the Winter Flowering Heaths are excellent as carpeting for spring bulbs or as edgings to paths. Those of medium height (12 to 24 inches) look well in groups at the front of the herbaceous border or at the back of the rock garden.

The rampant growers like the Tree Heaths and the Cornish Heath will look after a rough bank or a piece of 'No Man's Land,' which are apt to be problems in the larger garden. All make admirable foreground plantings with shrubs. If you know of any other group of plants more adaptable than that, I strongly advise you to concentrate on it, and not waste your time on heathers !

At the same time, heathers undoubtedly look best in a special section of the garden. The experts write about the desirability of undulating slopes and rocky outcrops, but these are not necessary : practically any site can be used for heathers if you remember their basic needs, which are remarkably simple. First, you must make sure that your soil is free of lime. I know that certain heaths, including most of the invaluable winter-flowering group, will tolerate lime, although I believe they do better without it ; but a limey soil debars you from growing most of the autumn-flowering heathers, and in particular all forms of *Calluna vulgaris*, which are the backbone of a real heather garden. If your soil contains only a little lime it can be made right for heather by the addition of peat, leaf mould or compost to the point where it is neutral or slightly acid. If you are in doubt about this aspect of the matter, consult your local College of Agriculture, which runs a soil advisory service, and will be pleased to test your soil gratis. A useful pointer is that if rhododendrons thrive in your soil, so will heathers. Admittedly there are some lime-loving rhododendrons, but they are rare. If you grow them, you need no advice from me !

The other basic point I would like to make is that although heathers will survive almost anywhere, they do best on a generous supply of moisture ; so if your district gets less than 30 ins. of rain a year do not put your heathers on a slope facing full south. If you do they will dry out at some time during the summer and will not thrive as they should. In fact, in a dry district they are better on a level site than on a slope of any aspect. Drainage will not then be so sharp, and what moisture there is will be better conserved.

If you live in a low rainfall district and have available for your heathers only a south slope you can still grow them provided you are prepared to take a little extra trouble. Either you should trench the soil and incorporate a really generous quantity of peat in the bottom spit ; or if the area be small you should, at planting time, place under each plant a cube of solid peat about six inches each way. The heather roots will soon grow down through the peat, which will conserve moisture better than any other medium. If the trenching method is used, the peat should be left rough, in pieces the size of an orange. Under such dry conditions you should confine yourself mainly to the winter-flowering heaths, which resist drought better than any.

If your site is a large one, plant the heathers of highest garden merit (they will be discussed later) in groups, never less than six of kind—they are most effective that way. Even on a pocket handkerchief site, some varieties should be in groups of three. Except perhaps in a very large garden, the taller sorts are effective as single 'dot' plants : used thus they break up a tendency to flatness for which some heather gardens have been criticised. (*to be continued in next* Journal)

Looking Ahead – An Appreciation

ANONYMOUS

ALL THROUGH the twenty-one years of the Club's existence it has striven to further its first desire—to encourage in Scotland an interest in rock plants. Right from the start that desire has been carried throughout the length and breadth of the land and the pride of growing a kind of plant peculiarly its own diligently fostered by talks and exhibitions in the three big towns—Aberdeen, Edinburgh and Glasgow.

Since we owed so much to George Forrest's labours in China searching for lovely plants for our gardens, our first publication was made in his honour and mainly of his own words that we might know what manner of man he was.

People were invited to give accounts of their good luck with plants, and also their disappointments, the first to be acclaimed and the second to have remedies proposed.

And so the *Journal* was born.

From the beginning it has spread for our plants a splendid array of dishes for their sustenance, and all kinds of information on our hobby for our delight. Their range is not only a tribute to those who brought out the various issues but also to the fine spirit of the contributors.

For the beginner there are environmental notes with diagrams of potting plants, of setting rocks on almost any scale, and the soil mixture required. There are easily understood notes on the earliest plants of our acquaintance : the different kinds of 'saxies,' gentians, the spring bulbs—crocus, snowdrops and narcissus, heathers and irises, primroses and phlox, with photographs to reproduce their charm.

For the advanced there is more exotic fare : wall gardens, trough gardens, sea-girt gardens, scree gardens, gardens on salt sand with higher problems of soil such as P.H., the value of lime in soils and even the use of sawdust ; illustrations of these are necessarily scarce.

Those who went jaunts about the country sent in descriptions of rock plants and their habitats from Glen Clova and Ben Lawers. Specialists wrote of our native plants, from Westmoreland to the far north. Travellers and plant collectors (to whom all praise), visiting far away places with strange-sounding names, wrote of the plants they saw in them, both well-known and those about to be introduced into our gardens from the Sierra Nevadas, the Alps, the Himalayas—west to east—and central Nepal. Across the seven seas we have made friends, through our hobby, who write of their plants in Norway, New Zealand and the Americas. Cultivators of rare plants from everywhere write of them and offer us a chance to get them (may their sales increase ten-fold). Innumerable plants have had their likes and dislikes described for our advantage and their beauties enhanced by pictures—and an extraordinary range—Auricula, ferns and cactus, Nomocharis and Lewisia, columbines and Cyclamen among them.

Many plants huddle into shrubs for shelter in their native highlands, so we've learned about those too, shrubby Potentillas, brooms and dwarf conifers, Mediterranean heaths, little Rhododendrons and other peat-loving plants.

These are just a few items that please an individual palate. There is another activity of universal appeal, perhaps the most appreciated of all. It came through the wish of those members who had seed of their little plants to spare and wished to let less fortunate members have some to play with. This resulted in the creation of the seed exchange, whose value is above price and makes everyone the debtor to those who arrange it.

The *Journal* was born and the faltering steps of its infancy have strengthened to a steady stride as the interest in rock plants has grown. The Shows, which are also described in the *Journal*, bear further witness if required. So far, so good, but do not look back ; look to the hills whence cometh our help. There is still much scope for the traveller, the writer, the cultivator, the investigator and the demonstrator ; new teams of them as the years go by.

There are among us many who, it is hoped, will read the assuredly magnificent Jubilee number. It is a good thing to look ahead to, for we *shall* prosper. That is the mark of our endeavour and appreciation.

Word Pictures by J. D. Hooker

CONTRIBUTED

"I HAD A rich harvest, for though *Compositae*, *Pedicularis* and a few more of the finer Himalayan plants flower later, June is still the month for show."

"Rhododendrons occupy the most prominent place, clothing the mountain slopes with a deep green mantle glowing with bells of brilliant colours (see Fig. 6) ; of the eight or ten species growing here (Zemu valley), every bush was loaded with as great a profusion of blossoms as are their northern congeners in our gardens. Primroses are next, both in beauty and abundance ; and they are accompanied by yellow three feet high cowslips, purple polyanthus, and pink, large-flowered, dwarf kinds nestling in the rocks, and an exquisitely beautiful blue miniature species, whose blossoms sparkle like sapphires on the turf. Gentians begin to unfold their deep azure bells, aconites to rear their tall blue spikes and fritillaries and *Meconopsis* burst into flower. On the black rocks the gigantic rhubarb (*Rheum nobile*) forms pale pyramidal towers a yard high of inflated reflexed bracts that conceal the flowers and, overlapping one another like tiles, protect them from the wind and rain : a whorl of broad leaves edged with red spreads on the ground at the base of the plant, contrasting in colour with the

transparent bracts which are yellow margined with pink . . . The elevation being 12,080 feet, I was above the limit of trees and the ground was covered with many kinds of small-flowered honeysuckles, berberry and white rose. I saw no birds. . . .''

''Large silky cushions of a forget-me-not grew among the rocks spangled with beautiful flowers and looking like turquoises set in silver ; and the *Delphinium glaciale* was also abundant, exhaling a rank smell of musk. It indicates a very great elevation in Sikkim and on my ascent not far above it I was not surprised to find water boil at 182.C (air 43°), which gives an altitude of 16,754 feet. A dense fog shut out all view.''

''It was sometimes dark before we got back to our tents, tired, with torn clothes and cut feet and hands, returning to a miserable dinner of boiled herbs ; but never did any of them (his Lepcha boys) complain or express a wish to leave me . . . they were always busy changing my plants and drying the papers over a sulky fire at my tent door. . . .''

''The dog gave tongue as twenty or thirty people defiled up the glen and gathered in front of my tent ; they were ragged Bhoteas with bare heads and legs, in scanty woollen garments sodden with rain which streamed off their shaggy hair and furrowed their sooty faces : their whole appearance recalled to my mind Dugald Dalgetty's friends, the children of the mist. The children were very fair ; indeed the young Tibetan is as fair as an English brunette before his perennial coat of smoke and dirt has permanently stained his face.''

''The great yellow-flowered Begonia was abundant and he (the Kajee) cut its juicy stalks to make sauce (as we do apple-sauce) for some pork ; the taste is acid and very pleasant. The large succulent fern called *Botrychium* grew here plentifully ; it is boiled and eaten both here and in New Zealand.''

''At the foot of the mountain was a Tibetan camp of broad, black, yak-hair tents, stretched out with ropes and looking like (to borrow M. Huc's graphic simile*) fat-bodied, long-legged spiders. In one of them I found a buxom girl, the image of good humour, making butter and curd from yak-milk. The churns were of two kinds ; one being an oblong box of birch-bark, or close bamboo-wicker work, full of branched rhododendron twigs, in which the cream is shaken. . . The other was a goat-skin which was rolled about and shaken by the four legs.''

''In the evening the sick came to me : their complaints as usual being rheumatism, ophthalmia, goitres, cuts, bruises and poisoning by *Arum*, fungi and other deleterious vegetables. I attended an old woman who dressed her ulcers with *Plantago* (plantain) leaves, a very common Scottish remedy ; the ribs being drawn out from the leaf, which is applied fresh ; it is a rather strong remedy. A good-looking girl came to ask me for medicine for her husband's eyes, which had

*(*Travels in Tartary, Thibet and China*, 1844-6)

Photo.—Jas. Aitken

FIG. 2—Liathach, Wester Ross. (See page 8)

Photo.—B. Cowie

FIG. 3.—Erythronium grandiflorum. (See page 39)

suffered from snow-blindness ; she brought a present of snuff and carried a little child, stark naked, yet warm from the powerful rays of the sun at nearly 14,000 feet in December ! I prescribed for the man and gave the mother a bright farthing to hang round the child's neck, which delighted the party. My watch was only wondered at, but a little spring measuring-tape that rolled itself up, struck them dumb ; and when I threw it on the ground with the tape out, the mother shrieked and ran away, while the little savage howled after her.''

''We reached the boundary between Sikkim and Tibet, 15,745 feet, early in the afternoon. The rocks were chiefly of reddish granite. Isolated patches of vegetation . . . most of them being of a tufted habit ; some forming hemispherical balls on the naked soil ; others growing in matted tufts level with the ground. The greater proportion had no woolly covering, nor did I find any of the cottony species of *Saussurea* which are so common on the wetter mountains to the southward. Some most delicate-flowered plants even defy the biting winds of these exposed regions ; such are a prickly *Meconopsis* with slender flower-stalks and four large blue poppy-like petals, a *Cyananthus* with a membranous bell-shaped corolla and a fritillary. . . . Kinchinjow on the contrary was of gneiss with granite veins. The rocks were covered with an *Ephedra*, an *Onosma* which yields a purple dye, *Orchis*, and species of *Androsacae*, while the lower moist slopes were clothed with the spikenard *Nardostachys Jatamansi*, a species of Valerian smelling strongly of patchouli, and purple *Pedicularis* and the yellow cowslip.''

''Our other visit (of ceremony) was paid to the Lama's family. . . He conducted us to a beautiful little oratory at one end of the building, fitted up like a square temple and lighted with latticed windows covered with brilliant and tasteful paintings by Lhassan artists. The beams of the ceiling were supported by octagonal columns painted red with broad capitals. Everywhere the lotus, the *mani* and the *chirki* (or wheel with three rays, emblematic of the Boodist Trinity) were introduced ; ''Om Mani Padmi hom'' in gilt letters adorned the projecting end of every beam. A mythical animal with a dog's head and blood red spot over the forehead was not uncommon. The Chinese ''cloud messenger'' or winged dragon floated in azure and gold along the capitals and beams, among scrolls and groups of flowers. At one end was a sitting statue of Goracknath in Lama robes, surrounded by a glory, with mite and beads ; the right hand holding the *dorje* (thunderbolt) and the forefinger raised in prayer. Around was a good library of books of the usual Tibetan form, oblong squares of separate block-printed leaves of paper, made in Nepal or Bhotan from the bark of a Daphne, bound together by silk cords and placed between ornamented wooden boards. More presents were brought, and tea served.''

''I ascended with Campbell to the lake 17,500 feet above the sea ; it is a mile and a half long and occupies a large depression between two rounded spurs, being fed by glaciers from Kinchinjow. The rocks

of these spurs were all of red quartz and slates, cut into broad terraces, covered with a thick talus of gneiss and granite in angular pebbles. . . . The ice on the cliffs and summit of Kinchinjow was much greener and clearer than that on the south face (opposite Palung) ; and rows of immense icicles hung from the cliffs. A conferva grew in the waters of the lake and short hard tufts of sedge on the banks, but no other plants were to be seen. Brahminee geese, teal and widgeon were swimming in the waters and a beetle (*Elaphrus*) was coursing over the wet banks ; finches and other small birds were numerous, eating the sedge-seeds and picking up the insects. . . . This being the migrating season, swallows flitted through the air ; finches, larks and sparrows were hopping over the sterile soil seeking food. The geese which had roosted by the river cackled ; the wild ducks quacked and plumed themselves ; ouzels and waders screamed or chirped ; and all rejoiced as they prepared themselves for the last flight of the year. An enormous quantity of water-fowl breed in Tibet, among them the 'Sara,' or great crane of India.''

''Evening overtook us while still on the snow near the last ascent. As the sun declined, the snow at our feet reflected the most exquisitely delicate peach-bloom hue, and looking west from the top of the pass the scenery was gorgeous beyond description, for the sun was just plunging into a sea of mist, among some cirrhi and stratus, all in a blaze of the ruddiest coppery hue. As it sank, the Nepal peaks assumed more definite, darker and gigantic forms and floods of light shot across the misty ocean, bathing the landscape around me in the most wonderful and indescribable changing tints. As the luminary was vanishing the whole horizon glowed like copper run from a smelting furnace and, when it had quite disappeared, the ragged edges of the mist shone like a row of volcanoes in the distance.

''In some of Turner's pictures I have recognised similar effects caught and fixed by a marvellous effort of genius. Such are the fleeting hues over the ice in his ''Whalers'' and the ruddy fire in his ''Wind, Steam and Rain,'' which one almost fears to touch. Any combination of science and art can no more recall the scene than it can the feelings during the hour I spent in solitude among these stupendous mountains.''

* * * *

Joseph Dalton Hooper was surveying, as all plant collectors do, the flora of a foreign land to send home seed of its gems and notes of their surroundings, i.e. habitats, in his Himalayan Journals, for our delight. These pictures, only a few among many, may serve as tribute to those of the same spirit who went to foreign fields before him and also to those who have done so since.

The Scottish Rock Garden Club offers that tribute in the most appreciative sincerity.

The Incense Plant of the Western Isles

By 'A. MACINTYRE'

MAYBE YOU HAVE a little of the gaelic ?—and that, with a gaelic dictionary, will help you to learn the plants woven into the songs of our ancestral, Celtic, rocky land. Tough little plants of a rocky home. Songs or 'mouth music' that sound again the lilt of the western seas and the sweep and sough of all their winds ; so that a Lewis girl could hear twelve different sea sounds in the varying roar of Glasgow's street traffic.

Those jewels, the Isles of the Sea, are set in the mouth of the Firth of Lorne and encompassed by the larger islands of Mull, Jura and Colonsay. Seil is one of them and lies fourteen miles south of Oban, whence the road comes swinging down to a charming stone bridge curved high for the passage of the local shipping up the narrow sound. Maybe that same shipping helped the little purple *Erinus alpinus* that is spangled over the south wall face of the bridge in contrasting colour, to get there. The road runs on to Easdale in the sou'west corner of the island, so famous for its slate quarries (see Fig. 10). The general undulations of the land in low valleys is due to the trend nor'east of those slates and their accompanying rocks (see Fig. 8). Great dykes of dolerite jut through them here and there on an east to west line that points to Mull in the west, the centre of their activity in days long past. Iona was the centre of later activities for our greater benefit. The alluvial sediments filling the hollows, mostly across the top of the island, are just wet swamps ; there is no peat, it is too damp. They lend themselves to water storage for the houses round the southern shores. Great stretches of coarse reeds surround them with belts of bracken on nearby drier ground. Trees are few, although you will know when you have climbed to the highest point of the land, nearly five hundred feet above sea level, for there a rowan tree springs from the steepest and most inaccessible of the rocks, where even the few wild goats native to the place cannot reach it, and holds its storm-battered crown high over all.

The soil produced by the weathering of the slates supports fairly good rough pasture grass, but the most fertile soil is over the Epidiorite sill across the sou'east corner of the island, where there are a few small farms. The soil is pinkish and sandy. Great Atlantic breakers roll in from the west to crash in roars and giggles of 'sea-laughter' and fling high their spume to have it carried by the thrilling winds right over the rowan tree on stormy days. Rightly did the old people call them 'Islands of Song' for the sea and the wind have many tones to make their wild harmonies.

The slate-grey rocks of the shore are dotted with pink and green hedgehogs of Thrift, over which the roughest seas surge at times. The short turf above them is spangled in tufts of Potentil. Sheep in their climbing have scarred the slopes but it is only in their tracks that any ascent can be made to the higher slopes and the home of the incense-giving plant. The outer western slopes have just pasture grass peren-

nially curved away from the wind, but on those more sheltered are flowers of many kinds.

They have a loose carpet of dwarf tangled Bog Myrtle about a foot high, among which are countless points of colour, clean yellow primroses, three-inch high spikes of purple orchid, the strong blue fringed flowers of *Polygala vulgaris*, the bright yellow of the fingered hand of the Bird's Foot Trefoil, and more occasionally that royal purple blue of Butterwort. Held above them all are the little flower spikes of Bog Myrtle giving off its nostalgic aromatic scent to sweeten the flowers, the land, the air . . . oh . . . everything. That day was 'fine with occasional showers' whose great clouds kept rolling in from the west, straight from the Atlantic ; and the breeze was light.

I rested full length on the myrtle bushes and just watched them, feeling like an eastern potentate as the incense encompassed me, quite happy to be unashamedly lazy and revelling in being so. I just lay and freed my mind. . . Sea gulls swung silently past, the chugging of the bus from Oban as it went by hundreds of feet below seemed but a tone of the wind. A baa-ing lamb as though in answer to a faint shout from a farm below broke the spell, so, gathering some sticks of incense, I came away . . . refreshed and calmed and went back to work in the city.

From Stirling to Oban the road to Seil has the loveliest scenery, great valleys whose distant crests are hidden in swirling mist, great mountain slopes down whose sides stream columns of dancing silver, the little loch of Lubnaig in whose waters I had fished for trout as a lad and on whose surrounding hills had walked with shepherds and their dogs, slopes now forest clad, sombre, dark, steepled conifer forest so unlike our own, on beside the great sweep of Loch Awe water and its narrow glen. West of that are the long golden wrack-fringed shores of the sea loch, Loch Etive, with a softer climate in keeping with, since it engendered them, the gentle spoken folk of these western lands and isles. We meet them by Oban's grand harbour and can go with them if we will. For those who do not know this charm of Scotland and would see it for a while, the return trip from Glasgow (or Edinburgh) to Oban will yield it in one day, but since one can only look from one side of the train at a time, it should be done twice, once in early May and again in mid August to see the glory of the heather in the glens and that means four times in all . . . humph, better get a season ; it's probably cheaper !

The Bog Myrtle—*Myrica Gale*—is called "cannach" in the gaelic, but remember that the name of the cotton grass is very like it, being called "canach." They grow in quite different conditions. The "cannach" (Bog Myrtle) is the badge plant of the Clan Campbell, but in spite of that *do* give it a place in your garden.

"Islands of Song" ! Since you know two of the songs at least, you should feel at home. One is even in the gaelic, here they are : 'My Nut-Brown Maiden,' which is the wind and sea together ; the other, a 'working song' : "Sure, by Tummel an' Loch Rannoch an' Lochaber I will go, as step I wi' my cromak to the Isles."

Ay ! you'll need a cromak. Have you got one ?

The Cultivation of Primulas

ON SUNDAY, 8th March 1953, in the B.B.C.'s "Scottish Garden" series conducted by Mr. James Bruce, the subject was "The Cultivation of Primulas" and the speaker Major W. G. Knox Finlay of Keillour Castle, Perthshire.

Of recent years Keillour Castle has become the Mecca of lovers of new and rare plants, among which are included many members (chiefly Asiatic) of the fascinating Primula family. The talk was necessarily limited to a very small number of the several hundred members (species and varieties) of this race of plants and excluded any of the more difficult sorts. Major Finlay emphasised that though those doing best at Keillour were mostly of the Asiatic group, that did not mean that all Asiatic primulas were easy and long-lived. The point was made that many might be short-lived unless cared for, mainly by being divided and re-planted after flowering ; a fresh root run was almost essential before the third flowering season.

Mr. Bruce prompted the remark that of course primulas were very easily grown from seed and that the important thing was *fresh* seed, but in this connection Major Finlay warned of the danger of primulas not coming true, as they hybridise so freely. In response to a query about the term "root run"—used a little earlier, it was explained that primulas, given the chance, very often develop a large root system and therefore need a good deal of space and freedom if they are to be happy. Another point made was that they must have moisture (not *stagnant* moisture) during their growing season, and that in many cases a certain amount of slight shade, such as supplied by not-too-dense deciduous trees, was desirable. The soil used at Keillour had been built up through the years by the incorporation of a high proportion of humus in the form of leafmould and old, thoroughly decomposed sawdust. The important point about the sawdust is that it must be *old*. To give a 'free' mixture for planting, plenty of leafmould and rotted sawdust should be well mixed with the soil and thoroughly firmed ; if the soil is not well firmed before planting, the primulas take a long time to get away.

An annual mulching of the beds helps to keep down weeds, and for this purpose the sawdust does not necessarily need to be quite so thoroughly rotted. Mixed with some Bone Meal or Hoof and Horn Meal, it is applied to the surface in the autumn, about one inch thick ; for some of the smaller species a proportion of sand is sometimes added.

Among easy-doing Asiatic primulas for beginners, pride of place was given to those of the Candelabra section such as Pp. *japonica*, *pulverulenta* (and of course the wonderful 'Bartley hybrids'), *helodoxa*, *aurantiaca*, *Bulleyana*, and *Beesiana*. Then came several of the Sikkimensis section—*sikkimensis* itself, *alpicola*, and *Florindae*. To add to the interest for the beginner, to prolong the flowering season, and to give variety in colour, Major Finlay suggested trying one or two of the Petiolaris section such as *P. Edgeworthii*, with its numerous large

lilac flowers from November onwards, *gracilipes*, *bracteosa*, *tzariensis*, and *Griffithii*, all free growers and increasing rapidly.

Most of these primulas of the Petiolaris group have the added advantage that they are easily propagated by leaf cuttings. The leaves, taken in July with the basal growth bud intact, are laid in shallow damp sand in a cold frame or a box with a sheet of glass on top. In about three months they have formed roots and are ready to be transferred to pots.

* * * *

This ended the B.B.C. talk for general listeners, but Major Finlay has kindly carried his subject a step further for Club members.

* * * *

I am sure that all members who have fallen for the cultivation of the genus Primula will have found that there are few really easy species. There always seems to be a "something" happening to make things difficult—pests, weather, diseases, and a general scarcity of knowledge as to the necessary treatment to meet the plants' requirements in this country ; all mount up to make a bank of trouble, requiring more or less constant attention ; they can not be left to themselves to grow and multiply from year to year like most respectable herbaceous plants.

With this very large genus there are plants to suit most of us who are willing to have their best hopes shattered from time to time. Many of the species have been introduced by seeds and "flown home" plants, just to be lost before they got the chance to become established. The difficulties of dealing with the specialists' plants are ten-fold, but one of the greatest is that of endeavouring to get the plant acclimatised to the very different conditions in this country, compared to its natural habitat ; some will test the skill and defeat most growers. We like to think in such cases that the plant is naturally short-lived and blame it for dying, but inwardly I think this is seldom the cause of the casualties. When plants are in "short supply" it is exceedingly difficult to make sufficient experiments to cover all the possible requirements as to habitat, soil, exposure, water, etc. If we have plenty, they can be planted out in as many likely places as we can select, and we can make as many different soil mixtures, that we imagine may be acceptable ; in these circumstances we retain some plants under special care in case of accidents. If we only have one or two they are usually put out to take their chance, but this is all after the seedling stage which frequently causes most bother and may be termed "crisis" period number one. I find the next "crisis" period is after planting out ; if they come along well after that we look forward to them flowering, then comes the most difficult time of all. When there are very few plants and no seed, I never know what to do, and usually do it wrong ; it's a case of "up and divide" to give a fresh root run, or not. I often trust to luck and leave them alone.

Let us take as an example *Primula Sonchifolia* (Franch) of the Petiolares section from the mountains of Szechwan in China, and also from the Hipmaw Hills in north Burma and other localities in the

Himalayas (see Fig. 11). The exciting history of its discovery and eventual importation of the living plants by the late Mr. Tom Hay is too well known for me to repeat it here, but some notes of its natural habitat, and our experiences with it, may help any growers who are inclined to try and cope with it, or its relations.

Its home is the cold temporate or sub-alpine zone, the upper limit of which is at a height of 13,900 to 14,250 ft. The snow cover is of short duration ; on some of these mountains at that altitude there is no snow at all. This Primula is especially fitted for these conditions and early flowering. The broad and thick, succulent leaf sheaths, and the close-set leaves not quite unfolded yet, with the flowers embedded between them, as in a warm nest, offer an effective protection from cold winds ; and the growing place is selected with a view to that, in the deep ground of dense fir forests or under a still closer roof of gnarled rhododendron trees about 13 ft. high, and in deep black soil covered by rhododendron leaves. There it flowers so early, sometimes in mid April, revealing plump many-flowered hemispheres which match the summer skies in depth of blue, on quite open spaces beside rocks warmed by the sun. There are few other plants flowering at the same time ; considering the small amount of snow and the bright sun before the rain period begins, this behaviour is remarkable.

We were given a few green seeds by the late Mr. Harley of Devonhall in 1936 ; these were sown at once, but after several months no germination had taken place. It occurred to us to try plunging the pan in some late Spring snow as the seeds probably got that in the natural habitat. The response was almost immediate ; after four days we got a good germination (we like to think that this was the first time snow treatment of ungerminated seeds was tried in this country). The seedlings grew away rapidly and we were able to put plants out in the Autumn of 1937. They were planted in a large stone trough in our woodland garden as I was anxious to have shade with very quick drainage and also to be able to move the whole batch into a more suitable position if necessary. From these flowering plants we got seed and have never been without this wonderful species since. From time to time since its introduction this Primula has done well in cultivation, making huge cabbagy masses of foliage after flowering. In spite of this seeming rude health it often sets no seed and sickens ; nothing I have discovered will prevent those sick plants from passing away. What surprises me is that it has gone on for so long ; we find it very demanding of great care. I shudder to think of the neglect our plants experienced during the war years ; we might have lost them all. But maybe neglect is what they like ; it's what they get at home.

At present we grow our plants in as many positions and soil mixtures as the number we have allows, some on the slightly sloping beds of the Peat Walls facing north, some in the bed on the way down to the Dell in almost constant shade, where there is a seepage of water coming down the rock face all year round, others are growing well in a bed under the main avenue bridge with at least fifteen feet of head room ; very little overhead moisture is obtained by these plants, but water in

plenty can get into the bed from the burn. Sometimes a spate will submerge the plants completely, but the drainage is good. Some plants in the open are covered with "windowlite" hoods during winter, "just in case;" some are not covered ; to us it appears to make no difference to the health of the wintering crowns. I find it a shy seeder ; our only stem with viable seed on it last year was smashed to bits by the foot of a very careless visitor. I have picked up large plants after flowering with five, and sometimes seven crowns, divided them up hopefully, and lost the lot, luckily having left some others undisturbed. This was very distressing as it is my normal method of propagating plants of this section. I now leave Sonchifolia alone till I see the crowns almost falling apart (after three years' flowering) before touching it. Everything is tried to keep it going ; several of my efforts have proved disastrous. A very nice specimen was lifted in flower and taken to the Edinburgh S.R.G.C. Show in 1949 ; it was given the Forrest Medal but never recovered. These are examples of how careful one has to be in guarding the life of a rare plant.

It is most unlikely that there are many cultivators of primulas who are able to copy exactly the growing conditions of any other garden, therefore the more experimenting that can be done, the better. The above can be taken as the normal treatment we carry out with the less well-known Primulas—whether American, Asiatic, or European —that we have been lucky enough to possess through the kindness of our friends.

In conclusion may I say that we have always considered any heart-breaks and anxious troublesome times we have had as well worth it all, even if we have the plants for only a short time. We get a tremendous thrill out of our successes.

The Flower Shop

If you ever have a feeling that you'd like a special treat,
There's a gardener in Yēdo that you really ought to meet,
His plot of ground is all laid out with tables, and on these
He grows, in small glazed flower pots, minute and perfect trees.

A sunset of azaleas is growing on one stall :
With maples, and a jessamine, just like a golden ball ;
And then, in long low dishes, grouped beside a green bamboo,
A pine tree, and a nanten—with a *lucky flower or two.

I will not tell you now about wystaria or plum ;
Nor yet of flowering cherry, for you'll see them when you come :
But do be careful not to ask how dwarfing plants is done,
Because it is a secret, and he won't tell anyone.

**Adonis siberica.* R. M. H.

Two Plodders in the Pyrenees

By C. E. DAVIDSON

Plants marked * are Endemic

HIGH UP in the central Pyrenees lies the lovely Valle de Aran (see Fig. 12). It is, by repute, one of the most beautiful valleys of this range and enjoys the almost unique position of being in Spain, yet on the north side of the main water-shed. For these reasons, and also because it appears to be practically unknown in Britain, we decided to go there this summer (1953), and engaged rooms in Salardu (3,600 ft.), the highest village at which hotel accommodation can be had.

The afternoon of 26th June saw us rattling up the valley in the local bus, surrounded by Spanish housewives, priests, and loaves of bread. Steep, wooded hills rose on either side, with glimpses of snowy peaks beyond. The numerous villages on the route gave one an impression of antiquity, each huddled round a Romanesque church. Arrived at Salardu, we were made welcome by three kind and pleasant Spanish sisters. Their little hotel, built on a rock, was spotlessly clean. From the terrace outside, looking west, a magnificent view could be had of the Maladetta massif with the giant peak of the Pyrenees, D'Aneto. Below roared a boisterous stream—the young river Garonne.

In this remote valley, life was leisurely, and living cheap. For instance, a litre of good Spanish wine cost 7d, a glass of excellent sherry 3d ; and the curious Spanish custom of dining between 9 and 10 p.m. suited us perfectly, giving us a round of the clock in the mountains. We needed this time, for nearly 2,000 ft. had to be climbed before reaching the true alpine belt.

Space does not permit of giving an account of each days' activities. We ranged far and wide, exploring valleys to the north and south, sometimes covering 25 miles in a day. The district is principally calcareous, but there are large granite intrusions and some shale. As might be expected, the limestone regions proved to have an infinitely richer, more varied and interesting flora than the granite, which provided little except *Rhododendron ferrugineum*, *Loiseleuria procumbens*, *Chrysanthemum alpinum* and *Arctostaphylos uva-ursi*, and we avoided the granite as much as possible. We did, however, make one long excursion far south to see some beautiful lakes that lie like aquamarines among grey mountains, and gazed with awe at the Colomes range beyond, a wild, desolate country of granite peaks and slides, almost devoid of vegetation. Farther east rose the still more savage peaks of the Encatats. When the Encatats are mentioned, even the local guides cross themselves and whisper tales of travellers who never return. Our only new find on this occasion was a colony of *Lilium* **pyrenaicum*, which grew in coarse grass above the shore of a lake.

Before describing the alpines, reference must be made to the meadow flowers, which were extremely beautiful. Amongst them we particularly admired *Paradisia liliastrum*, *Astrantia major*, *Iris xiphioides*, *Phyteuma*

orbiculare, *Dianthus superbus*, *D. Carthusianorum*, *D. deltoides*, and a large rose-pink scabious. Brightly-coloured, unfamiliar butterflies flitted among the flowers. We often regretted that we were without the means of identifying these and the many strange birds that inhabited the valley. Nightingales sang all day. In the fir woods above Salardu grew *Pyrola secunda*, *P. rotundifolia*, *Daphne laureola*, and a fine form of *Orchis maculata*.

The only transport to be had was the daily bus up the valley, which carried one to the Port de Bonaigna (6,200 ft.). Here, however, a difficulty arose. As a rule, the bus ran anything up to one hour late but sometimes passed fifteen minutes before its time. Ah well, if one is so unfortunate as to miss the bus, there is always tomorrow, mañana, mañana ! We did actually succeed in catching it twice, and arrived at the Port in a shaken condition—in both senses of the word. The road climbed steadily but slowly for some miles, then, as if tired of the valley, turned left and charged a mountain, mounting 1,500 ft. in a series of wild zig-zags. In spite of a prominent notice "Do not distract the driver," this gentleman carried on an animated conversation with everyone around him, frequently flinging both arms in the air. This usually occurred at hair-pin bends, and we were profoundly thankful when the road straightened out, and the refuge-house on the top of the pass came in sight. Alighting from the bus on the first occasion, we turned north towards some limestone cliffs, and had not gone far before we realised that we were on the happiest hunting ground in the district. The turf was covered with alpines : *Daphne Verloti*, *Lychnis alpina*, *Gentiana alpina*, *G. verna*, *Androsace carnea*, **Laggeri*, *Aethionema saxatilis*, *Douglasia vitaliana*, *Cerastium alpinum*, **Geranium cinereum* (a lovely dwarf, grey leaves, pale pink flowers), *Linum alpinum*, **Linaria faucicola*, *L. glauca* (pale yellow, orange lip). Reaching the cliffs, we discovered a gully which was climbable. In it grew *Armeria alpina*, *Anthyllis montana*, *Arabis bellidioides*, *Draba aizoides*, *D. carinthyaca* and many others. At the top of the gully we found ourselves on a sort of ledge, with steep, stoney slopes rising still higher. On these, we had our first sight of *Petrocallis pyrenaica*, some of the plants being 2 ft. across and every one smothered with lilac flowers. *Iberis saxatilis*, *Saxifraga caesia*, **Arenaria tetraquetra*, *A. ciliata*, *Dryas octopetala*, *Antennaria dioica*, *Hutchinsia alpina*, *Paronychia nivea* and quantities of *Ranunculus alpestris* were here too. Beyond, we came upon pastures with snow still lying in the hollows, where we found *Anemone alpina* in abundance, *A. narcissiflora*, *A. vernalis* (rare), a good form of **Ranunculus amplexicaulis*, sheets of *R. pyrenaeus*, and *Soldanella alpina*.

Rain, threatening for some time, now descended in deluges, and a thick curtain of mist began to roll up from below. Really alarmed, we came down at breack-neck speed, rolling and sliding most of the way, and found the 'refugio' with difficulty in the mist. We asked the guard, who luckily spoke a little French, if we might shelter and eat our lunch. He was very kind and took us into a room with a large log fire, where we soon became warm and reasonably dry again.

Spanish troops are garrisoned here, and evidently word had gone round that two of these strange animals, the British, were to be seen —one a woman in trousers ! Soon the room was quite full. To sit gnawing thick sandwiches, surrounded and watched by Spanish soldiers, was a little trying. Smiles, and offers of English cigarettes, had to take the place of conversation. When our last packet was almost finished, we told the guard that, as the weather showed no sign of clearing, we had decided to walk home instead of waiting for the bus—not due for five hours. He was astounded. To walk 14 kilometres in the rain when one could sit at a fire was the act of a madman. We reminded him that we were English—and therefore mad. When translated, this seemed to amuse the soldiers, who wished us "Addios" with broad grins on their faces.

There was much to interest us as we plodded home in the rain. We first saw **Aquilegia pyrenaica* by the roadside some distance below the pass. This was decidedly smaller than *A. alpina*, and 9-12 inches in height. A silver saxifrage, probably *Hostii*, growing in the rock cuttings, was magnificent.

Owing to an exasperating mist which hung over the mountains, we were unable to return to the pass for several days, but for our second visit we had a lovely clear day. This time, we hurried to higher levels, and were amazed by the display of gentians between seven and eight thousand feet. *Gentiana verna* was particularly fine, and ranged in colour from pale azure to deep indigo. We had lunch up here, basking in the sun. In retrospect, this day stands out as one of those red-letter days that linger in the memory for ever. In every direction were lovely views of rolling pastures and snowy ranges and, in the clear, sharp air, the sheets of gentian, androsace and ranunculus glowed with a dazzling brilliance, impossible to describe. While James was taking photographs, I climbed another ridge, in the hopes of aretian androsaces. A tiny green cushion on the cliffs below made my pulses race. After some manoeuvering, I got down to it, and came face to face with—*Silene acaulis* ! The deliciously-scented *Valerian saliunca* grew on the top of the ridge ; also *Saxifraga media* (a charming *engleria*, like *Strybryni*, but smaller) and, rambling in limestone chips, a prostrate plant with delicate white flowers and large pointed leaves, not yet identified. On the way down to the road, we collected an unfamiliar Hieracium, a tiny, prostrate plant with a woody stem, the leaves densely covered with silver fur.

Two of our finds in other places deserve special mention. In a rather inaccessible valley at about 7,500 ft., we came across a colony of tulips. These were 6 or 7 inches high, the corolla yellow, flushed on the outer petals with red. They have been identified as *Tulipa celsiana*, a form of *T. australis*. We have never seen records of any tulip from the Pyrenees, and would be glad to have information on the subject. The other plant was **Saponaria caespitosa* (see Fig. 14). This was a beautiful sight in high meadows, the compact, rosy cushions sometimes growing on the top of limestone boulders, without visible means of sustenance.

In addition to the plants already referred to, we found the following : *Arnica montana*, **Asperula hirta*, *Aster alpinus*, *Calamintha alpina*, *Carlina acaulis*, *Erica carnea*, *Erigeron alpinus*, *Eringium alpinum*, *Erinus alpinus*, *Erythronium dens-canis* (everywhere in pastures above 6,000 ft., but out of flower), **Fritillaria pyrenaica*, *Gentiana kochiana*, *G. lutea*, *Geum montanum*, *Globularia nana*, *G. nudicaulis*, *Helianthemum alpestre*, *H. polifolium*, **Helleborus viridis*, *Lathraea clandestina*, *Nigritella augustifolia*, *Ononis natrix*, *Oxytropis campestris*, *O. montana*, *Pinus montanus*, *Pinguicula grandiflora*, **Potentilla nivalis*, *P. rupestris*, *Primula veris*, *var. Columnae*, *P. farinosa*, *P. integrifolia*, *Ranunculus montana*, *R. Thora*, **Rosa pyrenaica* (6 in., carmine wild-rose flower), *Salix reticulata*, *S. retusa*, *Saponaria ocymoides*, *Saxifraga aizoon*, *S. aretioides*, *S. cochlearis*, *S. oppositifolia*, *S. retusa*, *S. rivularis*, **S. umbrosa*, *Sedum brevifolium*, *Sempervivum arachnoideum* (see Fig. 13), **S. montanum*, *Silene saxifraga*, **Teucrium pyrenaica*, *Veronica alpina*, *V. fruticulosa*, *V. saxatilis*, *Viola alpina*, *V. biflora*, **V. cornuta.*

The narcissi had died down and were difficult to identify :— *Narcissus poeticus*, *N. minor*, probably *N. juncifolius*, and several others.

We are indebted to Mr. David Wilkie of the Royal Botanic Garden, Edinburgh, for identifying several of the plants.

Sale of Plants in Edinburgh

A BRING AND BUY SALE will be held in Edinburgh on Saturday, 28th August. Mrs. Winifred Robertson is kindly giving us the use of her garage and garden for the sale, and coffee in the morning, and tea in the afternoon, will be served in her house.

The object is to raise money for the Edinburgh Show, which is likely to find difficulty in balancing its accounts owing to its reduction to a two-day show and to other reasons. It is hoped that members in Edinburgh and in the surrounding counties will support the sale by donations of plants and by coming to the sale, and that those unable to give plants will nevertheless come and buy.

The Sale will be open from 10.30 a.m. to 12.30 p.m., and from 3 to 5.30 p.m. Plants for sale should be delivered between 9.15 and 10 a.m., the earlier the better, to give the committee time to price and arrange the plants.

It is hoped that members will keep this sale in mind throughout the summer and that they will take a few cuttings at the appropriate times and grow them on, and the same applies to divisions and surplus seedlings.

D. M. MURRAY-LYON,
Edinburgh Show Secretary.

Essay on Rock Gardening

By L. WALMSLEY

MANY people have asked me, "What is this craze for Rock Gardening ? Where is the fascination and what is the point of it all ?" Some people when viewing the modern rock garden ask mockingly, "What is a rock plant, and what constitutes a good rock garden ?"

The Club has just reached its twenty-first birthday, and at a time like this one looks back and ponders on what a Club of this kind has achieved. Are its objects and aims still the same and are they worth it ?

Perhaps the first aim is to render possible as much interest for rock plants among as many people as possible. In Scotland, I think this has been achieved, although there is still much to do. Twenty years ago few people had rock gardens such as we know them now ; the old idea of a heap of stones without very much design has vanished. More natural rock formation is now preferred, with a view to making large pockets and shelves for plants. If this is too ambitious the owner improvises by making bays for rock plants, or perhaps an open scree where few rocks are needed. This garden is twenty-one years old and I can think of several contemporary ones built and designed on these more modern lines. No longer is it necessary to segregate rock plants, on the contrary a great many larger plants are now associated with true alpines. For instance, in many gardens now one finds borders of Gentians, Primulas, dwarf ericaceous plants, and Meconopsis all living happily together. In a border of this kind rocks are unnecessary, although I am still of the opinion that they do help to show off the plants.

The popularity of alpines is proved by the enormous variety offered in catalogues, and quite apart from genuine rock plant nurseries, herbaceous and shrub specialists now include many dwarf varieties suitable for rock gardens.

I have had the good fortune to visit a number of gardens in Scotland and England during the last few years. The variety of designs has become so enormous that I can only define the term "Rock Garden" as somewhere to establish rock plants. I say "establish" in preference to the rather more temporary Alpine House culture one once knew. A pot should never be regarded as a permanent home for a plant, whereas the open ground may well prove to be. The Alpine House is by no means altogether out of vogue, but on the whole one finds it more widely used for propagating purposes. The low, medium-sized frame has proved to be a more ideal place to house difficult plants, or those which dislike winter wet. They are labour saving and on the whole more successful. Plants for a great deal of the year will look after themselves in a sunk frame, but for succesful Alpine House culture constant attention is necessary.

Soil and aspect are two big considerations in designing a rock garden, but no aspect and no soil is impossible. There is a wonderful rock garden in Sussex completely hewn out of chalk. Lime need not be a drawback ; it is very helpful to some plants, such as Saxifrage, Iris, etc., but most ericaceous plants dislike it intensely. Perhaps the ideal soil is well-drained light loam, to which other soils can be added as required. A south-west to south aspect is the easiest of all, but north aspects are required for quite a lot of plants—for example Primulas (Petiolaris Section particularly), Shortias, Ramondas, etc.

Natural undulation can be very helpful ; it is much easier to make a rock garden on a slope than on the flat or on a sheer precipice. But again the flat garden need not be dull, and the steep garden, though presenting difficulties, can be used to advantage.

I can think of a small garden in the city of Aberdeen where a variety of rock plants are grown attractively in an ordinary flat oblong town walled garden. The owner cleverly designed her limited area into curved beds and irregular rock bays, with strategic points emphasised by a handsome umbrella Maple or a cleverly pruned ornamental Prunus. A certain amount of rock work was built up where necessary with choice evergreen dwarf Rhododendrons for permanent architecture. In a corner a small pool of water was made, paved and suitably built round. The whole was quite charming with its little granite chip paths and a flat piece of grass here and there to relieve the rockwork.

An opposite illustration I remember in the suburbs of Glasgow, where the atmosphere is much less accommodating. In this case the ground at the back was a sheer hill face of plain indifferent green-black grass. The owner set to work and imported rocks to some purpose. He hewed out the original hill face, shelved and terraced the steep slope, placed his rocks to hold deep wide pockets of soil, and then filled the whole with colourful alpines. His work was so rewarding that all the neighbours for miles round came to view this very enterprising and original garden.

Shelter is important for the windswept garden or sunbaked site ; trees and shrubs or even hedges become necessary. I have seen several types of this sort of garden, and the owners select flowering shrubs or ornamental hedge plants in preference to the eternal laurel or 'ponticum.' Skimmias, Escallonias, and Lonicera are all quick growing and effective and when a certain amount of shelter has grown up, better and taller shrubs can be slowly grown on. There is something particularly delightful about a pool of water in a garden, especially if it's a sunny one. Pools are not difficult to make, and the surrounds are very useful for bog plants such as Iris in variety and bog Primulas. Water lilies look quite charming grown in the pond itself and flower the whole summer. Troughs are a very useful adjunct to the rock garden for the really tiny plants, and should be placed in the sun. Small walls, made either of stone or peat blocks, can be built to suit

any aspect, and particularly suit plants that like to grow on their side—for example, Lewisia, Erinus, Dianthus, etc. A peat wall is more suitable for a shady position, for peat-loving treasures, such as Omphalogramma, Cassiope, and dwarf Pernettyas.

Another modern feature is the inclusion of dwarf bulbs. Before the war few rock gardeners regarded these as of any importance. But they have gained in favour owing to their immense variety. They can decorate the garden the whole year round and are particularly useful from late autumn to early spring—Crocus, Iris, Cyclamen, dwarf Narcissi, Tulip species, Scilla, to mention but a few, and that lovely South African, Rhodohypoxis, which flowers the whole summer. Nerine Bowdenii is a useful late autumn flowerer, though taller than any I have mentioned.

One still meets the critic who says, "Why go to all this trouble ; would not a herbaceous border do ?" This opens up the question : what is a rock gardener trying to do besides amuse himself ? Surely it is to establish plants from the high hills which are so little known and where few can roam ; and to increase this type of flora which is still rare and so very beautiful. There is something about the association of Gentians with rocks which conjures up in one's thoughts the blue skies and high peaks of the Swiss alps—all the glories of mountain scenery. It also brings to the fore the love of growing a *species* plant, one of nature's own. It is rather wonderful that a plant brought from a height of 6,000 ft., or even 10,000 ft., can accommodate itself in this country at sea level or a little above. One need not stop at the Swiss alps ; alpines grow in nearly all the mountain regions of the world. In this era of gardening we owe a tremendous amount to modern collectors, who have striven to introduce for us a huge bulk of seed and plants, known and unknown to cultivation. It is owing to their endeavours in collecting and subsequent lecturing, colour photography, films, etc., that alpine gardening has taken on a renewed enthusiasm. This new material is worth knowing and worth growing. The mystery of all that nature sows and reaps is never more dramatically portrayed than in the mountain regions. These tiny alpines learn to put up with extraordinary climatic conditions—snow, avalanche, sheets of rain, or drought. Still they survive, often growing in impossible places, fissures in rocks, open wind-swept screes, or rain-soaked valleys. Surely these rarest of all nature's treasures are worth a little trouble, and the rewards are manifold. To raise this type of plant, especially when the seed is rare and scarce, is a constant brave endeavour ; but since the flown-home plant is now a possibility, propagation should be easier, and it has become possible to introduce many plants which before could not travel.

Botanic Gardens in this country provide the widest collection of imported flora ; they have special facilities for seed raising and have herabria for naming and classifying the plants. I would recommend the enthusiast to pay a visit to these places, they are an education

in themselves, especially recommending the Edinburgh Rock Garden, perhaps the finest of its kind in the world. Each plant is most carefully labelled, not only with the name but very often the plant's natural habitat. Private gardeners can do much to help keep alive these collections, as no two places have the same climate in these peculiar little islands of ours, and I think Scotland is proving herself more accommodating for the newer introductions.

To return to the Club's coming-of-age, there is one garden I would like to mention particularly. It is over 21 years old and the owners are perhaps two of the pioneers of the rock garden world and hold a special place in the twenty-one years' history. They played a leading part in the A.G.S. Conference of 1936, and again their garden was one of the highlights of the 1951 Rock Plant Conference. Perhaps this garden is one of the best illustrations of what the rock gardener is trying to achieve. The garden is not very big, it is enclosed, but every inch of ground has been utilised to grow something. Here the large background shrubs Rhododendrons, Magnolias, Cotoneasters, to mention not a few, shelter and shade the smaller plants. *A great variety of the genera of rock plants are represented, some growing on screes in full sun and others in semi shade on the rocky slopes. Northern aspects are built up into small peateries for those plants that appreciate them. The whole is an alpine garden with the plants *established*, and happy in their surroundings, each plant being of individual interest. The owners will probably tell you that however many plants you see, many more have been lost over the years ; but this is rock gardening and inevitable when trying to grow alpines away from their natural habitat. It is a hobby of trial and experiment, loss and gain, but the interest is never-ending and the achievement—when it comes—some of nature's rarest creations.

I would like to end this essay with a note struck at the 1951 Conference. The resolution to establish rock plants in the open, to widen our own knowledge to bigger and better endeavour, and to encourage the young enthusiast to carry on the good work for another twenty-one years.

*See Figs 16 and 17.

Photo.—S. Mitchell

FIG. 4—Lewisias at Balgove, St. Andrews

Photo.—S. Mitchell

FIG. 5—Cyclamen Coum at Fingask, Errol

FIG. 6—A dark green mantle glowing with bells clothing the mountain slopes of Sikkim. (See page 15)

FIG. 7—Moraines before a glacier in Himalayas. (See page 17)

Photo.—A. MacIntyre

FIG. 8—The hollows and myrtle clad ridges pointing south to Luing and Scarba. (See page 19)

Photo.—J. G. Gilchrist

FIG. 9—The Club Emblem, Dryas octopetala, in nature. (See page 82)

An Alpine Trip to the Cascade Mountains of Washington State

By LEO M. LEBLANC

IT WAS with a great deal of enthusiasm that we had left our Gardens, on the 24th day of July, 1953, for a rendezvous in an alpine meadow that we had discovered on a previous trip, one year ago.

A friend had driven over the night before—he had planned for this for many a week ; we had discussed our preparations, packed our lunches, and completed the small details that were necessary ; then, relaxing around the fire-place, we anticipated our outing of the morrow.

The morning came upon us, bright and clear, and with its first light we were well on our way, for we wished to be on the crest of the mountains for the sunrise. The road led us through winding canyons of towering fir (*Pseudotsuga taxifolia*), the western hemlock, *Tsuga heterophylla*, and the giant cedar, *Thuja plicata*, finally emerging from the shadowy forest to parallel a yawning chasm on our right ; while far below a glacial stream was snaking its way across the valley floor, crawling this way and that and finally vanishing in the dim distance beyond. Snow fields glistened like crystals on the steep mountain slopes, while a pink flush was slowly spreading from peak to peak ; a most stimulating scene for a party of climbers, that would soon be at journey's end as far as our automobile was concerned. The road finally became very rough and steep, forcing the driver to shift into second gear for the last four miles. To our dismay there was snow on the sides of the road, and it looked quite deep on the north slopes ; we feared that we had selected the wrong day. However, at last, upon rounding a sharp horse-shoe-like curve, we sighted the location where we had previously parked our car, and soon we had pulled off the road and to the end of our first lap.

Shouldering our knapsacks, movie camera, and the other paraphenalia, which included our climbing rope, the four of us struck merrily off for the steep slope that still lay buried with deep snows. Upon reaching the foot of the climb, we roped ourselves together for safety's sake, and proceeded Indian file over the ice-encrusted snow. I could only guess the possible where-abouts of the trail, by certain landmarks that I remembered bordered the vicinity of the snow-bound path below us. After some difficult work we at last reached the 5,500 foot elevation. Here we decided to take a little time out and enjoy the sunrise on the snow-clad western peaks. The glow from the eastern sky had painted the range summits with a delicate pink, which made a beautiful contrast with the deep blues and purples of the lower sections of the mountain slopes. To the south-west, the magnificent head of Mt. Rainier was proudly lifted far above his surrounding neighbours ; deep fissures that spread like mighty fingers from the huge ice-cap, lay clearly defined in the rich morning glow, while the visible glacier system sparkled as the advancing sunlight tinted its surface with

fleshy pink. Indeed, it was a glorious scene, one that was difficult to turn our eyes from, and again renew our upward climb.

About nine o'clock we reached the ridge and another world, at least it seemed so to us, for the crest was clear of snow, and likewise the south slopes. The meadows were still half a mile ahead, though normally we should have been passing through beautiful fields of Erythroniums and Anemones, and other mountain flora, because the north fields generally are quite rich with plant life in this vicinity. Proceeding along the ridge trail, through scattered groups of the subalpine fir, *Abies lasiocarpa*, we noticed to our left, some one hundred yards ahead, an outcropping of rock—it seemed more like a small cliff—standing high above the trail ; growing in small crevices of the rock formation was the beautiful *Penstemon rupicola.* What a remarkable scene this was ; certainly this alone was reward enough for the hard climb. The morning sunlight was giving the effect of many small lights blazing on the rock surface and seemingly reflecting a pink glow over the whole cliff ; truly this Penstemon is one of the most spectacular of the plants of the high country.

Growing and flowering now on each side of the trail were immense fields of *Erythronium montanum* and the beautiful, creamy-flowered western wind-flower, *Anemone occidentalis. Vaccinium deliciosum* was beginning to cover itself with small urn-shaped blossoms of light pink, while *Phyllodoce empetriformis* had a few early bells swinging in the light breeze.

The path now led us to the top of a rise which overlooked a great bowl-shaped meadow ; in the center, quietly sleeping, lay an ice-covered pond, while grouped at edges of snow-drifts were more of the plants that have been mentioned. Truly here was one of the finest meadows that we had come upon during our many visits to the Cascade Range. Inactivity was evident on every side : while some plants were beginning to flower, the peak had certainly not been reached. We had arrived too early ; having had a cold spring, the snow was retreating very late in the summer. However, we were enjoying the trip ; looking ahead, we could see that the crest would soon reach a high point, which should have an elevation of about 6,300 ft., thus enabling us to have a good view of our surroundings. Increasing our pace, we soon reached this location, and what an award awaited us ! From the summit of this ridge we gazed down into the deep, blue waters of a beautiful lake, a thousand feet below us. It was peacefully resting in a basin surrounded by slumbering peaks that were only now beginning to shake off their winter blankets and spring to life with thousands of waving blossoms of exquisite loveliness. Raising our eyes from this tranquil setting, we let them rest on the range of mountains that extended far to the east and south of our position ; far to the south, we could discern the snow-capped peak of Mt. Adams, while off to the south-west Mt. Helens was clearly visible, its small, pure white cone showing so unmistakably against the blue sky in the distance.

Leaving such magnetic scenery, I concentrated on finding the plants that were flowering in our vicinity, in order that I might have suitable

subjects to film. Below where we were standing, a steep, rocky slope extended for some one hundred feet and then dropped in a sheer cliff to the gorge floor. On this difficult slope to explore I found nice plants of *Spraguea multiceps* ; this has a thick rootstock which bears several short stems with entire, spatulate leaves and heads of pinkish flowers ; it is a frequent dweller of volcanic regions. Here too was that very curious little plant, *Dicentra uniflora.* It has just a few tiny leaves, something of the texture and form of the family, from among them short stems arise, each bearing a small, quite dull, red Bleeding-Heart. These little fellows were hardly two inches in height ; after a few brief two or three weeks they disappear until next season. Most plants were just becoming active, with flower heads developing, while in some the colour was showing from the opening buds.

We decided to have our lunch, enjoy the magnificent view that was on every side of us, then finish the balance of the afternoon exploring the cliffs and meadows more thoroughly, and to return to this mountain retreat within two weeks. The plant life should be in its prime at that time, enabling us to have a more complete film of the area. While the trip was disappointing in some respects, yet it did have many rewards ; certainly we enjoyed every minute of our time spent in the exhilarating mountain air.

True to our promise to ourselves, our return trip was made on August 10th. This trip proved to be a fulfilment of our greatest expectations.

Arriving at the start of the trail, that bright, clear morning, we were amazed at the change that had taken place in two weeks of warm weather. The snow had left the north slope, except for a few scattered drifts, and it seemed that flowers were waving a gay welcome to us from every direction ; indeed, the steep mountain sides were crowded with blossoms. What a joyous picture had unfolded for us ! As we proceeded upwards, a new scene appeared as we rounded each boulder, and as we passed through every group of sub-alpine fir ; precious little time was consumed by our talking to each other ; our minds were too busy absorbing the whole glorious picture. Where before we had trod high snow drifts, we now walked through large colonies of Anemones and Erythroniums ; many of the wind-flowers were in full flower, while others were gaily tossing their plumed heads in the early mountain breeze. Even patches of the sub-alpine Lupine had commenced to bloom, and that attractive plant called Squaw-Grass, *Xerophyllum tenax* ; while growing with great freedom was that delightful alpine speedwell, *Veronica cusickii.* This pleasant scene kept unfolding throughout our climb, until we once again reached the ridge and groups of *Abies lasiocarpa* ; here it was that the mountain Rhododendron met us in full regalia, *R. albiflorum.* Now, that heather-like plant, *Phyllodoce empetriformis*, had really come into its own, great masses of bells were gently swaying in the moderate current of air that was sweeping up the southern slope.

(*Continued in next issue*)

Some New Plants from Turkey—Part I

By HENRY TOD, Ph.D.

IN THESE notes I would like to draw attention to some of the plants which are now appearing from the seed brought back by Dr. Peter Davis from Anatolia. The plants I have to mention range in size from the very tiny to the very large, and some of them are among the rarest plants in this part of the world.

To begin with, the smallest ones. We have the tiny, but very attractive *Trachelium myrtifolium* (P.D.16260). A fully grown plant in full flower is but little larger in diameter than a half-crown piece, and a half to three-quarters of an inch high. This plant is a chasmophyte, one of that curious group of which Davis has made a study which grow in deep chasms and are often restricted in their growth to one or two small loci alone. The flowers are little blue bells, rather like a very tiny campanula, and the plant flowers on for several months quite happily. The leaves are a hoary grey-green and some care is needed with it to prevent it damping off. Essentially it is a tiny gem for the Alpine House and not one to be planted in the open garden where it would, incidentally, be nearly invisible !

A rather larger plant of a closely related genus but, I think, a much less desirable one, is *Tracheliopsis tubulosa*, another chasmophyte (P.D.16604). This may reach 2½ to 3 inches across, and some two inches or so high, and is reputed to be sub-shrubby. This also is extremely floriferous, but as the flowers are very narrow white tubes, perhaps two millimetres in diameter, with a long, projecting style, they are only just visible. Actually, one of my plants was in flower long enough for the first flowers to have faded before I noticed that it *was* flowering !

Both these plants are very rare in their native haunts, but to my mind there is no comparison between them as regards desirability.

Next in size come some rather engaging Hypericums. The smallest is *Hypericum kellereri*, which forms a little huddled, tangled plant with rather leathery tiny leaves, and surprisingly large yellow flowers, the buds having a deep red flush on the outside. As yet it has not grown to more than an inch or so across, and about the same height. The next one is *H. aviculariifolium* (P.D.18387), which forms a pale glaucous cartwheel of stems radiating from a central crown, the overall diameter being perhaps fifteen inches. The good-sized yellow flowers are at the tips of the shoots. This looks like being a really good plant for the scree, with a good disposition, and quite free-flowering. There are one or two others which look promising but which have not, as yet, flowered with me. One which is quite incredibly floriferous, but probably not a plant for the small rock garden, is *H. orientale var.* (P.D.18493). This forms a big robust plant with stems which once more radiate from a central crown, but this time, instead of being prostrate, they stand upright after a few inches and the flowers are at intevals up the stem. It flowers over a long period, and looks as if it might be "a devil to seed"—personally I cut it back hard before it had

a chance to do so. Its leaves and stems are slightly sticky, with a curious scent, rather reminiscent of Border Phlox. A good sturdy plant for a really rough, tough place, free-flowering and able to take care of itself.

Some of Davis's introductions are among the finest "silvers" I have ever seen, and I have shown several of them at the Haddington Shows, when they are probably at their most beautiful. Like so many of the fine "silvers" they are rather liable to suffer from the damp of our climate. As I am still experimenting with them, I will leave them until a later date, when I may have more idea of how to cope with them.

One plant which is a good "silver" but much more robust, and a good plant for poorish soil is an Inula—I think, *I. heterolepis*. It seems to sucker mildly and has now formed a clump about a foot across, and stands 18 to 24 inches high with masses of yellow "buttons" for a long period.

Another plant which is a "near-silver" looks like being a really good rock garden plant. This is *Salvia caespitosa*, which has not as yet flowered with me, but has formed a beautifully uniform dome on the top of a bank. I understand it has good-sized purple flowers, sessile on the foliage, which should make it a really fine plant. The leaves are softly hairy, and it needs a sheet of glass in the winter, as do most of these Turkish plants. It would perhaps be more accurate to call it "hoary" rather than "silver," but anyhow, the cut foliage is fine and it has that elusive thing "quality."

Finally I would like to mention three Verbascum species from the same collections. The first is *Verbascum pestallozae*, which forms a tufted plant some six to eight inches high, the leaves being of the silvery type. This throws spikes of big yellow flowers which come out at ground level and then turn upwards, to stand a few inches taller than the leaves, and beside them. It is a sound perennial and should, I think, be grown in scree or else on a very steep slope, for, on a gentle slope in ordinary soil it grows a bit lax, and I am sure it should be better than it is—and it is good at that.

The second is a new species, *V. davisiana* (P.D.15101), which is of the more normal Verbascum type, a biennial with a single upright spike. The difference is that it does not grow anything like so tall as our native Mullein, only two to three feet, and has quite exceptionally large flowers. Each of these is from 1½ to 2 inches across, and they open over quite a long period. The centre of the flower has a contrasting colour in the form of purple-brown hairs.

The third and last plant is one of the most magnificent plants I have seen. It is *Verbascum splendens* (P.D. 18182), and its specific name really fits it, but it is emphatically a plant for a garden where things are done on a large scale. The first year or years, it forms a tuft of densely silvery leaves and it looks like any other silvery Verbascum seedling. The next year, however, things begin to happen. The heart of the tuft of leaves begins to form a neat rosette, and then the rosette begins to climb into the air. At this stage, it has, vaguely, the effect of a sharply-pointed-leaved and silvery Brussels Sprout plant. When the rosette is about two feet from the ground, growth slows down for a short while, and then the whole plant opens out.

The central shoot grows up very rapidly and develops into a huge branching inflorescence, finally reaching about eight feet high, by some two to three feet across. Then the great yellow flowers begin to open and this flourish continues until it is finally cut back by very hard frost—or was it final maturity? The individual flowers are about two inches across, and each plant produces literally hundreds. This last year they came into flower on July 5th and the last flowers opened on December 5th—which is a really long flowering period. Altogether this is a plant which can only be described as magnificent.

Erythroniums

By J. L. MOWAT

FEW PEOPLE, on seeing for the first time the graceful elegance of a patch of common Dog's Tooth Violet—what a shame that we should term such dainty plants common—but must have immediately desired to acquire such beauty for their own garden. My own most pleasing memory of the best known and longest grown Erythroniums—I refuse to use the word "common"—is of massed drifts thickly scattered in short grass under pines in the thin woodland of a Lanarkshire garden.

Although Dog's Tooth Violets certainly prefer such conditions of partial shade, and moist, well-drained sandy loam containing a proportion of humus such as leaf-mould or peat, they are not exacting in their cultural demands. I have grown and flowered them freely in the full sun of an open rock garden, and have even had them do in a border known to be as poor and starved as the proverbial church mouse. Nevertheless such treatment is not recommended; such exquisite members of the Liliaceae as Erythroniums deserve the best we can give—a good open loam, an annual top dressing with compost, leaf-mould, or old dung, and a cool position in partial shade.

With the exception of our old friend *E. Dens-canis*, introduced to our country near the end of the sixteenth century from its habitat stretching across the temperate Old World from Europe to Japan, all the genus belongs to North America. Most of them come from the north-west, but *E. albidum* and *E. propullans* are found in the central section stretching from Ontario southwards to Texas.

Many of these new world species and their varieties were first introduced to British gardens in the late years of last century, and it is good to know that still more species are likely to become familiar to us in the near future.

The strongest growing species—probably *E. californicum*—may run up to eighteen inches in height, but most of the genus grow one foot or less in height and, with the exception of one or two whose foliage is unmarked bright green, the ovate or lanceolate leaves—all radical—are attractively marbled or mottled.

The broadly ovate leaves of *E. Dens-canis* are blotched with purple and white, and the Cyclamen-like flowers, carried singly on four to six-inch stems, are a rosy lilac in colour, darker at the base, about two inches across, and appear in March or April. Several named

varieties of this species exist either as variations in colour, size of flower, or strength of growth. *E. albidum* is slightly taller than *Denscanis*, the flower stems running up to six or eight inches, and the leaves, instead of being ovate, are more an oblong-lanceolate and only slightly mottled. The white or whitish flowers are somewhat smaller and again borne singly.

The lanceolate leaves of *E. americanum* are generally much more marbled and dotted with purple and white, and the singly-borne flowers are about one inch across and bright yellow. Several forms have been given varietal names but I do not know them to be able to say if they are any improvement on the type.

Although not brightly coloured, the flowers being a pale creamy yellow shade darkening to orange at the base, *E. californicum* has always been a favourite with me. Its leaves are ovate-laceolate and most attractively marbled, and several open-spreading flowers are borne on each stem, which may be from nine inches to a foot or more in height. It has not increased with me to any great extent over many years, but I must admit to growing it in a border that is far too dry and poor in humus.

Now we come to what I regard as the finest of the Erythroniums I have yet met with—*E. grandiflorum*—with its six-inch, bright green, lanceolate, or oblong-lanceolate leaves, and tall stems carrying bright yellow flowers. These bright yellow, lily-like flowers are borne several on each stem and their two-inch sepals and petals are beautifully recurved. Variations of the species, either in colour of flower or anthers, have been given distinctive varietal names.

E. Hendersonii is another handsome strong-growing species, but this time with two opposite, oblong leaves spotted in dull green and purple shades. The graceful, drooping flowers, two or three on a stem, with reflexing segments, are a pale lilac darkening to purple at their bases. The flower stems may be anything up to a foot in height.

In many ways *E. Hartwegii* resembles *E. californicum.* Its leaves are most attractively marbled with dull purple markings and its flowers are a creamy yellow, darkening to orange at the base. Here the resemblance ends, because the arrangement of flowers on stem is altogether different. The flowers of *E. Hartwegii* are each borne on pedicels, perhaps three inches long, which all spring from the main stem at a common point, rather like an umbel.

With its pale yellow or ivory flowers, borne three or four on each stem above handsome mottled leaves, *E. Howellii* is another most attractive species that has proved its liking for our country by growing vigorously and, I believe, by naturalising itself freely in some gardens. *E. revolutum* has seldom more than one or two flowers per stem, cream or ivory in colour, and its leaves are mottled faintly with brownish and pale markings. A number of colour variations have been named.

We have seedlings of *E. tuolumnense* and one or two other species, some unnamed, coming on nicely from seed sent by a friend in British Columbia, and I look forward with keen anticipation to the time when these will add their grace and beauty to that of their brother Erythroniums already established with us.

All Over the Place

Burma, January 18th, 1947

KALEWA TO TIDDIM

By COMPTON MACKENZIE

"THE ROAD to Kalemyo ran for a while through level country between what Bayley said was the true elephant grass. What we had been calling elephant grass looked like the pampas grass of gardens. This was plumeless. Some thousands of acres of land round here must have been cultivated before the Japanese invasion. After several miles of rough but agreeable progress we reached the Neyinzaya river, the bridge over which had been destroyed by the Japs. We crossed over by a wobbly improvised bridge on one side of which in the water lay a Jap tank. From Kalemyo, where the villagers stared at us with obvious dislike, we drove along an avenue of various trees which must have been left when the ground on either side was cleared for cultivation. Most avenues have only one or at most two varieties of trees and this procession on either side of at least twenty kinds was exciting. We admired particularly a tall acacia-like tree with large glittering pods the colour of rose-madder. We stopped to look at a minute cemetery on the left of the road.

The avenue now entered a grove of magnificent trees and began to climb, narrowing to barely enough width for one way traffic by trucks. The surface was slimy and damp and often fairly deep in mud, which made the turns tricky for a jeep with a trailer. I was driving beside Bayley with Thomson at the back.

Up and up through a gothic landscape of craggy watercourses and huge trees, the land rising steeply to the left of us and dipping down on the other side to a green sea of jungle below. Up and up, occasionally passing parties of Chins who with their heavy packs looked like gnomes. We reached a superb punchbowl of foliage. Up and up until we were in the clouds which, however, were never dense enough to create an awkward fog. Sometimes the sun, striking the mist aslant, turned it into a ladder with silver rungs. Up and up, until we were above the clouds, which now became a sea of milky billows in which was set an archipelago of mountain tops like dark pyramids. Up and up, corkscrewing up the slimy ochreous road, I suddenly saw my first *Rhododendron arboreum* and nearly bounced out of the jeep. They became more plentiful, some of them with hoary trunks at least a yard round and thirty feet of blossoming rubies, but mostly they did not exceed fifteen feet. Up and up. We turned left to run along a level ridge. A foot or so beyond the jeep on the left there was an almost sheer drop of 3,000 feet to a wild glen, but the sides being covered with trees it was easy to gaze down unperturbed. From time to time we passed an abandoned lorry rusting away, and once we saw a Jap tank. Two golden orioles swam down into the abyss. It was down

this road that 5th Indian Division marched through the monsoon to victory ; but I do not suppose that they admired the sublime landscape.

The air began to be really cold as we came to a country of what looked like dark holm-oaks. Birds of every kind were now numerous, but for the first time the ubiquitous wagtail did not go dipping along the road ahead of us. We saw two or three large trees with silver trunks and a spreading head of grey-green poplar-like leaves. We passed the Third Stockade, which our forces held in about 1890, and reached Fort White, where down below the small village we could see the cemetery of those who fell then. Presently Hill 52 (8,198 ft.) rolled up skyward before us—an eagle soaring above its bald top. We found a spot where the wind was not too shrewd and settled down to tiffin at 13.45. The lower slopes of Hill 52 were sprinkled with the debris of war—the quick release buckles of parachute containers and many empty cartridges. I saw to my joy my first primula. It was the colour of *P. denticulata*, but grew with a looser head of flowers and was perhaps a shade rosier. I ache for a Flora. With the primulas were growing what resembled an *Androsace* of exactly the same shade of rosy-mauve. They both sprang from the short brownish grass on which the cattle of the Chins seem to thrive. These were being driven to their grazing—bells tinkling from their tawny necks.

After lunch we drove on round to Kennedy Peak (8,876 ft.), on the forward slopes of which Hulme says he and his Seventh Gurkhas used to watch with mixed feelings a bunch of red tabs observing their bitter and bloody struggle for Hill 52. The road ran into light jungle. We saw a large civet cat with a dark bristling tail as bushy as a fox's go bounding along a tree-trunk above the road. A new tree with blossoms like a small white magnolia was in evidence. The foliage was like a rhododendron. After rounding Kennedy Peak we passed Vital Corner after which the road ran gradually down into a country full of pines, and about 16.30 we reached Tiddim (5, 500 ft.) at the end of the most wonderful drive I have had in all my life, the beauty and grandeur of which evaporates in these feeble word of mine.

* * * *

The above extract was taken, with Sir Compton Mackenzie's permission, from his diary of his journey through Burma and other places—"All Over the Place." That journey was made at the invitation of the Historical Section of the Defence Department of the Government of India, to write a history of the contribution India had made to victory in the Second World War, as an unofficial publication. It took ten months, during which Sir Compton travelled about eight thousand miles by sea, made over sixty flights totalling thirty thousand miles, and covered nine thousand miles by road and three thousand miles by train—about fifty thousand miles in all—and with one hundred and one different beds. This, at the age of sixty-five, indicates a spirit we are proud to witness to and one which should inspire us all.

The Editor takes this opportunity of expressing his great appreciation of this fine gesture by Sir Compton.

Pottering among Primroses

By ROLAND EDGAR COOPER, F.R.S.E.

MY MEANING of 'pottering' is to pick things up, to look at them and to wonder. Should anyone ask "What on earth are you doing?" the answer is "Looking for what makes it work." I learned the trick of it years ago when Professor I. Bayley Balfour and L. B. Stewart used to potter in the hot propagating frames. "What's happening?" said one; "So and so—What's that for?" said the other. The world knows how far they got. "Never believe books," said L. B. "See for yourself," and in his time he confounded at least two learned professors to I.B.B.'s delight.

I had heard Reginald Farrer, the field man, talk about his Auriculas in 1912 and listened to I.B.B.'s survey of Chinese primulas in the same year. I noticed that he made flower-colour a feature in some sections and frequently mentioned features of their habitats. Soon, I was to be in the habitats of some of the Indian primulas and see their uncultured colours, myself. I once checked about 300 flowers of *P. obliqua* on a mountain side to see how many were oblique . . . and when. I found that the *Petiolares* ensconced in the depths of moist forest at 10,000 feet had a straying species upon the bleak alpine moors 3,000 feet higher and all the Himalayan conifers were in between. *Primula sikkimensis* ranged up a valley from 10,000 feet to 15,000 diminishing in all its parts all the way so that the highest looked like a little yellow 'birdseye' in foliage and poise of flower. Among all the primulas together there were assemblages of characters that just didn't seem to add up. So I pottered and wondered where the clue to it all lay. Did it really lie in the *shape* of that transient thing the corolla as some said or in something more permanent like the dormant bud whose unfolding as a chestnut bud does would give a hint? One can induce shades from purple to white in the corolla by means of applied or withdrawn heat in one species. And since that organ was discarded alike in orchids and primulas once fertilisation is ensured, I wondered if the colour was just a heat ray conserver varying in tone with the soil to ensure the right temperature for fertilisation; -? -? -? too speculative, I couldn't check it.

In the meantime I got a clue to the Auriculas and discovered their allies all round the world. Most of them have the greater number of stomata on the upper surface of the leaf, not on the underside as is so general. I counted them under a microscope until I squinted. I noted, wondering why the phenomena hadn't been seen before, that the leaves of *Parryi* were inrolled, and had their stomata likewise disposed and was told at first, to pipe down on the fact. Persistence ensured recognition and the group is now PARRYI *Smith*!

To my way of thinking, there should be an intermediate form somewhere, half rolled in and half rolled out like an "S." I pottered away at conceiving the essential conditions for it and ultimately found

a species among the *Amethystinae* which confirmed the matter by doing just that as it opened its leaves from the seed. This phenomenon was photographed and recorded in the *Gardener's Chronicle* 1936, 3rd ser. C, 200, t.86-7 but is not recorded in *The Genus Primula*. Then I bethought me of embryo protection, for that was assuredly basic, and so came to study their seeds. I had come to suspect that the conditions of a primula's habitat might affect the seed, and followed this up by comparisons. The suspicion was confirmed in case after case until a set of types of seed-coat elaborations took shape, each type appearing in one of a few main sections.

There were modifications of the types, of course, but the type was always discernible (see Fig. 18). There were also some plants whose seed showed them to be in the wrong Section. My diagnoses were accepted. Some Chinese students came to see the basis of the scheme, went back to China and anticipated any report of my original studies with a useless travesty of the subject.* After that, anything else published on the subject would have to be considered as secondary to that 'original' Chinese publication. That is how things go in scientific circles. Nothing daunted, I continued pottering and in time got to the root and truth of Primula seeds, a little issue that the Chinese hadn't got from me because it hadn't then been discovered by me. Now I knew.

The underlying point is this. When the plant, only speaking of primulas, realises from the change in climate that the time has come to rest, its growth activities slow down and are diverted to storage, foliage reduction, resting buds, and so on.

To the seeds it sends a dope to induce coma. As this arrives, the plant hastens to perfect its embryos and their food supplies and to get rid of all unwanted and surplus material by spewing it through the outer cells of the seed coat. The time it has for this is short, maybe only two or three days. If it has much to spew the cells are blown out into long tubes, the longest may be as long as a third of the length of the seed. If the plant has been living under austere conditions, there will be so little to discard that the seed coat cells are merely faintly expanded and collapse to a ripple, or 'faint reticulation' as it is called. Now, three one-cell-thick layers of cells come into play in the seed coat. The mass of the embryo and its store of food has shrunk with the discards. Two of the layers consist of larger cells able to shrink one against the other in direction and take up any play, so that they fit skin-tight. The lowest of the three is infused with the dope, hermatically sealing the seed.

The capsule shrinking as it dries at the same time forces the seeds closer together. This results in the discard-tubes between them being

*CHEM. *A study of Primula seeds. Bull. Fam. Inst. Biol. Bot., Ser. x, No.* 2, *July* 25, *in English and Chinese. Illus.*

squashed into a kind of flange in which sometimes the individual cells are discernible and at others not. This adjustment often gives the seed a cuboid shape and in some groups the flanging becomes excessive in the longitudinal axis. It would take too long to describe the differing results fully, so I append some photographs, for whose magnificent effectiveness I am indebted to Mr. E. E. Kemp, who assisted me at the time, which show examples of the main six types.

Types of Seed Coats in Primula, a natural grouping

TUBED—covered in glossy tubes with collapsed ends, longest at the edges of the seed and shortest on their faces ; *Nivales.*

ERUPTED—covered in short tubes with irregular burst mouths, often crystalline ; *Petiolares.*

HONEYCOMBED—covered in short, level-surfaced cells like a honeycomb ; glossy—*Candelabra,* dull and papery—*Cortusoides.*

WARTED—closely covered with dark, conical warts with collapsed tips ; the largest seeds in the genus—*Vernales,* indistinguishable from *Bullatae.*

FLANGED—with shallow reticulation over the entire surface and with flattened cells extended at the axial ends sometimes prominent as in *P. Inayatii,* the smallest seed in the genus—*Farinosae,* sometimes making a boat shape—*Sikkimensis.*

ANGLED—covered in very small meshed reticulation with thick uniform edges of compressed cells—*Amethystinae* and *Auriculae.*

Seeds were taken from authentic material and dropped on to a smear of Canada balsam on a glass slide for microscopic study, and fully labelled. Many seeds from as many species as possible in each genus were studied and it was found that every seed would be allocated to one of the types. It seemed that in the approximations of these types there was a clue to their relations in evolution.

Such a basis of classification may be thought to be like that applied to *homo sapiens,* for Mongolian, Aryan, Negroid and aborigine are distinguished by colour, facial processes or features and the occurrence of those little tubes called hair.

I still go on pottering—searching, wondering and re-searching to find out how the different groups of primulas have got where they are —and trust that the members of the Scottish Rock Garden Club, to whom I send salutations on the Club's 21st birthday, will potter along with their most-loved plants in the same way—and for years.

A Rock Garden is Made

By "LOCUM TENENS"

ABOUT five years ago there was a small level piece of ground in our garden. It contained three or four rectangular formal beds, which had been used for bedding out and that sort of thing. There were little gravel paths and Box edges, all rather dull. Now it is different.

My wife, who is good at Alpines, ordained that there should be a rock garden, so of course I complied. Being ignorant myself, I read a book on how to make rock gardens. It sounded a high art and hard work. For the latter I was lucky enought to be able to get the assistance of the thews and sinews of two young men. I did the brain work myself.

"I did the brain work myself"

First of all, the thing had to be designed, and that was fun, if rather incomprehensible. You have to have hills and dales, moraines, shady nooks and sunny corners, and it must all look as if it was quite a natural bit of outcrop of rock on a mountain. I suggested that we should also include a waterfall and a pool but, as there was no water and the ground was quite flat, this was turned down.

My wife drew a plan on a large piece of paper, but I found interpretation rather difficult. It looked like the first letter written by a small child of about four, all squiggles, whirls and circles, which were, I think, contours. However, after quite a lot of explanation, I got the general idea and set to work.

This is where the two young men came in. They dug lustily all over the place to a depth of about two feet and put a layer of rubble in the bottom. This, my wife explained, was for drainage. The digging enabled hills and dales to appear, which could be moved about until they were more or less in the right place. A supply of rocks and stones presented no diffIculty, because a neighbouring farmer had made a great dump of them in the corner of a field near the road and although some of them were very heavy we were not deterred.

The way you build is this. You start at the bottom with a big rock or two. Each rock, whatever its shape, has to be so placed that when

it rains the water runs backwards into the hill you are making and not forwards down the outside of the rock. Furthermore, you must make the rock absolutely firm so that your wife can jump about on it without it shifting. Mine did this frequently and still does some-

" She still does sometimes "

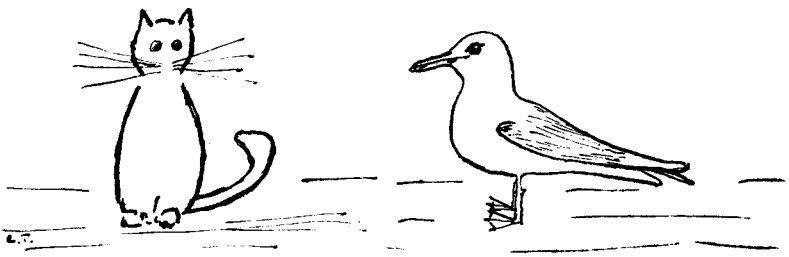
times. Above the first rocks you put others, but here there is an added requirement. The top rock must not actually rest everywhere on the bottom one. There must be room for a pocket of earth, so that some future treasure will be able to put its roots down between the rocks. Such pockets have to be full of soil with no air spaces, and that means a lot of ramming and bruised knuckles.

We progressed famously until one day my wife returned, after being away for an hour or two, and announced that we had made it the wrong shape and must alter it. Thereafter I was much more careful to stick rigidly to the original drawing.

At last the construction was almost complete except that for one small area a special mixture of soil had to be prepared and put in

" Fizzed furiously "

place. I do not remember exactly what the mixture consisted of, but I do know that it was essential that there should be no lime at all in it. Most carefully we mixed it, those young men and I. We shovelled it in and smoothed it off. It looked fine, but then my wife tested it. She took a bit of the soil and put in in an egg cup and applied a little liquid out of a bottle. I think this was hydrochloric acid. The theory is that if there is lime present it fizzes. Alternatively, no lime no fizz. To my shame it fizzed furiously, and I would prefer to draw a veil over the next few hours. The soil had to be removed, all of it, a new mixture made and put back in place to be tested. Again we failed. The mystery was never solved, because the third time we did it, using the same ingredients, we passed the test with honours. My own idea is that a cat must have visited the dump of leaf mould or the sand, but I am probably wrong chemically. My wife suggests that it may have been a seagull.



" ? "

When our work was all done I was very proud, but of course the rock garden was not yet made. The rocks were there, the soil was there, but not the garden. My wife then took over and for the last few years it has been her delight to complete the job, and right well has she done it.

We now have a real rock garden full of lovely and exciting things, which I visit and admire every day. But, if my wife discovers another plot of ground for which she suggests the same treatment, I think I shall plead lumbago.

Orders for Plants

When ordering from Advertisers please mention the *Journal* or *Year Book*, as the case may be. It encourages Advertisers to repeat their advertisement and so helps Club finances.

Mertensia maritima

The Oyster Plant or Seaside Smooth Gromwell (Boraginaceae)

IT IS STRANGE that, while plants from the ends of the earth will ramp and flourish in gardens, *Mertensia maritima*, the Oyster Plant from our most Northerly sea-shores, can be so obstinate and is seldom seen growing in character away from its native home. Attempts to collect it should never be made, because it is nearly impossible to secure its long root intact. Fortunately seeds germinate very easily, and are the safest means by which the lovely plant may be introduced into the garden. If plants are bought from a nursery or received from a friend, the smaller they are, the greater will be their chance of re-establishing themselves.

It takes its generic name from Mertens, a German botanist, but it was being listed in 1829 by Sir James Edward Smith as *Lithospermum maritimum*. Its common name is derived from a supposed resemblance between the flavour of its leaves and that of oysters. The genus *Mertensia* ranges from Japan to the Rocky Mountains, and from Arctic regions to the Himalayas and New Mexico, but *Mertensia maritima* is the one and only British species.

Unlike most of its bristly Boraginaccous cousins, it is completely smooth, and like so many other plants of the sea-shore, its leaves are thick and succulent. It forms a 6-12 in. tuffet of blue-grey leaves covered with white bloom which is not washed off by rain or sea-water. In June and July it sends out long prostrate branches, curled under at their tips. The buds are pink and, on opening into cup-shaped hanging flowers, pass from lavender-mauve to forget-me-not blue.

We had a plant grown from 1952 S.R.G.C. seed which, in the summer of 1953, measured 39 ins. across, and had sixty-eight sprays of flowers round its circumference. I have to confess that other plants tried in ordinary scree and in our version of "ordinary garden loam" were a disgrace to the garden, and a couple of dozen seedlings never survived the shock of transplanting. Because of our many failures we are gradually learning its faults, fads and fancies.

1. It is quite unsuitable for pot-culture, because its root is too long, and after spiralling round the pot it will force its way out of the drainage hole. If growing vigorously, no pot smaller than a beer barrel is large enough to contain it.
2. The seedlings do not like being transplanted.
3. Slugs cannot resist it, and sparrows damage its seedling leaves although they do not eat them.
4. The leaves sometimes develop spots of white mildew or mould.

After all our difficulties and failures, we were most astonished when one plant turned out to be a glorious and spectacular success, so here is our recipe.

Photo.—W. E. K. Finlay

FIG. 11—Primula sonchifolia.

(See pages 23 and 74)

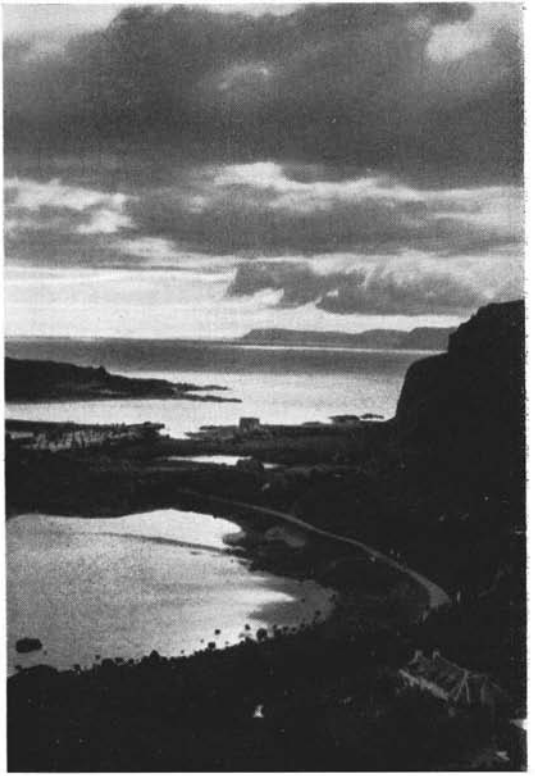


Photo.—A. MacIntyre

FIG. 10—The road to the Isles of the Sea goes between Easdale and Seil. (See page 19)

Photo.—Jas. Davidson

FIG. 12—Region near Port de la Bonaigne—Val d'Aran. (See page 25)

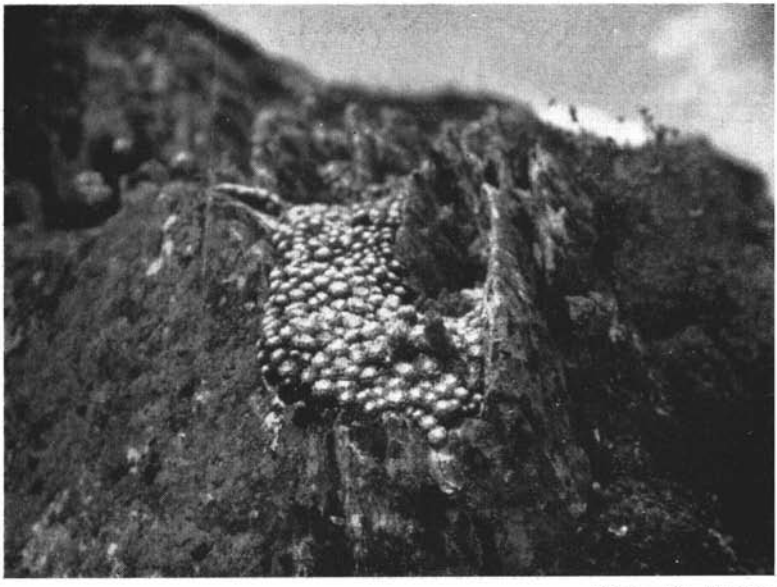


Photo.—Jas. Davidson

FIG. 13—Sempervivum arachnoideum. (See page 28)

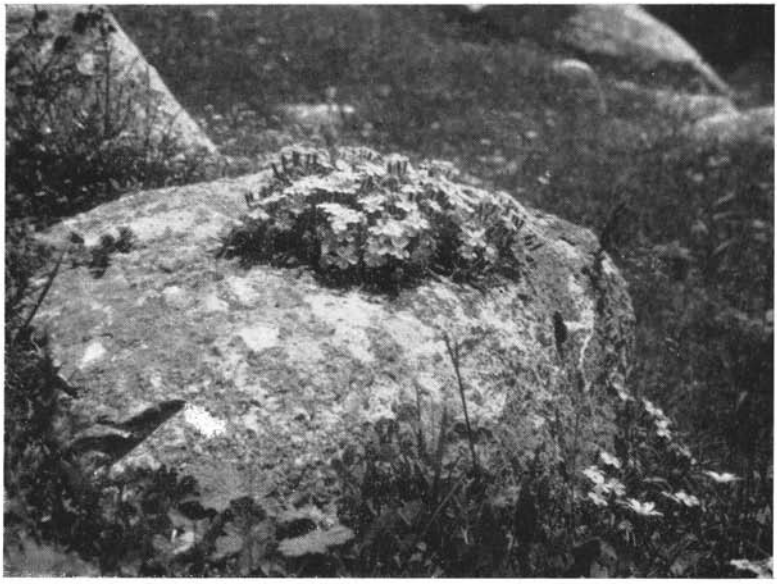


Photo.—Jas. Davidson

FIG. 14—Saponaria caespitosa on limestone boulder. (See page 27)

Photo.—Jas. Davidson

FIG. 15—A Natural Rock Garden—Val d'Aran (See page 25)

Photo.—J. T. Renton

FIG. 16—View in Rock Garden, Branklyn. (See page 32)

Photo.—J. T. Renton

FIG. 17—View in Rock Garden, Branklyn. (See page 32)

SOIL AND ASPECT

Give it richness, grittiness and a very deep root-run. Grow it on a slope and provide shade from the hottest sun. In this garden it is growing on the South slope of a bank which was prepared for grey-leaved plants and Autumn-colourers. This was built with the stones, rubble, soil and subsoil from a tumbledown pig-sty (dated 1860), some very ancient mortar-rubble (the sweepings from the floor of a 12th Century castle), and large quantities of 1950 leaf-mould. The shadow of a deciduous tree is cast on that part of the bank between mid-day and 3 o'clock.

PLANTING

Sow three or four seeds in a 4 in. lily pot as soon as they are ripe, or in the following March. When a root shows at the drainage-hole, turn the whole thing out without breaking the soil-ball, and put it straight into a trowel-hole in the prepared position. Top-dress all round with a layer of whin chips, sea-shingle or oyster shell grit. If preferred, seeds may be sown directly into the position in which they are to grow, but a bell cloche to protect them from their enemies is advisable.

PROTECTION FROM PESTS AND DISEASES

Keep birds away with a network of black shirring elastic or a palisade of florists' wire. This is only necessary in the seedling stage. Kill off slugs with metaldehyde bait. Constant vigilance is essential, and all cushion and prostrate plants round about must be examined in case slugs are hiding underneath them. Dust sulphur on to any leaves showing spots of mildew. During the winter dust it thickly over the dormant crown, and puff on more when the leaves re-appear in the Spring. Packets of very finely ground sulphur, tinted blue-green, may be bought and as this nearly matches the colour of the leaves, it does not make the plant look unsightly, and it cures the trouble completely.

A great deal of fuss and bother ? Yes, but the result makes it well worth while.

Many of the plants which grow near the sea are found also in the mountains. The best-known example is *Armeria maritima*, but as far as I know *Mertensia maritima* grows only on the sea-shore. This looks as though something essential for the health of the plant is provided by sea-spray, sea shells, rotted sea-weed, the droppings of sea birds, or fish debris. Our project for 1954 is to try some plants in sea-shingle and composted sea-weed, with an occasional splash from a bottle of sea-water, instead of in mortar rubble and leaf-mould. Perhaps the plants may then have more resistance against mildew infection, and might even become less appetising to slugs. Or might the shingle and sea-weed of East Lothian lack some trace element available on the coast of Sutherland ?

L. C. B. H.

A New Recruit

MANY YEARS ago my house-boy came to me just after breakfast and announced a caller. "Madam," he said, "one piece lady come—I think before time she missionary, now I dunno—may be farmer."

I was not surprised at the boy's bewilderment when I saw the lady, for she was a middle-aged missionary, dressed in the extraordinary garb beloved of so many lady gardeners ; in her arms she carried an assortment of garden tools, including a pick.

My son had died the week before and I was given to understand that this was a visit of condolence. Instead of offering sympathy, however, she said she was going to make me a garden. Not only had she obtained leave from the landlord, but had persuaded him to fence the garden in.

It all seemed fantastic, because this house was the only one we could find, and it was situated at the back of Messrs. Ford's enclosure. With cars and motor trucks going in and out, the ground in the Compound was as hard as the road outside. However, the determined lady started to pick the ground up and after that I joined in. Soon three servants followed and we got some coolies to do the heaviest digging.

I had always loved flower gardens, but before this the work had been in more skilled hands. Now, as day after day my friend came, in her leisure time, I learned of soil enrichment, plant requirements, and so much more. Before long I found that my sleep at night was long and sweet, and that I was really hungry at meal times. Besides this, I began to find a seed catalogue was fascinating to study. Friends were really amused and rather patronising. One friend sent me a small watering can and these lines :

"To see your lovely garden
Your neighbours you invite ;
But when they reach the spot and look
There's not a thing in sight.
So take this little watering can
And use it with great vigour,
And then perhaps those struggling shoots
Will get a little bigger."

The shoots did get bigger and I became a happy and keen gardener —all thanks to a kind and busy lady who brought so much interest and pleasure into my life.

ANON.

East and West

By HENRY TOD, Ph.D.

A FEW years ago we went for a short touring holiday in the West and North of Scotland. To one brought up near the Scottish East Coast, the West is rather surprisingly different—especially from a gardener's viewpoint.

We were centred on Oban for the first part of our holiday and, before I say more, I should perhaps explain that most of my gardening life had elapsed since I was last in the West for any length of time.

The first thing that struck us was the green-ness of everything compared with either the Central Highlands or, for that matter, the hills of Midlothian, and then that surprising plants grew freely out of doors. To one who lives in the West of England the spectacle of hedges of hydrangeas may not be uncommon, but it rather startled us. We saw one little cottage on Loch Awe where two long hedges of bright blue hydrangeas ran down to the lochside from the road, a really beautiful effect. Great banks of fuchsia were everywhere—we expected that—but the size they attained was almost as great as I had seen in the Outer Isles, a still milder locality.

Then, too, here and there we saw palms growing happily in gardens, not stunted little wanderers, but healthy-looking specimens apparently thoroughly at home as one sees them in Devon. The trees on Loch Awe side are famous, but the height and perfection of form developed by the conifers requires to be seen. Fortunately they are as yet unfelled. Hillsides are covered with *Rhododendron ponticum*, originally planted, I understand, but now almost entirely naturalised, and the great tufts of seed pods showed how magnificent must have been the flourish. In some places the roads run between great banks of Rhododendron ten to twelve feet high, also covered with seed pods.

By the roadside everywhere grows great drifts of that sadly-neglected native *Saxifraga aizoides*. It seems equally happy in conditions varying from wet boggy grit to hungry stone-slides where the new roads have been hacked through the hillside. It seems curious that this extremely hardy plant is so little grown. It flowers very freely in any garden soil, though in the south it prefers a slightly damp, preferably north-facing spot to do really well. Its yellow starry flowers stand up well clear of its dark green leaves, the latter occasionally showing signs of encrusting—small silver patches on the glossy dark green pointed leaf rosettes. When growing well it forms a close hummock, but in too fat a soil sometimes gets a trifle "floppy."

Another plant that can be seen here and there at the roadside and on the moors is the lovely Grass of Parnassus (*Parnassia palustris*). Its snowy flowers look upward and show their delicate green veining in the damp places in which it grows (it is a peat-lover). Everywhere were great drifts of the bog orchids, mostly *Orchis maculata*, in an infinite variety of shades from white to purplish-red. We grew to dread the sight of these as lunch or tea-time drew near—they always

meant that the ground was soaking wet and banished any hope whatever of a meal seated anywhere except (*a*) in the car, or (*b*) in the middle of the road ! Their regular companions were the Bog Asphodel with its stiff yellow spikes which contrasted well with the pink shades of the orchids, and the Dwarf Red Rattle.

Everywhere shone the little yellow stars of a creeping Potentilla and a prostrate Hypericum, both pretty and neat, but apt to be troublesome in a garden, like their companions the hawkbits, as I discovered some years ago to my cost. We were rather early for the true heather, but the deeper red-purple of the Bell Heather was everywhere. That was a most striking difference in the west, the lack of heather and the increase in grass and bracken, so that the hills, instead of being brown and later purple, were green.

The second part of our holiday was centred on Inverness, and this was country that we knew better. As we moved north-east across the country the colour of the landscape gradually changed, the vivid green of the west giving way to the browner shades of the centre and east.

In the west the sheer rocks and stone slides gave way suddenly to the green grass and bracken, but farther toward the east, instead of this sudden transition, the stone-slides merged into the heather and brownish-green moorland grass and only on the lower, more fertile slopes did one see the brilliant green of the grass one saw everywhere in the west. This was obviously a climatic change, as all the exotic plants vanished as one left the west coast. In the valleys one still saw rhodendrons growing finely, but not to the size or extent of the ones we had seen earlier, and these were more obviously "planted."

The centre and east of Scotland can be only too wet as both natives and visitors well know, but the general dampness and total rainfall nowhere approach the figure of the west, and this, coupled with the effect of the Gulf Stream, account largely for the marked changes noted. In the west the moors are predominantly wet, soft and boggy, while in the centre and east they are much drier and firmer. The characteristic shrubs of the west are willow and bog myrtle (*Salix reticulata* and *Myrica Gale*) as opposed to heather, scrub birch and juniper.

Away from the west one still sees *Sax. aizoides*, but on higher ground, and there it is more compact and not in great drifts. The colour of the flourish is rather fuller and altogether the plant is "tidier"—in fact the change is much on the lines I have described elsewhere in an article on the effect of environment on plants.

On the drier moors of the east the bog orchids only appear where great pads of sphagnum moss show that water is lying right up to the surface of the peat. The bog asphodel is still widespread ; it does not require quite so much moisture as the orchids do. The bell heather is more widely scattered and not so much in drifts as in the west, and the heather and coarse moor grass have replaced the green grass and bracken.

In the gardens, as one passes by, one sees the ordinary garden plants, growing freely and flowering well as the climate is still kindly and the soil rich in the valleys, but the only "exotics" one sees are

bedding plants like dahlias—we have returned to a climate more like our own, and now we appreciate a cardigan !

At the roadside in the hills and valleys the native Rock Rose (or rather, Sunrose, *Helianthemum vulgare*) and the Petty Whin, *Genista anglica*, have put in an appearance. The native Helianthemum is not so showy as the rock-garden Helianthemums, but it, too, is a good bee-plant, yielding quantities of pollen and it will cover the barest and roughest corners in a garden with its brilliant yellow flowers for a long period. The other little shrub, *Genista anglica*, is very slow growing and never reaches more than six inches to a foot, and remains a tidy little plant which makes a useful addition to the Genistas and Cytisuses for the rock garden, with its little yellow sprays of flowers on the end of whippy spiny branches.

Among the heather one finds the low rambling branches of the blaeberry (or whortleberry), the cranberry and the crowberry. The first two are edible, especially the blaeberry, but the crowberry (*Empetrum nigrum*) is more dubious. It is sometimes said to be unwholesome and certainly it is rarely gathered. All three make rather pleasing little shrubs for a rough place in the rock garden where, if they are given a little peat they will flourish. The blaeberry and especially the cranberry have charming little white bells early in summer and their leaves sometimes colour well in the autumn.

The change from east to west is surprisingly marked when one considers that it occurs in less than a hundred miles, probably nearer fifty, but there it is. As one goes farther north the two approximate much more closely, but then the farther north one goes from the Caledonian Canal the lower falls the alpine level until on the north coast it has descended almost to sea-level. For such a small country Britain has an amazing variety of types of flora both native and exotic to exhibit.

The Tyrolean Alps—July 1953

By C. I. SMART

IN CHOOSING a centre for an Alpine holiday, there are, in my opinion, three important considerations. It should be at an altitude of between five and six thousand feet, at the very end of a bus route, and have several valleys diverging from it so that one can ascend an extra two or three thousand feet in the easiest possible way. Such a centre is Galtür. Being at approximately 5,200 feet, it is almost at the top of the coniferous belt. One has, therefore, within easy reach, forest, alpine meadow, scree and moraine vegetation.

Compared with Switzerland, one is struck by the greenness and richness of the meadows at comparable heights. It would take many hours of many days to do a complete survey of the meadow plants and since the physical energy engendered by the heights is combined, in my case at least, with a very pleasant mental lethargy, I was content to note the species which demanded attention in one way or another.

On arrival, we explored the village and had a walk through the woods. Stone pine, larch and the often shrubby *Pinus montana* gave quite a dense cover and the vegetation was often scanty and not very interesting. Towards the upper limit of the trees *Rhododendron ferrugineum* was still in full flower and a little lower down, along the edges of the path, *Vaccinium Vitis-Ideae*, *V. uliginosum* and *Loiseleuria procumbens* were all in flower.

Next day the weather broke but we were able, between showers, to climb the north-eastern slope of the hill opposite. We found the whole hillside covered with *Primula farinosa*, not, alas, in flower, though we did find one or two late blooms in sheltered crevices. A little higher up were a few flowers of *Gentiana acaulis*, and *Nigritella nigra* in full flower. On our way back through the meadows we gathered a bunch of the brightly coloured flowers which are always a delight to arrange, and then had to buy a bowl to keep them in. *Aster alpinus* was there in profusion, mixed with *Polygonum viviparum*, *Campanula barbata* and *C. pusilla* on the stony paths. We observed four species of *Phyteuma—P. orbiculare*, which we avoided, *P. betonicifolium*, *P. Halleri*, and the little *P. hemisphaericum*, which might be worthy of a corner in the rock garden. The orchids included *Orchis globosa*, *Nigritella nigra* with its variety *rosea*, and *Coeloglossum viride*. Many composites in yellow, orange and bronze shades gave added brilliance to the whole scene. Outcropping rocks were carpeted with *Sedum atratum*. Old walls, particularly those near dwellings, were festooned with *Gypsophila repens*.

It was now time to go further afield and we set off, in drizzling rain, for the Jam Valley. We made slow progress for the vegetation was rich and varied, and we became more conscious than ever of the inadequacy of our Flora. Species of *Saxifraga* and *Sedum* were abundant and the little *Viola biflora* was with us all the way up. Soon we had reached the "snow valleys" and inevitably *Soldanella alpina*, but the most impressive sight was that of *Anemone sulphurea* in small clumps all over the wet, stony valley. As we got beyond 6,000 feet we found *Primula viscosa* in clefts in the rocks and masses of *Linaria alpina*. Small rosettes of *Chrysanthemum alpinum* made a brave show in the rain. *Gentiana Kochiana* and *G. bavarica* were plentiful on the flatter parts of the valley and I found one clump of *Androsace lactea*. As we neared 7,500 feet, the whole area seemed to be covered by *Silene acaulis*, with an occasional plant of *Salix reticulata*. A very tiny *Saxifraga aizoon* and a tiny *Sempervivum* grew on the boulders next the path. We searched everywhere for *S. arachnoides* during the whole fortnight but found no trace of it, although two years previously we had found it in profusion in a valley a little to the east. We were caught in a snow-shower as we neared the hut and were glad to augment our packed lunch with hot soup. Our spirits improved tremendously after we had sampled some Gentian brandy, made locally, we were told. It is made from an extract from the roots of *G. punctata* and *G. lutea*. We noticed very few of these plants and were greatly concerned in case they would die out ! We had intended to go up

to the moraine and on to the Jam Glacier but the flesh triumphed over the spirit and we descended to slightly better weather in the village.

The next day was Sunday and we had a lazy day and another walk through the woods to gather flowers. The bowl was now full and the flowers overflowed into the soap dish. We thought the effect wonderful and wondered if Constance Spry had thought of a soap dish.

Next day the weather was again wet but, having made our plans, we set off by jeep to the Madlener Hut. There we found a scene of mud and desolation because of work on Austria's gigantic water scheme. The weather improved as we went on but we decided to ignore the vegetation at the lower part of the Vermunt Valley. We had a delightful walk through magnificent scenery, but arrived at the Wiesbadner Hut in pouring rain. A party of climbers were drying their wet clothing round the stove and we were so well steamed up that we were glad to escape into the rain again. The vegetation was similar to that of the Jam Valley and, though we were then over 8,000 feet, the blinding rain at that level prevented observation. We did, however, spot quite a lot of *Pinguicula grandiflora*. Again we descended into better weather.

Our best day for weather and scenery turned out to be the poorest, with perhaps two exceptions, so far as plant hunting was concerned. Our objective was the new Heilbronner Hut. Our path lay first of all through the meadows and then through a magnificent belt of Rhododendrons with some dwarf pines. Here the valley was wider and became very green. After climbing for several hundred feet we found ourselves in an enclosed valley with a slow-moving river. Herds of cattle were quietly grazing and the whole scene was very peaceful. We sat on some rocks beside a patch of snow to eat our lunch surrounded by *Soldanellas*. *Soldanella alpina* predominated but we found a few clumps of *S. pusilla* and one small patch of the tiny, pale lilac *S. minima*. Another steep climb brought us to the hut and a surprise lake. The scene was breathtakingly lovely.

The following day we forsook the valleys and climbed a little over 2,000 feet up one of the steep hillsides. Dense woodland on the lower slopes precluded the development of all but a few mosses and lichens and the upper slope was moorland in type, dominated by *Vacciniums* but with *Rhododendron ferrugineum*, of which very few were still in flower.

Our holiday was drawing to an end and we ended it with a series of picnics, but that is another story. Before we left we went again through the woods. The colour had gone but masses of *Linnaea borealis* in full bloom, lined the path. As we worked round to the southern slope of the wooded hillside we found clusters of *Pyrola uniflora* and came upon our fourth *Soldanella*, *S. montana*, but its flowering season had ended in June.

What do I remember best? The *Soldanellas*, perhaps, and the carpets of *Silene acaulis* but, above all, the glorious colour of the alpine meadows.

Food for Thought — The Massacre of Micro-Organisms?

By A. M. BROWN

THE ROCK GARDEN enthusiast is much more courteous and considerate to Mother Nature than his opposite number in the vegetable patch. He has to be, because he discovers very early in his gardening career that the most coveted rock plants will grow only in conditions as near as possible to those of their native habitat. He. therefore, learns to respect the natural laws which govern the life of particular plants. Much is written about screes and so on but, for some mysterious reason, no ordinary gardening book ever refers to the fascinating subject of the soil population as an essential factor in Nature's cycle of life and plan of evolution. For this reason I thought the members of the S.R.G.C. might be interested to read something of the soil from the 'organic angle' and of the campaign to make the public aware of the soil as a living entity.

The story of the compost movement in this country is both interesting and romantic, in the sense that all crusades are romantic. It starts with a world medical survey at the end of the last century, which revealed that there were a few places in the world where the standard of the health of man was higher than anywhere else. They ranged from Tristan da Cunha and Iceland to the Hunza Valley in India, which is the home of the Hunza and Sikh. The diet of the people living in these places had nothing in common except that it was simple and it was fresh. Two men in India set to work to study the diet and the agricultural practices of the Sikhs, Dr. McCarrison of the I.M.S., and Albert Howard (later Sir Albert Howard) of the Department of Agriculture.

In the course of his experiments McCarrison took two cages of similar rats. The first he fed, for a period equivalent to fifty years of a man's life, on the diet and food grown by the Sikhs, the second on the diet of men in a British industrial town. The Sikhs rats remained healthy and amiable throughout the experiment and there were no deaths. The industrial rats developed diseases of the lungs, stomach, intestines, and nerves, and had to be separated before the end of the experiment because the stronger ones began to eat the weaklings. The result of this experiment is significant translated into terms of world health and peace.

The agricultural practices of the Hunza Valley, of which Howard made a particular study, are especially interesting in that they have their roots deep in antiquity. The masonry and aqueducts of the district bear remarkable resemblances to, and are thought to be as old as those of the Incas of Peru, extinct long since. The fact that the Hunza have not only survived, but survived as magnificent specimens, is tribute indeed to their methods of cultivation. The Howard or Indore process of composting is based on these methods. After twenty years' work on these lines at his experimental station at Indore,

Howard maintained that his cattle could come in direct contact with foot and mouth disease without becoming infected.

The seeds of thought sown by McCarrison and Howard have in the course of time grown into a vigorous plant—THE SOIL ASSOCIATION—an entirely private enterprise with Viscount Newport as President, a panel of agriculturists, scientists, and biologists, and a membership of nearly 4,000 in which 45 countries are represented. The objects of this Association are : To bring together all those working for a fuller understanding of the vital relationship between soil, plant, animal and man ; to initiate, co-ordinate and assist research in this field ; to collect and distribute the knowledge gained so as to create a body of informed public opinion.

They publish a quarterly magazine, "Mother Earth," and a monthly bulletin. They run an experimental farm on which a triple experiment is being carried out to compare the results obtained (1) with crops with chemical fertilisers only, (2) crops and livestock with farmyard manure and chemicals, (3) crops and livestock with composting methods only. Because there is no official body which deals with the problems of soil and health from this particular angle, the Association has become in this country a sort of clearing house for receiving and distributing information, and not only in this country—it has contacts all over the world.

One of the originators and the key personality of the movement is Lady Eve Balfour, a qualified farmer, a woman of great charm and remarkable energy. Her devotion to the cause is such that not only is she the leading light of the Association, but she finds time for outside work as well. In her 9,000 mile tour of America in 1953 she drove herself 300 miles a day and held meetings sometimes twice a day!

The questions which concern the Soil Association are of great importance to the gardening world and the general public. All gardeners worry as to whether their plants are alive and healthy, but few think of their soil in terms of life and health. The amount of microscopic living matter in a really fertile soil is quite staggering. The Soil Flora (Bacteria, and so on) are represented in numbers as great as tens of millions to the teaspoonful. The Soil Fauna (insect life, etc.) when separated and weighed reaches a bulk of approximately 40 tons or 150 million individuals to the acre. Innumerable moulds and fungi are present (it is an established fact that many plants cannot live without their complementary fungus). The beetles, slugs and ants are giants of the soil world and in some clay soils the worm population reaches 6,000,000 to the acre. This soil flora and fauna is the link between the raw organic matter and the humus, Nature's team which converts the raw and waste materials into plant food. Each separate organism from the bacteria to the worm plays its individual part in the plan of evolution. Nature left to herself working with this team can keep up a high standard of fertility indefinitely.

The question which arises is : What happens to the soil population when we start interfering with Nature's methods ? Time-honoured agricultural practice has established the fact that, provided we are

not too greedy and that we replace what we have taken out with organic matter, Nature will repay us. But what, in the long run, is going to be the effect of the ever increasing use of chemicals, fertilisers and sprays ?

In 1840 Baron Leibig discovered that plants could be fed direct by soluble chemical substitutes for the natural plant foods. The discovery was acclaimed as wonderful and, since then, the science of chemical agriculture has gone ahead by leaps and bounds. Chemists produce innumerable plant foods and a spray for every pest. Whether or not virus disease has increased in this century is a moot point in view of the fact that virus has only been visible since the electron microscope was invented. But one wonders why nowadays so much time has to be spent by so many people evolving virus resisting strains of this and that. I suggest that it is high time we gave a good deal of thought as to whether to vote 'Leibig Chemical' or 'Organical Conservative' in our garden politics. We are told that a fertiliser will provide a particular plant food, that a spray will kill a specific pest, but what if the fertiliser defeats its own end by reducing Nature's power to produce and maintain the food they are trying to substitute ? What if the spray wipes out the insect which would normally feed on the pest ?

Chemical fertilisers and sprays are not necessarily bad but there is growing evidence to show that their effect on the soil micro-organisms, and so on permanent fertility, is at least suspect. The thing which really counts in food production is what sort of crop the land will grow in twenty years' time. A fertiliser which stimulates a crop and depletes the land has a minus rather than a plus value.

This question of chemicals not only arises on the land but, in the home, it has reached appalling proportions. In America 700 different chemicals are used in the preparation and preservation of food and out of those only 400 have been proved harmless to man. I gather that in Britain we stand a sporting chance of consuming traces of twenty possibly poisonous chemicals in a day. Food is grown, stored and manufactured and at present practically everything we eat is likely to be subjected to one or more chemicals at every stage. Their cumulative effect remains to be seen. Since we acquired the queuing habit we have become more and more like sheep and we meekly accept these processed foods in the shops, saying 'Baa,' whereas, if we stopped to think, our reaction would be 'Bah.'

I venture further to suggest that the most fertile things in the Chemical Fertiliser Industry are the minds of the chemists. They are so prolific that it would appear that the time is coming when we shall need a spray to reduce the numbers of chemists so as to allow time for Medicine, Biology and Agriculture to catch up with their activities and to take a long term view of their work up to date !

Organic methods have stood the test of time and the compost heap is no innovation. The Chinese have been composting for 4,000 years. A properly constructed compost heap is simply an incubator in which the soil bacteria, fauna and fungi can breed. All the ingredients, elements, and conditions are provided in such a way as to give full scope to Nature's team to convert dead matter into living plant food

and to correct imbalance in the process. Any virus material added increases the activity of its opposite number. Composting is, therefore, merely a means of accelerating a natural process, a method of husbandry, in which all waste materials can be brought to their fullest degree of fertility.

No special knowledge is required to make a good heap. All one needs is the commonsense to follow a few simple rules. A cubic yard of compost can be made as successfully as 100 cubic yards, though the labour involved varies ! THE HOWARD METHOD, made with layers of manure, has to be turned twice and takes three months to mature. THE QUICK RETURN METHOD (Q.R. Activator), invented by Miss Maye Bruce of the Soil Association Panel (another most remarkable woman), is surprisingly simple and perfectly adapted to the small town garden where no animal manure is available, as this compost can be made with or without manure with equal success. It is simply a herbal powder made from plants rich in minerals and acting as a stimulant to bacterial activity. Although it is used only in a homoeopathic dose, it works with perfect efficiency. An injection of this solution will, moreover, have the effect of making a 'Howard' heap break down more quickly. The QR Method has other great advantages. It can be built in stages as the material is available. It does not have to be turned. It breaks down more quickly.

Stacking the day's weedings carefully into the compost bin is a most satisfying garden activity. The measure of success varies with the trouble taken. The material must be packed in such a way as to allow air to percolate without having air pockets and be damp enough to achieve a steamy heat rather than a soggy mess. The occasional layer of earth provides the stock of bacteria from which to breed. As the bacteria become active, it is most exciting to watch the temperature rise as the days go by until it reaches 160° and to know the job is well done. The compost heap is the Christmas pudding of the garden, the more one puts in the better the meal at the end. There is no exact recipe, as it all depends, so to speak, on the garden larder. Anything, more or less, can go in—from weeds to windfalls, from herring bones to Hoover sweepings—provided the proportions are reasonable. There is an excellent book of instructions in the Q.R. packet. Ripe compost is the colour and crumbly consistency of Christmas pudding, and as rich. The finished product is suitable for all plants, being a mixed diet from which they can pick and choose according to their individual requirements. Specimens which refuse to flower in spite of every consideration respond wonderfully to a dose of compost, Gentian acaulis, for example.

In writing this article I have tried to show that composting is something more than a crazy pastime. If I have succeeded in arousing any interest, there will be an opportunity to hear more about it, and at an authoritative level, when Lady Eve Balfour is lecturing in Scotland in September. Anyone who goes to hear her speak will, I am sure, not be disappointed. Her subject is one of very real importance to all who have a farm, a garden, a family to feed, or an interest in health as such.

Seed Sowing

By E. H. M. COX

THE TECHNIQUE WITH RARER PLANTS

BEFORE the war raising seedlings of rarer or more difficult plants was a job that took up a lot of time and patience if success was to be anything more than a hit-or-miss affair. There were the pots to be thoroughly scrubbed, the soil mixture to be meticulously made up with different prescriptions for various genera that were often quite complicated, the covering of the pots with sheets of glass, and so on. This, combined with daily watering and shading and, after a few days, the removal of tiny weeds that always germinated first, made the first few weeks in the New Year an anxious and busy time.

Now for the rock gardener and all who are interested in growing ericaceous plants (rhododendrons, gaultherias, vacciniums, heaths, and so on) from seed, the methods have been very much simplified. Instead of a seed pot or pan one of those plastic containers is used, the kind that holds butter in a refrigerator, with a tight-fitting lid. We use them about six inches square and three inches deep. They happen to be a very pale blue, which seems to work well, although a clear plastic is advised. This is filled within half an inch of the brim with fine peat moss passed through a sieve. It is thoroughly damp without being wet. The seed is sown thinly on top of the peat and is covered with a very thin dusting of silver sand. The lid is put on, and that is all until germination takes place. There is no weed seed in good peat moss ; no watering is required, as germination is rapid ; and the lid prevents evaporation.

We place containers on the surface of an electrically warmed propagating frame, but this is unnecessary. It is better and quicker to give some bottom heat if that is possible. If that is not available, living-room temperature will do. The container should be shaded from the sun. As soon as the bulk of the seed has germinated, we lift one side of the lid and keep it open with the thin side of a matchbox. In a few days we increase the air by turning the matchbox so that the lid is kept up by the thick side. A few more days and the lid is left off altogether.

Pricking off should be done at an early stage, as there is little or no feeding in peat moss, but the root system will be excellent, and the seedlings grow away quickly under normal treatment.

Such a method is good for small seeds that normally germinate fairly rapidly. It will not, of course, do for seeds that take a long time to germinate, such as many irises and some lilies, nor for larger seeds such as magnolia and berberis.

There is one other factor that will help the germination of almost all seeds—that which is called vernalisation. For years we have sown almost all our seeds, other than vegetables or garden annuals, early

in January. We have kept them as cool as possible and as soon as there are signs of a hard frost we take the seed pans outside and leave them out for at least 48 hours, so that the pans are frozen hard. We then bring them inside to a temperature as near to 60 degrees as we can make it. Germination is usually very rapid, but some seed, like roses, which are very slow to germinate, we put out again into the frost after about a week inside and repeat the freezing.

In the United States vernalisation is used on a scientific basis to hasten germination, and charts exist showing the optimum low temperature and the time during which the pans should remain frozen before bringing them in again to an optimum high temperature. Such a complicated arrangement is more suitable to seed raising on a large scale commercially than to private gardeners' work.

Celmisia

By DAVID WILKIE

THAT wonderful genus of Mountain Daisies from New Zealand that we all admire so much, and so many of us try to raise from imported seed, but without success !

In the "Manual of the New Zealand Flora" (1925) T. F. Cheeseman gives fifty-eight species and several varieties but since that date there have been several new species described. Of the total number of species and varieties, over forty are recorded as having been in cultivation in this country during the last thirty years. Whether they have been the true plant is a matter of conjecture.

The nomenclature of the genus has always been in a state of confusion ; even such an authority as Cheeseman himself states, "with few exceptions the species are exceedingly difficult of discrimination." Sir J. D. Hooker in an earlier work is of the same opinion ; as one who has always been interested in the genus, and has tried on several occasions to sort one out, I heartily agree with them both. Certainly there are a few distinct plants, but in other groups they appear to be only forms of the one species.

Whether a plant is correctly named or not may be of no great import when dealing with a genus where there are no ugly ducklings, but it must be agreed than when you buy a plant under a name unknown to you, it is most annoying to find that you already have the same plant or something mighty like it under a different name.

In the following notes I do not intend to describe all the species, but rather those that I have grown or seen grown and are outstanding plants. Throughout, the notes describing the plants are based on the original description or on some authoritative work together with its behaviour in cultivation. Should your plant not tally with the des-

cription, do not be disheartened ; the plant you have may be a more beautiful species. There are many diverse forms in the genus, ranging from tiny cushions made up of short stems covered with hard silvery leaves less than half an inch in length, to the huge lax rosettes with leaves up to two feet in length and with a longer flower scape.

With the exception of about two species, all have flowerheads made up of white ray florets, the size depending on the species. In some cases the diameter of the disc is much less than the length of the ray, while in other cases, such as *C. coriacea*, the diameter of the disc is equal to the length of the ray.

The only species I have seen with purple disc florets was *C. vernicosa*, a tufted species with shiny green leaves of over an inch in length and the diameter of the flower-head about the same measurement. During its sojourn in cultivation it never reached the dimensions given in the original description and it never flourished. It eventually died, and I regret to say that I do not know of another in cultivation in this country today.

Two rather smaller species that have always attracted me are *C. argentea* and *C. sessiliflora*. The former has short stems covered with hard silvery leaves only half an inch or slightly more in length and small flower-heads sitting on the top of the stems ; a delightful plant but one I have always found difficult to keep. The other, *C. sessiliflora*, has larger leaves up to an inch in length, stiff and hard, and covered with silvery hairs ; the flower-heads, though seldom seen, are larger than the preceding, usually about three quarters of an inch.

A larger plant though still a miniature is *C. Hectorii* with its dense tufted stems with inch long leaves covered with silvery tomentum and hard to the touch, though not so hard as *C. argentea*. The flower-heads are on three-inch stems and measure about an inch in diameter.

Somewhat similar in certain ways is *C. laricifolia*, which does not, however, have the dense habit of *C. Hectorii*, but fewer stems ; these are covered with leaves of an inch or more, sharp-pointed and rigid. The flower-head is smaller, about three quarters of an inch in diameter, and borne on three-inch scapes.

While the silvery-leaved forms have that added attraction, some of the green-leaved species are very beautiful when in flower. Such a plant is *C. bellidioides* (see Fig. 19), a plant of many branches more or less prostrate except for the tips which are erect. The many branches are covered with closely set spathulate leaves upwards to an inch in length, thick and almost fleshy, and green on both surfaces. Near the tips of the branches the scapes are set off on short stems ; in fact the flower-heads appear to sit on the rosette, and measure about an inch across. Even out of flower there is something attractive about this plant.

Two or three of the New Zealand species have been confused with the Australian *C. longifolia* in the past, but have now come to rest

with specific names of their own. One now called *C. major* (see Fig. 21), which was previously known as *C. longifolia var. major*, has dense clumps of spreading or recurved leaves measuring from four to twelve inches in length, broad at the base and tapering to a long stiff point. Both sides of the leaves are covered with thick white wool : the flower-heads are as much as an inch and a half across, and even when out of flower it is an attractive plant.

Another species for long under *C. longifolia* is *C. gracilenta* (see Fig. 23), a large-flowered species for its size, with long slender leaves forming lax tufts. The leaves may measure as much as twelve inches in length, but in cultivation are usually round about six inches long, very narrow, about an eighth of an inch wide, and are a greenish brown colour, often speckled and covered with a thin layer of cobwebby wool. The flower stems equal the leaves and the heads are nearly an inch in diameter.

The third species that has hitherto been linked up with *C. longifolia* is *C. alpina*, not unlike *C. gracilenta*, but with much shorter leaves of only upwards to three inches in length, very narrow, and clothed beneath with thick wool. Another difference is that *C. alpina* forms short woody stems.

A very distinct plant is *C. Traversii*, with long broad leaves, not stiff and erect as in *C. coriacea*, but more flexible. They are upwards to twelve inches in length and over two inches wide. The upper surface is a dense brownish green, and without hairs except on the midrib and margins, and the under surface covered with thick, velvety, rusty-coloured wool, which extends over the edges so that it can be seen from above : the midrib and petiole are usually purplish. Though a large plant, the flower-heads are only about two inches across, but the flower-stems overtop the leaves and are also covered with rusty-coloured wool.

Somewhat like the preceding species is *C. petiolata*, but the woolly covering is whitish and not rusty-coloured ; *C. petiolata* also has the purplish midrib and petiole, but its flower-heads are larger.

Several species have the appearance of dwarf shrubs, with their branches covered with old and new leaves and the branches upwards to a foot in height. In *C. brevifolia* the stems are woody, with numerous leaves of about an inch and a half in length, more or less oblong in shape, thick in texture, and covered on the underside with white wool. From near the tips of the twigs, several flower scapes arise carrying flower-heads of about an inch in diameter.

Of the larger species, one or two are outstanding plants, such as *C. spectabilis*. It has lax rosettes of stiff erect leaves upwards to seven inches in length and nearly an inch in breadth, sometimes toothed on margin and with parallel impressed nerves on the upper side with scattered silky hairs, and covered beneath with dense buff or straw-coloured tomentum : the flower-heads are about two inches in diameter with the rays slightly curled downwards.

There are many of these large growers and they all seem so much alike. There is *C. Hookeri* with leaves up to twenty inches in length and three inches in breadth, thick in texture with only slight cobwebby wool on the upper side, but coated below with white or buff wool which seems to extend over the margins. The flower-heads reach above the leaves and measure nearly four inches in diameter with very narrow ray-florets.

One that I have always found very attractive, even out of flower, is *C. coriacea*, probably because it was the first species I ever grew. Both sides of the leaves are silvery, the upper side with only a covering, but the under side with a dense coating of wool. The flower-heads measure about three inches in diameter, the rays being broader than than those of *C. Hookeri*. There are several varieties of this variable species, one of the finest being *var. stricta*, where the leaves are stiff and upright and very silvery.

A species one sees quite often is called *C. verbascifolia*, but I am sure that quite a number of the plants so called are not that species but more like *C. holosericea* or *C. Lindsayi*. They should have thick lanceolate leaves about ten inches in length with very few hairs above and only a slight covering of grey wool beneath. The flower-heads are not more than two inches across with very narrow, spreading rays, and the diameter of the disc less than the length of the rays.

One distinct species is *C. viscosa*, whose leaves are coated with a sticky gum so that it collects all the dust going. It may be reasonably clean in the country, but not in the town, and is better left out of a collection.

A good garden plant and what you might call "an everybody's plant" is *C. hieracifolia* (see Fig. 20). It flowers well every year and has a good branching habit. The leaves are hard, and measure about four or five inches in length, with a slight wool on the upper surface when young, and buff or white wool beaneath : it is also one of the species with toothed leaves. While the flower-heads are less than two inches in diameter, the rays are very long and there is only a small disc.

Now I think I had better finish and I will do so with the mention of *C. Lindsayi* and *C. holosericea*. The former has narrow, dark green leaves upwards to nine inches in length with the upper side clean of hairs or wool. The flower stems are long and slender, just topping the leaves, and the flowers are nearly two inches in diameter, the rays spreading, rather broad and distant. *C. holosericea* has narrow, toothed leaves about a foot in length, without wool on the upper surface but coated below, flower-heads on long stems, with large rays and disc.

Cultivation is not difficult. Give full exposure to sun, a good gritty soil, perfect drainage, and plenty of water during the growing season.

The tiny species such as *C. argentea* should be placed in the scree.

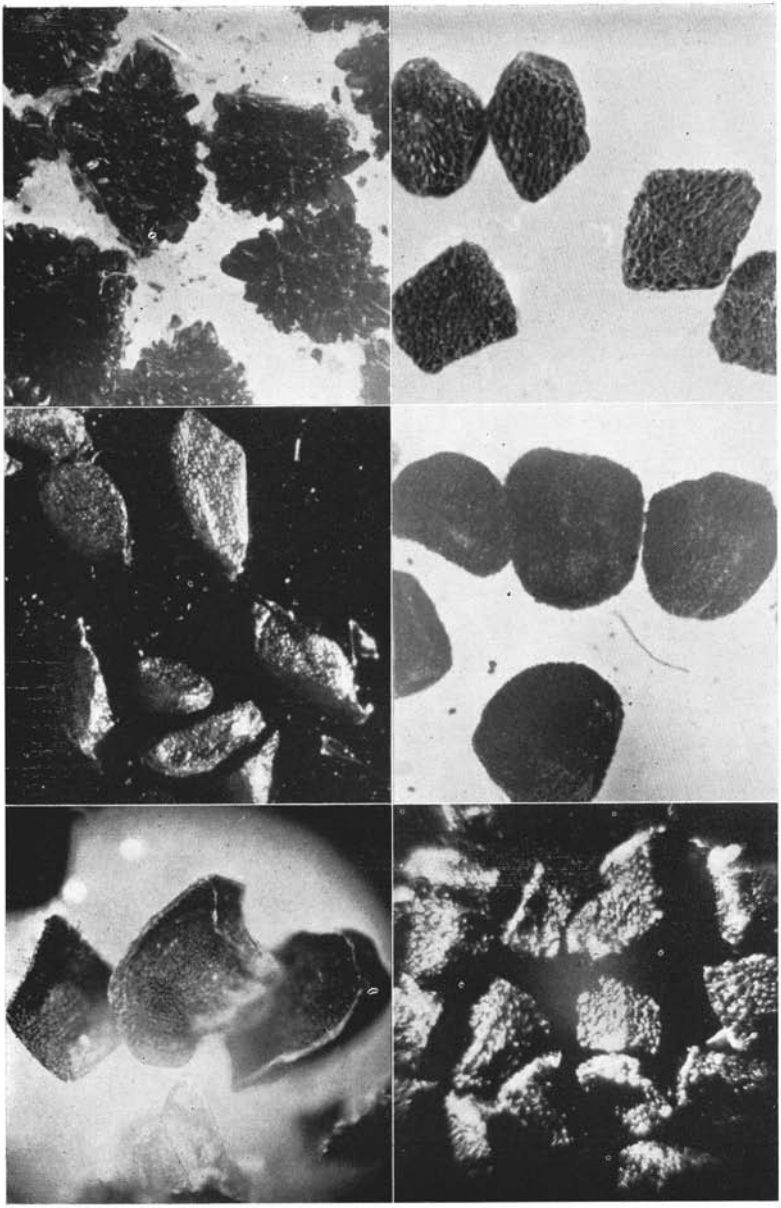


FIG. 18. (See page 43)

Micro-photographs—E. E. Kemp

Tubed type from Sect. Nivales P. chionantha

Flanged type from Sect. Farinosae P. sibirica

Angled type from Sect. Auriculae P. Clusiana

Honeycombed type from Sect. Cortusoides P. Veitchii

Warted type from Sect. Vernales P. acaulis

Erupted type from Sect. Petiolares P. sonchifolia

FIG. 19—Celmisia bellidioides. (See page 62) *By courtesy of Royal Horticultural Society* *Photo.—D. Wilkie*

FIG. 20—Celmisia hieracifolia. (See page 64) *By courtesy of Royal Horticultural Society* *Photo.—D. Wilkie*

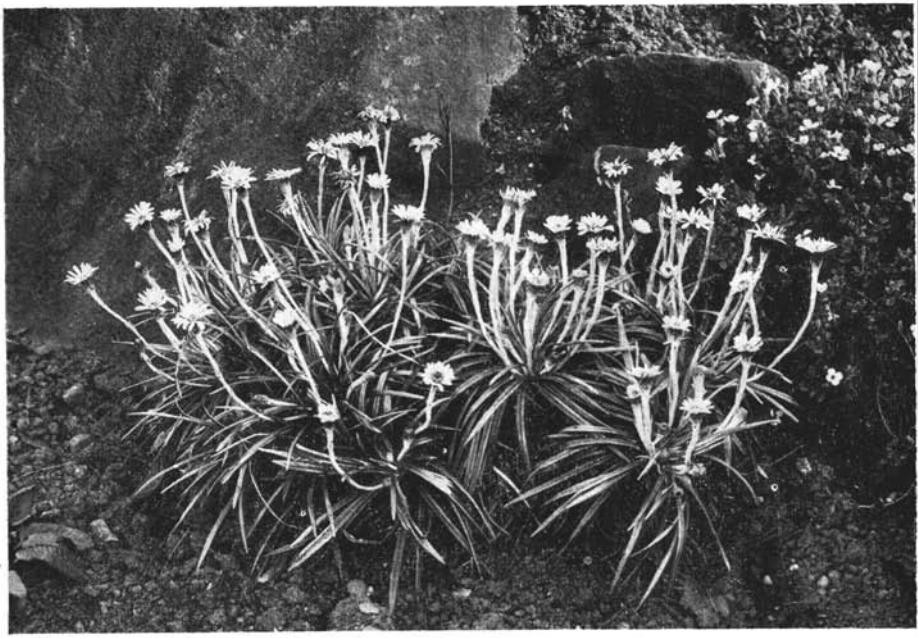


Photo.—D. Wilkie

FIG. 21—Celmisia major. (See page 63) *By courtesy of Royal Horticultural Society*

FIG. 22—Primula Edgeworthii v. alba. *Photo.—A. Walmsley*

Some Favourites

By W. C. B.

NOTES on a few plants which have given me great pleasure this past season may be of interest to readers of the *Journal.* I only wish I could give a more lucid description of them, but it would take a better pen than mine to do that. All are growing in the rock garden on an exposed south-westerly slope.

LITHOSPERMUM GASTONII comes from the Pyrenees. With me it grows about four inches high and has fine large blue flowers with a white throat ; it is quite easily grown in good limey loam on a sunny ledge, and if happy will slowly increase yearly. It seems to have gone out of favour since the war, for what reason I don't pretend to know, but is the best of all Lithospermums and should be in every garden—a herbaceous plant.

LEONTOPODIUM CRASSENSE. When Farrer waxed eloquent in his disgust of the Edelweiss he surely never could have seen *L. crassense,* a native of the Balkans. I only wish I could wax as eloquent in praise of this little Edelweiss as he could in disgust of *L. alpinum.* With me it is growing away happily in a sunny scree and is the most beautiful of all the Edelweiss I know.

ERYNGIUM GLACIALE is about the only Eryngium that is suitable for the small rock garden. A Spanish alpine, it was introduced into cultivation by the late Dr. Guiseppi and grows not more than four inches high, with powder blue flowers, and large spiny white bracts —a fine little alpine far too seldom seen.

DRABA PYRENAICA ALBA (or should it be Petrocallis ?) is by far the best of the Drabas. The big solid white flowers almost cover the foliage ; it might easily be mistaken for some choice Androsace and is quite easily grown in the scree. It is one of the best of all scree plants.

AZORELLA CAESPITOSA comes from Ecuador and is purely a cushion plant, the flowers being of little account. At all times of the year it is a thing of beauty, something that cannot be said for some of the more popular alpines. It is quite easy to grow in the scree and is quite hardy.

SCORZONERA ROSEA, though rare in nature, has a wide distribution, being found in the Carpathians, southern, eastern, and central Alps. It belongs to the Compositae order, but with its long linear-lanceolate leaves looks nothing like a Composite until it unfolds its beautiful rose pink flowers. All it asks is a light gritty soil and a place in the sun ; it has a very long flowering season.

DELPHINIUM MUSCOSUM is one of the L. & S. introductions from Bhutan, and I think it must be one of the best plants these two great collectors ever introduced. Its large purple flowers are borne singly on stems about four inches high. I had one plant with over forty flowers open at one time, and it was a beautiful sight. Its lace-like foliage is also an attraction and in some forms is almost beetroot red. I think it is best grown in scree, and looks like being a good perennial.

DELPHINIUM SP. L. & S. 17476 is another of the L. & S. introductions. Whether it is a new species I know not, but it is a first class rock garden plant and one that should become popular when better known. It has leaves more like *Anemone obtusifolia* than a Delphinium. The stems rise to a height of six inches or so, each bearing several bright purple flowers. It does not flower till September and will be all the more welcome on that account.

LEPTOSPERMUM PROSTRATUM is a prostrate form of *L. scoparium*, which is not hardy, but here I have had it for many years and it has never suffered any damage during our severest winters. It is very free flowering, and should not be confused with *L. rupestre*, which is not so good a plant and with me is very shy flowering.

HYPERICUM NANUM was introduced by Peter Davis and should become a popular plant for small gardens : for the trough it should be ideal. For such a small plant it has very large yellow flowers and seems to be fairly hardy, as it has never suffered the least during the last three winters. I have it growing in full sun, perfectly happy in a verticle crevice.

HYPERICUM KELLERERI. I know nothing of the history of this plant. Very low growing and never more than an inch high, it will cover a square foot or more in time, is very free flowering, and flowers over a long period.

GENTIANA PUMILA is one of the *verna* group and is more amenable to cultivation than most of that group. I grow it in a mixture of loam, peat, sand, very old cow dung, and granite chips. These small Gentianas grow much better on rich diet and I grow all mine in this mixture, *bavarica*, *brachyphylla*, and *verna* included. *G. pumila* is a very small plant with large blue flowers.

GENTIANA VERNA ALBA I would not have mentioned but that it has such a long flowering period. It started flowering in April, and as I write this (January) it has still a few flowers. Any plant that can flower over such a long period is, I think, worth growing ; it has pretty white flowers.

GAYLUSSACIA BRACHYCERA. Most of the Gaylussacias are too big for the average rock garden, but *G. brachycera* is the ideal rock garden shrub. Coming from North America, it belongs to the Ericaceae and is a beautiful sight with its vivid crimson young foliage and white, pink striped flowers. It seems to be scarce ; for what reason I know not, for it is quite easily propagated from suckers, which it produces freely.

GUELDENSTAEDTIA HIMALAICA belongs to the Leguminosae and is another of L. & S. introductions from Bhutan which I hold in high esteem. It is quite prostrate, and the flowers appear like little purple beads nestling in the foliage. It should be easy to increase as it sets plenty of seed. Unfortunately most of my seed was eaten by rabbits, but I have managed to save a few.

CASSIOPE WARDII has done well with me. The large white flowers carried on grey-green stalks put it in the first rank of ericaceous shrubs. The plants one sees at shows, and I presume are grown in alpine houses,

are all drawn and completely out of character, and give one little idea of what this beautiful little shrub should look like. Grow it in the open in a peat bed and it will grow into a compact little plant three or four inches high.

CASSIOPE LYCOPODIOIDES MAJOR is a strong-growing form of the better known *C. lycopodioides*, and though not so free-flowering as the latter, it is just as good a plant with its big solid white flowers.

CORYDALIS SP. L. & S. 17305 I grew from L. & S. seed, which germinated badly—a failing with most Corydalis if not sown immediately it is ripe. It has lovely icy blue flowers like *C. cachmeriana* but may be too big for the small rock garden, growing between eighteen inches and two feet. It may not be a good perennial.

SAXIFRAGA L. & S. 18972A I believe is going to be called *S. Andersonii*. It has not yet flowered, but I think it is one of the best cushion plants I have ever seen, and the flowers will have to be something exceptional to improve this beautiful little plant.

SAXIFRAGA IMBRICATA is another Himalayan Saxifrage, not often seen now, which also makes a fine cushion and might easily be mistaken for some Aretian Androsace. It has white flowers with just a faint tint of pink. Both these Saxifrages are growing in an old stone trough in a mixture of loam, leaf mould, and sand, to which has been added one part of old mortar rubble.

RAOULIA GRANDIFLORA. None of the Raulias are hardy here except this one, and it is the best of the lot either in flower or foliage ; it is one of the few Raoulias which have really good flowers. Growing on a sunny ledge it has come through the last two winters without any protection.

SEQUOIA SEMPERVIRENS NANA PENDULA is a dwarf form of the Giant Redwood of California. It is quite prostrate and is a most attractive conifer for the rock garden.

MICROCHARIS TETRAGONA is an Australasian dwarf creeping conifer, and is very much hardier than is generally supposed. It has survived over 20 degrees of frost and is worth a risk in a sunny, sheltered spot. One of its most attractive features is its tiny red cones, which I only saw last season for the first time. It seems to have a great attraction for rabbits, which have eaten it to the stump, and I fear for its survival. However, I have another small plant to replace it—it is easily struck from cuttings.

JUNIPERUS ECHINIFORMUS (or *J. Oxycedrus*) is well named the Hedgehog Juniper—that is the best description one could give it. I have had it for the best part of forty years and it is still little bigger than a hedgehog. Though it has been in cultivation for a very long time it still remains scarce, seeming almost impossible from cuttings : at least I have never been able to strike any. That and its slow rate of growth may account for its scarcity.

JUNIPERUS SIBIRICA I collected many years ago in Glengarry (Inverness-shire). At the time I thought it was *J. nana*, which is a variable species ; but the experts tell me the difference is in the leaves, which are very prickly in *J. nana* and are very soft in *J. sibirica*. If you stroke

a branch with the hand the former is very prickly and the latter feels like velvet. It is quite prostrate.

PINUS PUMILA comes from Siberia and is a variable species ranging from prostrate forms (this is the one I mean) to small trees eight to ten feet high, and it is only the small prostrate forms that are really suitable for the average rock garden. It has beautiful glaucous blue needles, and if I only had room for one conifer in the garden, I think it would be this one. I have an intense love for all the dwarf pines.

PINUS DENSIFLORA UMBRACULIFERA takes its name from the needles which are arranged just like spokes of an umbrella, giving it a very attractive appearance. It is a very slow grower : I have had one for over thirty years and it is still only eighteen inches high, by as much across.

PINUS STROBUS UMBRACULIFERA has much the same habit as the last species but has much finer needles which are a lighter green, so that it is quite distinct.

PINUS LAPPONICA comes from Lapland, and is a most distinct dwarf pine, at its best in late autumn and winter when its needles turn a bright russet red. With me it grows taller than the other pines I have mentioned and may not be just as suitable for the small garden. It bears quite a few cones, which are attractive, every year.

PINUS EDULIS I grew from seed received about twenty years ago from the U.S.A. It gets its name from the seeds, which are edible and taste just like hazel nuts, and is locally known as the Nut Pine. I had a lot of plants of it at one time which were given away to friends, and in going round their gardens I was amazed at the many different forms which I saw, so it would appear to be a variable species. It is a slow grower—none of the plants I have seen are more than two feet high.

(Continued in next issue)

Awards of Merit

By "L. M. M. D." Edinburgh

IN LOOKING through some papers the other day I came across some notes on rock garden plants to which Awards of Merit were made by the Royal Horticultural Society in 1952. Since I do not think they have been mentioned in the *Journal* so far, here they are.

CODONOPSIS CONVOLVULACEA (A.M. 23rd Sept. '52)—Campanulaceae, introduced by Ludlow and Sherriff from Bhutan under the number 19674. It is an attractive climber which dies down and disappears for the winter, so mark it with a stick. It is not rampant, and does well scrambling over and through a small bush up to perhaps three feet. The flowers, one and a half inches across, are wistaria blue, and the petals, which are hairy near the base, have a transverse band of crimson across them, which together form a crimson circle near the centre of the flower. Well drained soil, such as rich scree,

suits it. The scree should not be too hot, dry, or poor, however, for it appreciates a certain amount of feeding. It is easily raised from seed, a supply of which was offered in this year's Club seed list.

GENTIANA DEPRESSA (A.M. 26th Aug. '52) was introduced by seed from Nepal in 1929, but it is still quite rare in cultivation. It forms a low cushion or mat, and at the end of inch-long shoots it bears solitary flowers. The corolla is deep Indian Blue and the throat pale green with dark spots. That is the description of the flowers on the plant to which the A.M. was made. There appear to be different forms, however, as David Wilkie in "Gentians" gives the colour of the corolla as "pale blue or greenish blue, with the plicae almost white, the white extending down the outside in five broad bands." Full exposure and good drainage, and a stony rather than a rich soil is recommended as likely to suit it.

GENTIANA "INVERLEITH" (A.M. 26th Aug. '52), also awarded by the R.H.S. the Reginald Cory Memorial Cup for the best hybrid of the year 1952, is a hybrid raised in the Royal Botanic Garden, Edinburgh, by crossing *G. Farreri* and *G. Veitchiorum*. It is a strong growing and very floriferous plant, with wiry stems and linear leaves, and two or three large open trumpet flowers to a stem. The flowers are about two inches long and one and a half inches across, and of a most striking shade of cobalt blue. On the outside of the corolla are five bands, each pale in the centre, and dark olive green at the edges, the whole effect is "electric." There is a large clump of it in the central valley of the Rock Garden in the R.B.G., Edinburgh, and it is well worth making a special visit to see it when in full flourish in August.

LEPTOSPERMUM SCOPARIUM VAR. NANUM (A.M. 10th June '52), *Myrtaceae*, is a dwarf of the New Zealand shrub *L. scoparium* and said to be hardier. A young plant of it is certainly looking quite happy with me wintering in a cold frame. It is a twiggy upright shrub of eight or nine inches, with small heath-like leaves. Its soft pink round flowers smother the branches in June. It will certainly, I think, make a good alpine house plant, and may well prove to be hardy outside if grown in scree in full sun and a sheltered position.

ORIGANUM PULCHRUM (A.M. 8th July '52), *Labiatae*, is one of the Marjorams from the Levant. It is a herbaceous plant with wiry stems about six inches high bearing shiny, leathery, stem-clasping leaves. Clusters of flowers are borne at the axes of the leaves. They are hop-like, pale violet protruding from crimson bracts.. There are other species and varieties, and they all flower over a long period in late summer, when bloom is comparatively scarce, which makes them specially welcome. They are most attractive in themselves, too, and not difficult to please. They like sun and a well-drained soil. The one I have, *O. microphyllum*, flourishes in scree.

SCILLA SCILLOIDES (A.M. 9th Sept. '52). This Scilla has long linear, rather flaccid leaves. The scape, about a foot high, is slender but tough, and ends in a raceme of up to forty pale rose-purple flowers.

Winter Flowering Plants and Shrubs

By J. T. WALL

THIS IS a partially reconstructed lecture that was tendered to our worthy Editor with the idea that he might consider it of sufficient interest to Club members ; evidently he did, hence these notes on a subject that is not confined to experts. I do feel that with due care in the selection of position and soil conditions, enthusiasts even in these northerly fastnesses of our island can enjoy most of the subjects I have noted.

SHRUBS

ABELIOPHYLLUM DISTICHUM, a choice shrub of recent introduction closely allied to the Forsythias, has cream coloured flowers in February. It is strongly scented and needs a south wall with good rich soil. Careful pruning is necessary to obtain the best results from this shrub.

CHIMONANTHUS FRAGRANS, the "Winter Sweet"—a showy shrub. At its best the rich yellow flowers with reddish inner segments are borne on naked stems in great profusion. It is best on a sunny wall in Scotland ; although perfectly hardy the wood needs thorough ripening to induce flower-buds. There is a clear yellow-flowered form even more desirable.

CORNUS MAS, "The Cornelian Cherry," is a 'must have' shrub or small tree with masses of small golden flowers on naked branches in February and good foliage-colour in the autumn. Many of the "dogwoods" will produce their flowers in autumn or winter but they are more greatly prized for their coloured stems, autumn tints, or handsome bracts in earliest spring. There are several forms of this species, including variegated, yellow fruited and a dwarf form suitable for smaller gardens. S. Europe and W. Asia.

DAPHNE LAUREOLA, "Spurge Laurel," is a native evergreen shrub with pendant yellow flowers in February, not very showy but useful for shady spots. There is a better variety, *D. Laureola var. Phillipii* indigenous to the Pyrenees.

DAPHNE MEZERUM is known to you all with its rosy purple, richly scented flowers on erect naked stems ; these are followed by brilliant red fruits, while the white-flowered form has yellow fruits. Its main display is in February. It enjoys a wide distribution from S.E. Europe to the Caucasus. These two foregoing species have hybridized and the resulting cross is a rare shrub with purplish leaves semi evergreen and good scented flowers ; this is known as *Daphne houtteana.*

DAPHNE ODORA, considered tender, is hardy enough for most parts of Scotland under the shelter of a west wall. The vigorous growth and large leaves make it an attractive shrub at all times, but when covered with its rosy purple richly scented flowers in February there is nothing to surpass it. There is a variegated form which though not so attractive in leaf is considered much hardier, for some unknown reason. *D. odora*

has been known as *D. indica* but is not found in India. China and Japan have given it to us.

There are so many heaths that flower during our winter months that I only give a skeleton selection of the best.

ERICA ARBOREA ALPINA, with white fragrant flowers in February, is a stocky, compact shrub up to 10 ft.

ERICA CARNEA. There are many forms of this winter flowering species with white, purple, or ruby flowers. They bloom from December to March, and a selection of six or so are invaluable for winter charm. The flowers are apparently indestructible and peer forth from a covering of snow fresher than ever. "Eileen Porter" is the richest and brightest form and most difficult to increase.

ERICA X DARLEYENSIS is a grand hybrid rising up to 18 ins. or so ; it has the hardiness of the "carneas" with the vigour and display of its other parent—*E. mediterranea*. The masses of rosy lilac flowers are borne in spikes from December to March.

ERICA LUSITANICA. There is no reason why everyone with lime-free soil should not enjoy this beautiful heather if it is provided with the shelter of a sunny wall or raised on a sunny mound. The light green foliage and long tubular white, pink flushed buds, and flowers from December, make it worthy of a place in every garden. It does need good drainage, firm hard planting, and markedly resents disturbance, which is contrary to most of this family.

ERICA MEDITERRANEA has many forms. The best is *E. med. glauca* with rosy purple flowers in February ; and *E. med. W. T. Rackcliffe*, which produces masses of white flowers in April on tight compact bushes, comes several weeks later.

Many of the genus Hamamelidiae have inconscpiuous flowers which are usually a bunch of stamens and red coloured sepals. These include *Sycopsis*, *Disanthus*, *Parrotia* and *Parrotiopsis*, and one or two obscure genera ; they, however, give brilliant autumn tints, and are grown and greatly valued for their foliage alone, except *Sycopsis*, which is evergreen. The showiest in flower are undoubtedly the Witch-Hazels, which flower from December to March according to season ; indeed *Hamamelis Mollis*, the showiest of all the species, is even now (December) showing its golden thread-like petals on several specimens in Hamilton. I have frequently seen these shrubs in full flower covered with snow, and enduring some 6-10° of frost, and come through unscathed. Other species are "virginiana," "japonica," "arborea" and "vernalis" ; some are sweetly fragrant, others not so pleasant.

CORYLOPSIS are very showy shrubs from China and Japan with yellow-red stamened flowers in yellow bracts borne in pendant spikes or racemes. Some are subject to damage from late spring frosts. They need planting in lime-free soil sheltered from the E. and S.E. Most of these species are very fragrant, exuding a sweet cowslip or primrose scent. The hardiest and earliest to flower is *Corylopsis spicata*. Others such as *pauciflora* and *Willmottiae* should be given a trial ; some are

grown successfully in the Glasgow area. *Fothergilla major* and *F. monticolor* should not only be grown for their interesting, scented, creamy tassels, but also for the brilliant hues their hazel-like leaves assume in autumn. Perfectly hardy, they enjoy rich vegetable soil without lime, and the flowers are borne at the tips of naked branches in February and March. U.S.A.

We now come to the most popular and showiest of all winter flowering subjects. Braving all the elements, and expanding flower after flower from December to March, the rich golden flowers of *Jasminum nudiflorum* need no boast from me.

LONICERA FRAGRANTISSIMA and L. STANDISHII are two winter flowering honeysuckles with soft yellow flowers usually in pairs freely produced on naked branches. These shrubby honeysuckles deserve to be better known and more frequently grown ; they are easy and perfectly hardy, and the flowers, though small, are exceedingly fragrant, coming in early February to April. *L. standishii* I believe to be the more desirable for its show of flowers, but it is not so fragrant. Any soil, in sun. Both species come from China and it might be advisable to plant on a sunny wall in the west of Scotland to ripen the wood.

MAHONIA. Most of us know *Mahonia* or *Berberis aquifolium*, which produces its golden or pale yellow flowers from December to March ; the handsome fruits like "Black Hamburg Grapes" are an excellent feature. It's a grand cover shrub.

MAHONIA JAPONICA has handsome two-foot-long pinnate leaves and richly scented flowers in long pendulus racemes ; these are a grand sight throughout the winter ; though evergreen, some of the leaves can also turn a brilliant waxy red or scarlet. *M. Bealii* is also worth growing ; similar in habit, the flowers are produced in shorter spikes. In Scotland the north side of a house or the shelter of light woodland is desirable. The leaves of these plants in stylised form have frequently been used in scroll work and for frescos.

There are several flowering cherries that bloom from November to March : *Prunus subhirtella autumnalis* will give a good show off and on from November to December in open weather. *P. Davidiana rubra*, from early February produces showy deep pink flowers, and *P. conradinae* rosy pink flowers at the same period ; they form light graceful trees some 10-15 teet high. As a small bush *P. incisa* and the variety "serrata" make a glorious show of small pale pink flowers from March onwards.

RHODODENDRONS. Several of these can make a good show for a week or two if the weather is favourable. *Rr. praecox*, *dauricum*, and *mucronulatum* should be given a trial ; they form nice bushes up to 4 ft., and the showy flowers of purple or rosy lilac are freely borne in February or March. There are others of this varied genera flowering at this season, but it is always very much of a gamble which will win —the frost or the flowers.

Last but not least are the Viburnums, only two or three of which are truly winter flowering. The mediterranean *V. tinus*, in all its forms, with their flat panicles of pinkish buds that open white throughout the winter, can attain some 10-20 ft. or more and almost as much through in favourable conditions. Being evergreen enhances the appeal of this species. *Viburnum fragrans* is more restrained in habit and takes a long while to settle down to the production of its gloriously scented flowers. Deep pink in bud, opening and fading to white, they are produced in quantity at the tips of naked branches. *V. foetans* and *V. grandiflora* from the Himalayas are choice desirable shrubs with rich pink tubular flowers in winter and earliest spring—they are best with the protection of a south wall. *V. x bodnantense*, a deep pink hybrid, also flowers through the winter.

This completes my suggestions for winter shrubs. It is a longish but not exhaustive list. Our second group, winter flowers, will follow.

(*To be continued*)

Planning the Garden (Kobe)

My small new house is the Japanese kind
With a sea view in front and mountains behind ;
And a garden that's only a few feet square,
So there isn't much room for planting there,
Yet, I hope to make it gay and sweet
With slow-growing bushes, dwarf and neat.

By lacing together some split bamboo
I'll make a fence as the Japanese do ;
And plant at the corner a twisted pine
To lean well over this fence of mine—
Then beside its foot where the shade is cool
*Sui Sen can grow by a midget pool.

In the farther corner, beside the wall,
I must have a moon flower green and tall
So that every evening I may see
Its white buds opening mystery—
And catch as I watch the starry sight
That first sweet breath of its fragrant night.

With stepping stones that are smooth and flat
I shall lay a small pathway after that ;
Then plant a pink plum for the early spring ;
And oh !—another important thing—
If there's any room left for one thing more
I want a white Daphne beside the door.

R. M. H.

**Sui Sen. Jonquil.*

Notes from the Keillour Garden—January 1954

By M. L. K. FINLAY

As MANY members of the S.R.G.C. have visited Keillour it would make tiresome reading if I were to describe our garden in detail. Suffice it to say that Keillour is situated at an altitude of some 500 ft. on a ridge of hills overlooking Strathearn to the Ochils, and that we are fortunate in the contours of the small part of these hills which we own.

The two dens on either side of the house, with their burns and waterfalls, have been receiving our more recent attention. The top area of the east den, as far as the waterfall under the bridge, was cleared four years ago and has proved to be a happy growing ground for many plants. Ramondas and Haberleas enjoy small terraces which face N.N.E. and we hope that plants of *Jankaea heldreichi*, which we received last July from Mount Olympus, will settle down there with their cousins. *Primulae Forrestii* and *redolens* also like these terraces, which must receive some seepage of moisture from the rocks above. The Petiolares primulas appear to be just as happy near the burn as in the peat walls ; *P. sonchifolia* (see Fig. 11), somewhat cabbage-like, enjoys living under the bridge, as also do several varieties of young *Camellia japonica*. A few rhododendrons which were not happy in the wild garden enjoyed their move to this semi-shaded position, so we began to plant others in the den, and of these the following are now good flowering shrubs : 'Elizabeth,' 'Aspasia,' 'May Day,' 'Fabia,' 'Exminster,' 'F. C. Puddle,' *aperantum* and *ciliatum*. On the sides of the steep path which leads to this den, *Rr. lapponicum x triflorum*, *moupinense*, *Ludlowii*, *lutescens*, *Mariesii*, *Forrestii var. repens* (*F.F.C. form*), 'Blue Tit,' and 'Blue Diamond' although still small, appear to be happy, as also Gaultheriae *sinensis*, 'Morna,' *hispida*, and *Miqueliana*, and *Vaccinium Mortinia*, *Gaulthettya wisleyensis* and others of the tribe.

The top portion of the west den was the next venture. Two years ago a clearing was made in this difficult and steep area where the felling of trees is no easy matter. Normally, when clearing for gardening purposes, we use a winch in order to extract the roots and drop the trees with exactitude, but in this case if we had pulled the roots out we would also have pulled the banks down to some extent and the timber would have fallen to the bottom of the den. So we had to 'fell' in an awkward manner with no level ground to stand on and at the same time avoid damaging trees which we wished to retain. With the use of wedges the trees were swung upwards against their natural lean, and the final removal of sawn-up timber was completed by a tractor winch ; thereafter the scrub was removed and we enjoyed many bonfires. Now some three hundred rhododendrons have been planted, ranging from the large-leafed *Rr. Falconeri*, *fictolacteum* and

sinograndе to many species and hybrids such as *mallotum, haematodes, Griersonianum*, and 'Fine Feathers,' 'Winsome,' 'Tally ho,' 'Allure,' 'Torsun' and 'Cornish Cross,' and including of the more dwarf, a selection of some forty Kurumes, and the semi-prostrate *aperantum* and *Forrestii* types. Rather ambitiously we have also planted a considerable number of camellias ; and many other interesting shrubs, including magnolias, have been placed there. Courses of peat blocks have been used to construct retaining walls for the steep bank on the high side of the path which leads down to the burn : these walls, some 90 yards in length, face west and will be an outlet for future planting. Meanwhile we have robbed from elsewhere in the garden and furnished the shelves to some extent. We were, and are, very ignorant about ferns, but the west den seemed to invite them and, thanks to the advice and help of Mr. Reginald Kaye, and a gift of large, well-grown offsets from Mr. Webster of Forres, we made a planting last April : April, we are told, is the month for fern planting and in April they all arrived —a beginner's collection. Mr. Kaye tells me that there is not a first class book (modern) on hardy ferns ; I wish that he would write one. (We have been trying to adjust our labels with our literature with little success). The genera, species and forms defeat us as beginners, but the common names are attractive.

The following appear to be well established despite a very dry period after planting : three varieties of Hart's-tongue (*Scolopendrum*)—*marginatum, crispum*, and *sagittato-projectum*, three of the soft Shield Fern (*Polystichum angulare*)—*divisilobum, acutilobum*, and *cuneatum-cristatum*, and one Hard Shield Fern—*Polystichum aculeatum var. pulcherrimum, Beris form*—which we are specially pleased to have ; also a Maidenhair fern (*Adiantum pedatum*), American, discovered in the Klondyke region. Of the Lady Ferns we have *Athyrium filix femina, vars. Victoriae robusta*, plumose form (discovered in Scotland 90 years ago), *plumosum regale, plumosum cristatum* and *Frizelliae* (found in Ireland by Mrs. Frizell in 1857). Of the Lastreae (or should they be Dryopteris ?) we have two, *L. pseudo-mas polydactyla* and the King of Male Ferns—*Lastrea pseudo-mas var. cristata*. This spring we hope to make a further planting. We have other ferns in the garden which appear to crop up by chance—not all are welcome.

This winter we have been working in the East Den further down than the bridge and waterfall. This is not really a new scheme, as long ago we appreciated that this bank, facing west, was a most important viewpoint from the lawn and house. We did an immense amount of clearing of scrub, bird cherries, hazels, bramble, and even of birch and geans, of which there were too many, just at the end of the war, and replaced them with Berberis, Mespilus, Spiraea, Prunus, witch hazels, Liquidamber, maples and *Cercidiphyllum japonicum*, with special thought for Autumn colour. Later we added *Embothrium coccineum* (which at last flowers with us) and many more berberis raised from 'L. & S.' seed sown in 1949. Quite recently we have planted *Philadelphus*—'Avalanche,' polyanthus 'Favourite,' *pekinensis*

'Kansoensis' and 'Rinsfordiensis'; Deutzias *scabra flora plena* and *grandiflora*; Diervillas *florida purpurea* and 'Avantgard'; *Syringa Prestonae* 'Desdemona,' *Podocarpus salignus, Sorbus hupehensis, rufo-ferruginea,* and *Lonicera Maackii var. podocarpa.*

The steep bank has never been included in the normal garden tour. Walking up and down may be all right for us but we have hesitated to ask our guests to do so. The 'Thirty-nine steps' were therefore contemplated and are now completed, but have developed into '109'; these steps are made of turf with log facings kept in position by wooden pegs, and lead from the wild garden down to the burn. The further project of stepping-stones across the burn, to lead on to a more gradual path and steps up to the rose garden, has also been completed and this will provide, we think, an interesting change or alternative tour according to the season of the year. The focal point of the rose garden is a fine specimen of *Sequoia gigantea* some 110 ft. in height. The new path leads up to a crescent-shaped bed behind the Wellingtonia. This bed has been planted with early flowering shrubs and primulas. As rose gardens are dull till July many Iris have been planted in the side beds in between the species roses, for June interest.

The bed of old early flowering rhododendrons and berberis on the lawn at the side of the bridge has been altered and enlarged—the berberis on the N. and N.W. side have been removed in order to make a suitable semi-shaded situation for the ever increasing number of plants and shrubs awaiting a home. Rhododendrons *nitens, ledifolium, narcissiflorum, lapponicum x triflorum, Forrestii var. repens,* and *keleticum* have been moved to this bed, and of the other plants, mostly raised from seed, *Meconopsis punicea, chelidonifolia,* and *regia* : *Primula rotundifolia, chumbiensis, tsariensis, bhutanica, nepalense, magellanica* : and *Kniphofia Galpinii* have been planted there. The bed is pleasing to look at and a few large stones have been used to vary the levels.

Crossing the bridge we come to the newer peat walls on the left and north side of the drive. There now grow quite a collection of Gentians: Of the acaulis group *Gg. clusii, dinarica* and *Kochiana* are well established and *G. verna angulosa* is settling in (elsewhere in the garden it has not liked us). *G. trichotoma,* with its spectrum blue flowers, is one of our favourites, as are also *Gg. Farreri, ornata,* and *Veitchiorum,* and the hybrids 'Devonhall' (*ornata x Farrerii*), 'Glendevon' (*Farrerii x sino-ornato*), 'Inverleith' (*Farrerii x Veitchiorum*) and *hexophylla x Farrerii.* For the rest *Gg. sino-ornata, Wards form* (*W* 126), *septemfida, stragulata,* and *saponaria* provide, between them, a long period of bloom. Other plants of interest in this bed are *Leiophyllum buxifolium prostratum, Omphalogramma elegans, Cyathodes Colensoi,* backed by some Rhododendron species, a few Meconopses and *Fothergilla monticola* and *Disanthus cercidifolia* for autumn colour.

I think that our next project will be to reorganise part of our 'so-called' rock garden.

Some Oxales

By D. M. MURRAY-LYON

THE OXALIS family belongs to the natural order Geraniaceae. There are, I believe, over 300 species, but not many of them are suitable for the rock garden. In fact a few of them are most unsuitable for any garden, for they are rampers and smotherers, made more dangerous by the fact that they are rather attractive. Be firm and refuse to have any truck with *Oxalis caniculata* or its variety *atropurpurea*, both very attractive little carpeters, but thugs and murderers in disguise, capable of choking plants far bigger than themselves. Not only do they root as they go, but they shoot their seeds far and wide.

O. repens is not much better ; smaller but almost as dangerous. It is the little yellow-flowered creeper often seen in greenhouses, but it sometimes gets into the rock garden, AND survives the winter in spite of coming from the tropics or thereabouts.

Our own native wood sorrel, *Oxalis acetosella*, while not so showy as some of the foreigners, looks nice growing amongst dwarf rhododendrons, or in similar not-too-dry or hot places. It produces its white flowers in April and May and there is an attractive variety *rosea* with rose-coloured flowers. It, and practically all the others, have clover-shaped leaves with a varying number of leaflets, but mostly threes.

Another lover of shade, or at least of a cool dampish spot, is *O. oregana* from North America. It is like a stronger growing *acetosella*, though not usually taller than three or four inches. It has attractive pink flowers of a good size. It is rather a spreader, but not a danger like the three mentioned above. It has a long flowering season, starting in May.

Oxalis adenophylla from Chile is often said to require shade, but I find it does well in full sun so long as it is in a humusy soil which does not get baked and dried out. This is a real treasure with its crinkly glaucous leaves and goblet shaped flowers. The flowers vary from white or cream to pink, and are carried clear of the foliage on three-inch stems. It likes a good proportion of humus in the soil in the form of peat or leaf mould.

O. enneaphylla, nine-leaved by name but often having anything up to a dozen or more leaflets, is rather like *adenophylla*. In spite of coming from the cold and misty Falkland Islands, it does well in full sun in a rich humusy soil with plenty of grit in it (scree). It has silvery-grey leaves sometimes marked with brown, and lovely glistening white goblet flowers with a sheen on them. There are pink-flushed and rose coloured forms, and it is a matter of taste which is the more beautiful.

Both the last two species have longish flowering periods from May to August, with odd flowers even into September.

The remainder of the species I am going to mention like full sun and a warm position in light sandy soil or scree.

Oxalis Bowiana (or *Bowiei*) is a South African and not reliably hardy everywhere. It is well worth trying though in sharp scree with its roots well down below a stone ; and of course it does well as an alpine house plant. It has large, handsome, three-lobed leaves, and large flowers on eight or nine-inch stems. The flowers, three or four to a stem, vary in colour from rose to terracotta or purple, and are produced from May to July. I believe the correct botanical name is *O. purpurea var. Bowiei.*

Another Oxalis which requires the same treatment as *Bowiei* is *Deppei*, which comes from Mexico. It forms a tuber, said to be edible, which should be planted a good six inches deep. Its four-leaved-clover leaves are marked with purple, and it has brick red flowers on six-inch stems produced from June to September.

Another Chilean is *O. lobata* with lovely golden yellow flowers produced in September and October on three-inch stems. Don't be alarmed if it dies back and disappears below ground about May ; it is all right, it is just the nature of the beast. The leaves will reappear in September. A sunny scree with a little leaf mould added will suit it.

O. chrysantha, also from Chile, is a most attractive little herbaceous plant which forms a low mat only a inch or so high. It has light green trifoliate leaves and masses of pale yellow flowers from June till cut by frost. It needs scree treatment and a stone for its roots to get under. In wet districts a sheet of glass or a slate in winter would probably be appreciated.

All the species so far mentioned I grow myself, but I would like to mention two which I have not yet grown but which I believe are well worth trying. *O. magellanica* forms a low neat bronzy green carpet with pure white flowers on inch stems. It should be satisfied with the same sort of conditions as *O. enneaphylla.*

O. braziliensis is rather like a small edition of *O. Bowiana* and requires similar treatment. It is said to have wine-red flowers, which certainly sounds attractive.

Most of the species I have mentioned are bulbous and easily propagated by division in spring.

O. acetosella, chrysantha, Deppei and *oregona* are not bulbous and can be divided easily in spring or late summer.

A Selection of Dwarf Shrubs

(Continued)

By A. EVANS

COTONEASTER (Rosaceae). Some of the most attractive Autumn foliage and berrying plants are found in this genus and although a very large percentage of the species and varieties can be accommodated only in the shrub borders there are still a few whose dimensions bring them into the rock garden class. Many are particularly well suited for planting as a background to other plants. Cotoneasters are not difficult plants to grow nor do they demand the best of soils to develop into excellent specimens. Furthermore, they take kindly to pruning. As the ever-watchful gardener trims his more vigorous plants to prevent them smothering the less robust, so must he regularly prune his shrubs and confine them to their allotted space.

COTONEASTER ADPRESSA is a low growing plant with a very neat habit. The growths are short and thick and are so interlaced that they form a dense thicket. After many years it may not exceed twelve inches in height but will spread much more horizontally. Perhaps the best location is the top of a mound where the branches can trail over a steep face. *Cotoneaster adpressa* is a native of China and has been in cultivation about 60 years ; although it flowers well, few fruits are produced. It is a deciduous species and in the Autumn the leaves turn bronzy red before falling.

COTONEASTER CONGESTA in open situations rarely grows more than four inches high. It is an evergreen species with leaves scarcely a quarter of an inch in length. These are dull green on top with a bronzy red tinge at the tips, while the undersides are lighter green. The leaf margins have very long thin hairs. During their first year the young shoots retain their dark red colour. If allowed to scramble over the rocks, *Cotoneaster congesta* will follow and hug their contours closely.

COTONEASTER CONSPICUA was introduced from S.E. Tibet as recently as 1925. It is an evergreen shrub of up to twelve inches and is a slightly looser grower than *Cotoneaster congesta,* which also has broader leaves. The young shoots and leaves are densely pubescent and give the plant a grey appearance. In spring-time it is covered with small white flowers which are followed in Autumn by bright scarlet fruits.

COTONEASTER DAMMERI is an evergreen prostrate species which spreads over the soil forming a complete carpet. It may be grown in the sun or part shade but the former position is better as it will help to counteract the vigour of the young shoots. These shoots are reddish brown and readily layer themselves, sending out roots wherever they are in contact with the soil. The leaves are large for such a dwarf plant, being one inch in length, and are polished dark green on the upper surfaces and pale green beneath.

COTONEASTER HORIZONTALIS is one of the most popular species with its graceful regular branching, a very obvious characteristic when the shoots are bare in winter. The display of Autumn colouring, both foliage and fruit, is unrivalled at that season. The leaves are almost orbicular and are glossy green above.

The variety *Cotoneaster horizontalis perpusilla* is every bit as distinctive as the species, but has smaller leaves and a still tighter habit of growth. Both plants produce an abundance of fruits.

COTONEASTER MICROPHYLLA is a low-growing prostrate species which, as the name suggests, has minute leaves. These are glabrous on their upper sides and densely woolly with grey down on their undersides. An evergreen of some consequence, it can make a handsome feature in a prominent position. There are a few varieties of this species, but perhaps the best is *Cotoneaster microphylla cochleata.* This is a very common plant masquerading under many names and is so adaptable that it is not uncommon to find self-sown seedlings. It differs from *Cotoneaster microphylla* by having harder, more polished and rounder leaves which give this plant a superior appearance. Fruits are fairly numerous and are large and deep scarlet in colour.

COTONEASTER THYMIFOLIA, an evergreen which is sometimes classified as a variety of *Cotoneaster microphylla*, is a native of the Himalayas and has the smallest leaves of the genus. They are oblong and very closely resemble the leaves of the Thyme, but only in shape. *Cotoneaster thymifolia* makes a dwarf compact bush up to fifteen inches, it hugs the faces of the rock, but in exposed positions the youngest leaves may be browned by frost. The flowers are a very pale pink shade but few fruits are ever formed.

CYTISUS (Leguminosae). This group of plants, without exception, should be planted in the poorest of soils. Moist rich loams only produce long growths which throw the plants out of character and in a very few years they become leggy and unsightly. Even when they are planted on the drier sunnier slopes some pruning, to a few of the stronger upright growing species, is necessary to encourage them to retain an attractive shape. This pruning should be done immediately after flowering, and comprises cutting back into the shrub the long, strong growing shoots to encourage a larger number of laterals to develop. Brooms treated in this manner will remain handsome specimens for many years more than those which are neglected. The plants are well worth this little attention. Admittedly, the pungence of Broom is objectionable to many, but who would deny the quantity of flowers produced by these plants.

CYTISUS ARDOINI is a low growing deciduous shrub which rarely reaches six inches in height. It is suitable for a south slope or ledge where the drainage is good and it can enjoy the sun. The flowers, appearing in May, are rich golden yellow—three to six in a cluster—

Photo.—W. G. K. Finlay

FIG. 24—Meconopsis x Finlayorum. (See page 86)

Photo.—D. Wilkie

FIG. 23—Celmisia gracilenta. (See page 63)

By courtesy of Royal Horticultural Society

and although not so freely borne as some of the garden varieties, have a richness of their own. *Cytisus Ardoini* has trifoliate leaves which, along with the young growths, are exceedingly pubescent. This species is native to the Maritime Alps.

CYTISUS BEANII is of garden origin and has the previous species as one of its parents. It has a very similar habit of growth but is much less hairy, while the flowers, which appear at the same time, are a deeper almost Buttercup yellow.

CYTISUS HIRSUTUS DEMISSUS must be one of the finest in the genus. It is prostrate, with a spread of nearly three feet, yet rarely exceeds two inches in height and forms an effective carpet over the soil or rocks. The leaves, which are very downy, are large in comparison to the height of the plant and give a handsome appearance even when out of flower. May is the flowering period, and the blooms are produced in great numbers throughout the lengths of the young shoots. The flowers being light yellow with large brown markings on the keels are very conspicuous. There is nothing garish about this plant.

CYTISUS JEFFSII has the almost unique habit in brooms of producing numerous upright growing shoots which, though strong in themselves, are never very long. It forms a dense shrub and has smaller flowers than the large garden hybrid. These flowers are light yellow in colour. This is a dwarf slow growing Cytisus of barely nine inches.

CYTISUS KEWENSIS is one of the most prolific flowering brooms in cultivation. It is a strong growing plant with a spreading habit, although usually less than twelve inches in height and, if correctly sited in an elevated position, will make a startling sight. During May, when this plant is in bloom, neither leaves nor stems can be seen for the multitude of light sulphur yellow flowers smothering the whole plant. *Cytisus kewensis* is seen at its best tumbling over the south face of a large rock. It is a garden hybrid and is one of *Cytisus Ardoini's* progeny.

CYTISUS KILLINEY SALMON is one of the multi-coloured hybrid brooms and can be confined to a small area by careful pruning. The flowers are deep scarlet to salmon and appear in great quantity on last year's shoots.

CYTISUS LILAC TIME, although of hybrid origin, does not seem to possess hybrid vigour. It has lilac to pink flowers, a shade not frequently encountered, and one which makes this plant distinctive. This hybrid may have to be supported until it is well established. The results of yearly pruning will be seen to advantage on this plant.

CYTISUS PETER PAN, as the name suggests, is a dwarf growing broom and seldom attains more than fifteen inches in height. It has large flowers which in colour closely resemble those of *Cytisus Burkwoodii*, being bright crimson, a shade which is an asset in a prostrate growing broom.

CYTISUS PROCUMBENS lives up to its name and the branches lie horizontally across the ground. So dense and interlaced do the shoots become that they form a thick carpet of green. The leaves are simple and like the shoots are dull green in colour, making an ideal background for the rich yellow flowers in May. This is a very dignified plant when not in flower and should be given a prominent position. It is native to S.E. Europe.

CYTISUS PURPUREUS has an individual habit. It is necessary to induce young growths to sprout from the base of the plant every year by cutting out some of the old exhausted flowering shoots just after the flowers have faded. If this pruning is not done regularly the centre of the bush becomes a mass of short twiggy growths which fail to bloom. On a healthy robust plant these young shoots will grow strongly and, as they have an arching habit, a high situation in the rock garden is ideal. This is a European species, which may be covered with numerous purple flowers in May. The variety *Cytisus purpureus incarnatus* has deeper purple flowers but is less vigorous.

DRYAS (*Rosaceae*). A genus of prostrate evergreen shrubs consisting of very few species. One of these, our native species, has been chosen as the emblem of the Scottish Rock Garden Club and, like its members, is found widespread in Scotland.* The crenate leaves have a green upper surface and a light-coloured lower one and in shape are very similar to a Potentilla, but are harder to the touch. They are valuable foliage as well as flowering plants to the rock garden. It is not a difficult task to increase this plant, as rooted layers may be found on any sizable specimen and if severed from the parent plant in July may be potted in a sandy compost and placed in a shaded frame until the roots become established. They make first class plants for training over rocks and are not slow to spread ; it is better, therefore, not to grow these plants in a rich soil mixture.

DRYAS DRUMMONDII is a native of N. America and has pale yellow flowers. The single flowers are borne on fairly long stalks, but the rate at which this plant expands is not so great as our native species.

DRYAS OCTOPETALA, our British plant, is a vigorous grower which is best planted in a sunny position. It has white flowers—short stalked when compared with *Dryas Drummondii*—which can cover the plant in May and June. It is not a difficult plant in cultivation and, in addition to other habitats, is found growing naturally in limestone districts, pleasant news to those gardening on chalk. Two smaller-growing varieties are *Dryas octopetala minor* and *Dryas octopetala tenella*, the former being half the size of the species in all its parts and the latter, while still smaller than *Dryas octopetala*, has almost entire leaves. *Dryas Suendermannii* is a hybrid between the North American and British species. It has nodding flowers which open white after being yellow in bud.

*See Fig. 9.

Plants and Problems

AQUILEGIA PYRENAICA

I WAS most interested to read Mr. Corsar's article on Aquilegias in the April *Journal* and the remarks in the September *Journal* by D.G.L. I should like to add my experience.

I found *Aquilegia pyrenaica* on the way up to the Cirque de Gavarnie. It was growing in shingle, and was a most adorable fairy-like plant, only about 8 inches high, with dainty rather feathery leaves, and the colour of the flowers was not so brilliant a blue as its cousin *A. alpina*, which is such an intense and glorious blue, an awe inspiring sight.

The blue of *A. pyrenaica* seemed more of a powder blue and varies in colour slightly. Mr. E. B. Anderson, in an article on "The Trip to the Pyrenees" in an A.G.S. Bulletin of 1939, mentions finding *A. pyrenaica* in scree and refers to it as a delightful *dwarf*. One of the outstanding characteristics of this Aquilegia is that its spurs are always straight and unhooked at their tips.

Ayrshire. R. McC.

SEED HARVESTING

I FIND clean, glass jam jars the answer to seeds. I take the jars round to the plants, pick the stalks with the seed pods on, and just turn them upside down into the jars so that the stalks are sticking out at the top. I leave the seeds in their jars, somewhere in the house, until they are dry, before putting the seeds in their packets. I strain them through a gravy strainer, tea strainer or flour sifter, according to the size of the seeds.

Ayrshire. R. McC.

OXALIS LOBATA

OXALIS LOBATA seems to me a most splendid plant to have, as it flowers twice in the year. My plant is in a pot in my alpine house and began its second period of flowering in September and is still flowering now, 5th November. Eight degrees of frost did not worry it. The leaves are similar to Clover leaves. The flower is a nice deep orangy-yellow and the whole plant about 4 inches high.

Mr. W. E. Th. Ingwersen calls it, in the A.G.S. *Journal*, Vol. III 1935 : "Chilean treasure of great worth." In the same volume Mrs. Gwendolyn Anley, in her article "An Alpine Calendar" for 7th Oct. remarks : "*Oxalis lobata* is a very loveable little thing." So this Oxalis is an old friend as well as a darling of the alpine world. How common is this Oxalis ?

Ayrshire. R. McC.

ARCTERICA NANA

THIS IS one of the less well known members of the Ericaceae and comes from Japan.

It is a neat miniature shrub with tiny dark green glossy leaves. It does not grow more than three or four inches high, but spreads sideways to cover six inches or more. In some books and catalogues it is described as having white lily-of-the-valley flowers which I think is rather misleading. The individual flowers are similar to those of lily-of-the-valley. They are not, however, carried in a raceme, but singly on very short stalks just clear of the leaves. Although usually described as white, the flowers on my plant are certainly more a yellowish ivory. It is very free flowering, the bush being literally covered with flowers.

If you let it ripen all its seed, though, it is liable to "ca' canny" with its flowers the following spring, so snip off all dead heads except what you need for seed.

It is quite an easily grown plant in soil with a good deal of peat and/or leaf mould ; shade from the mid-day sun only is appreciated in summer. In fact, what suits most dwarf rhododendrons will suit it.

As the flowers are small, in fact the whole plant is small, put it where it will be as near eye-level as possible without kneeling or stooping, to enable you to admire it in comfort. It flowers in May and June and is a most attractive little thing. Cuttings of the current year's growth, about an inch long, take quite easily, especially if treated with Hortomone A ; cuttings will probably be ready in July or August, seed may be sown in spring.

Edinburgh. D. M. M.-L.

CORIARIA TERMINALIS (CORIARACEAE)

THIS VERY attractive and colourful sub-shrub belongs to a most interesting family, of which this genus is the sole member. Its gracefully arching branches, with horizontally arranged pairs of closely set ovate leaves, are annual and arise from a perennial woody root stock. It spreads, though not to any great extent, by means of short underground rhizomes and in time makes a compact little clump.

Introduced from Tibet more than fifty years ago, we have had plants for many years and it has proved itself perfectly hardy. Planted on a sunny ledge or in a high pocket it is an asset to the rock garden all summer, with its graceful habit of growth, never more than one foot high but arching out in semi-pendulous sprays of attractive foliage.

Towards early Autumn it takes on added beauty. Its stems and leaves turn brilliant crimson and each stem terminates in a six-inch raceme of brilliant fruits, at first scarlet, but ultimately nearly black.

These fruits, or really apparent fruits, since they are composed of the enlarged fleshy petals enveloping the true fruits, are nearly half an inch in diameter and make a noble show on an already attractive plant.

Coriaria terminalis is not in the least fastidious as regards soil, but is probably best in a well-drained, fairly dry soil that is not too rich. I have a suspicion, perhaps unworthy, that in moist, rich soil it might not be quite so hardy in a severe winter.

Fife. M.

CONVOLVULUS CNEORUM

THIS RATHER dense but shapely bush is a native of southern Europe. It grows to about 18 or 24 inches high and about the same across. The leaves are lance-shaped and a rather glaucous green. Both leaves and stems are covered with silky hairs which give the whole plant a shiny silvery look which is most attractive. The buds are pink but open into white flowers an inch and a half across. Pink stripes on the outside of the flowers persist and shine through, giving the petals a pleasing pink flush.

The individual flowers do not last long, but there is a long succession of them starting usually in June and going right on into September. This year, 1953, there were flowers up to the first week in December.

It has the reputation of not being reliably hardy, but the plant has been through two/three winters in my garden here in Edinburgh and is flourishing. The reason probably is that it is growing in very sharp scree three feet deep ; its roots, however, can reach the turf wall against which the scree is built. Protection from wind is a help too.

A winter like that of 1946-47 would probably do it in, but soft cuttings strike easily in June or July, especially if treated with Hortomone A. A few of these cuttings kept in a frame through the winter are a good insurance policy. It makes a very good alpine house plant too of course.

Edinburgh. D. M. M.-L.

DIANTHUS FREYNII

STRICTLY speaking I believe this should be called *Dianthus glacialis var. Freynii*. It resembles the type *D. glacialis* in habit, but its grassy foliage is a very definite grey, and the flowers are rose coloured, a very pretty combination.

It is a very neat plant forming a tight tuft two inches high and three to four inches across. It is very free flowering, its main season being in June, but it has odd flowers on and off pretty well all summer.

It is quite easy if grown in scree, easier I find than the type form of *D. glacialis*. Cuttings strike easily if taken about July. In my opinion it is one of the best and most satisfying of the alpine dianthi.

Edinburgh. M.-L.

DOES IT EVER FLOWER ?

I WAS given a small plant of *Jasminum Parkeri* in a thumb pot in June 1949. It was planted in scree in my Perthshire garden, and moved down here in 1951 and again planted in scree (50% boiler ash) in full sun. It has grown well and is now a shapely little bush eight inches high and sixteen inches in diameter, but it has not flowered at all. Does it merely take a long time to reach flowering age or have I done something to displease it ?

Edinburgh. M.-L.

MECONOPSIS X FINLAYORUM

THIS Meconopsis (Fig. 24) appeared as a natural hybrid in the garden of Major Knox Finlay at Keillor Castle, Methven, Perthshire, and flowered for the first time some five years ago.

It follows the character of its male parent, *M. quintuplinervia*, in being perennial, and seems a good 'do-er' and easy to grow, increasing freely under the ordinary cultivation recommended for Meconopses. Its seed-parent was the lovely-flowered but monocarpic *M. integrifolia*, and we may be thankful that the offspring have proved themselves more enduring than their female parent. From the basal rosettes of ovate lanceolate leaves spring peduncles usually not more than fifteen inches in height and bearing attractive, full-petalled, white flowers two or two and a half inches in diameter.

Fife. J. M.

MUEHLENBECKIA COMPLEXA

ACTING on an invitation—which in this case amounts to a demand where our Editor is concerned—I have not replied completely to the "request" which was for short notes on my favourite flowers for the rock garden or alpine house. Unfortunately I have no favourites, but some plants have appealed to me more strongly than others. It has not always been the flower that made this appeal. In the subject of this note it was the fruits and in the accompanying note on *R. calandrinioides* it was undoubtedly the flowers, yet I have never been enamoured of any plant more than with *Argyroxiphium sandwicense* for its shining silver scintillating grass-like foliage. I can truly say that I have never seen any plant comparable to it in form or lustre.

Coming down to earth—and one must literally do so to notice this shrubby New Zealander—one may wonder what appeal it could possibly have to encourage anyone to give it garden-room. Unless you have a fairly large garden with a steep sunny bank or a dry wall with surrounding shelter, you had better not try it, for there are many far showier and more handsome plants that will deck your garden with brighter colour and to more effect.

Even in the south this wiry, bronzy-stemmed, variable-leafed shrub,

that rears and twines its growths into weird and contorted tangles, gets severely frosted some winters. It can have few claims to startling beauty ; even the prolific, starry, yellowish flowers are of subdued appearance. What a transformation there is, however, when these insignificant flowers are transmuted into fruits ! Transmutation is the only word for it, for the petals, fading to white, persist and swell to enclose their triangular brown nutlets in canine-like protuberances. These translucent fruits on maturity scintillate like icicles in winter sunshine. There are other genera whose fruits are formed by the same or similar suppuration of the perianth or calyx segments, notably Gaultheria, Pernettya, and Ephedra. The effect is not comparable to the foregoing, although Pernettya tasmanica's fruits are most intriguing. Making no severe demands on one's cultural skill, a good drift of this shrub is well worth its place where space and amenities permit.

Lanarkshire. J. T. W.

RANUNCULUS CALANDRINIOIDES

THIS "Buttercup" from the Great Atlas Mountains has had many notes of praise and damnation poured over it and truth must out—both may be justified. The time of flowering of this plant, from November to February, makes it essentially an alpine house plant except in the most favoured parts of our Islands. It is variable—some narrow-leaved and narrow-petalled forms of dingy whiteness can be had—but at its best, with broad steely grey stiff foliage and a succession of solid round pure white or pink flushed flowers on sturdy stems, it can be both showy and spectacular.

There is no real difficulty in growing this Ranunculus : any good well-drained loamy soil in full sun will suit it, and a good deep mulch of coarse stone chippings will be beneficial. I think the main difficulty in northern regions is the lack of sun to ripen up the plants. Much could be done by placing a piece of glass over the plant from June to October to aid the ripening ; it might be necessary to replace this as the flowers open, for the weather at this season can be rather severe.

Like most buttercups, it likes plenty of water from the time growth commences until it shows signs of going to rest. Seeds germinate freely and should be sown direct from the plant, even if the achenes are rather green ; they lose viability if allowed to dry out for a lengthy period. If grown in pots, very deep ones should be selected for extraordinarily long roots are formed. Three feet can be a modest computation of their length.

Even the severest critics of this plant will perforce give it a measure of praise if they acquire a good pure white form with overlapping petals, or a greater measure for the pink flushed form which is entrancing in bud and glorious when fully expanded with its golden boss of anthers.

Lanarkshire. J. T. W.

RHODODENDRON KEISKEI

THIS is in my opinion one of the best rock garden rhododendrons. It forms a neat compact rounded bush eight to ten inches high and as much or more across. The flowers, greenish at first, become a clear lemon yellow and are very freely produced in April.

The leaves have a sort of matt finish which seems to show up the rather pale coloured flowers, making a really beautiful picture when the plant is pretty well covered with flowers, as it seems to be every year.

It is perfectly hardy and the only time I remember having the flowers spoilt by frost was this year (1953) when, after the very warm spring which brought things on very early, we got a severe frost on March 18th just as the flowers were about fully out. It is not at all faddy and does well here in full sun in the usual humusy rhododendron soil. In the "Rhododendron Handbook" it is awarded two stars but might well, I think, be given a third.

Edinburgh. M.-L.

SOME EASY PRIMULAS FOR SHADE

TO THOSE who have not had experience in growing the shade-loving Asiatic primulas the following notes may be of interest.

The site chosen should preferably be flat and, as strong sunlight all day is inimical to these plants, shade must be provided. The near neighbourhood of large trees should, however, be avoided, as their roots will absorb too much food and moisture from the soil. The shade cast by small deciduous trees will be found most suitable, particularly if there is a planting of trees and shrubs on the south side of the primula bed. Protection from strong winds is also desirable.

It is of great importance that the soil should be retentive of moisture, and deeply dug. In our case the soil is heavy and we first remove the top spit. The subsoil is then thoroughly broken up and rotted vegetable compost incorporated with it in generous quantities. On this is placed a mixture of equal parts of loam, leaf-mould, coarse sand and peat. This mixture retains moisture and provides a medium which seems to encourage a strong, healthy root system resulting in a vigorous plant. Most of our plants have been raised from seed sown early in spring, subsequently grown on in pots in a shady plunge bed, and finally planted out at the beginning of September. This enables them to become established before the winter arrives. In the soil referred to above the plants thrive well and give a splendid display of bloom. So far we have confined our efforts to the more easily managed species and hybrids, the names of which are shown in the following list: *Primulae alpicola* (*luna* and *violacea*), *anisodora*, *aurantiaca*, *Beesiana* *Bulleyana*, *burmanica*, *chionantha* (rather earlier than the others, but particularly beautiful), *chungensis*, *Cockburniana*, *denticulata*, *Florindae*, *helodoxa*, *pulverulenta*, *sikkimensis*, *Waltoni*, *Wilsonii* and the hybrids

"Miller's Crimson," "Postford White" and "Asthore." *Florindae* requires the maximum of moisture to do really well—we have seen it flourishing in a small hill stream in the Borders where someone's planting had been well rewarded. It does, however, grow to 3 or 4 feet with us and gives a wealth of sweetly scented flowers. On the other hand, *Waltoni* is said to be intolerant of very wet conditions and we have placed our plants near the roots of crab apples and here they bloom well. This species has a reputation for not being easy in the seedling stage, but any trouble taken is amply repaid by its grace of form and colour.

Apart from the usual cultural routine nothing special requires to be done, although it is very important to remove all dead leaves from the bed in autumn to prevent the crowns of the plants from rotting in the winter wet.

Edinburgh. W. N. and E. M. MOODY

I DON'T KNOW WHY—BUT IT WORKS

SOME plants with the reputation of not being hardy will survive a hard winter if their roots can get right under a good-sized stone. *Parochetus communis*, for example, has flourished with me for years. In summer it spreads itself all over the place, but when winter comes it is cut back and anything left in sight is usually pretty dead. In spring though small green shoots start poking out from below the stones, and it is soon scrambling about happily again.

Oxalis Chrysantha is another plant which responds to this treatment, and I think it is worth trying with anything which dies down for the winter and is apt to die altogether.

Edinburgh. M.-L.

PHYLLODOCE GLANDULIFLORA

ONE OF the objectives of a recent summer climb in the Cascade Mountains was to obtain a few feet of movie film showing this Phyllodoce at its best.

I had climbed to about the 6,500 foot elevation, in the vicinity of that great area that contains Mt. Shuksan and Mt. Baker, in the North-west corner of the State of Washington ; relaxing after the hard climb, I was resting on a moss-covered boulder, overlooking a steep canyon, and here, with the warm sun on my back, I was making a sketch of Mt. Shuksan ; pausing briefly, and looking up at the mountain in order to have the correct lines for my sketch of the southern portion, another small meadow was noticed on my right, with sloping sides of outcropping rock ; surely, I thought, the Phyllodoce of my quest would be growing on one of these slopes, probably on the south side.

Finishing the sketch, I proceeded cautiously downwards over the boulders, peering around each one to see that some choice plant would not be missed, that would be hiding in a small crevice ; finally arriving on the brink of another canyon, I carefully walked along the edge until a place was discovered from which a descent could be made to a lower ledge ; from this location the southern exposure was reached. Upon rounding a picturesque old sentinel, a perfectly balanced rock of the ages, a grand specimen of *P. glanduliflora* was seen gaily waving its yellow bells at me from its comfortable location, where it had grown for many a long year, its feet firmly anchored in a crack of a great outcropping of granite.

In order to secure the perfect picture, it was necessary to carefully manoeuvre to a situation directly below the shrub, thus having the sun at my back and affording excellent lighting for a coloured exposure. The huge bulwark that this plant was making its home on overhung a steep slope, covered with *P. empetriformis*, which had a sheer drop of one thousand feet to a yawning chasm that separated the ridge I happened to be on and the far slope that eventually rose to meet Mt. Baker ; consequently it was of prime importance not to slip on the 'heather' and go tumbling down into the deep ravine. You may be sure that my heavy boots were really dug deep into the mass of *P. empetriformis* as I focused the eye of the camera on the beautiful pale yellow bells above me !

Later, when the roll of film was processed, there was a prayer of thanks expressed as the results were displayed on the screen, for colouring, light, and background were superb, a truly remarkable scene ! What a sigh of relief was given that the risk had not been in vain.

Kent, Washington, U.S.A. L. M. L.

TWO DWARF SHRUBS

TWO DWARF shrubs that have much appeal to us, that are growing in one of our scree beds, do not seem to be very well known ; one is a form of *Tsuga Mertensiana*, while the other is a form of *Chamaecyparis nootkatensis*. It would be interesting to learn of these two growing in other gardens.

The dwarf form of *T. Mertensiana* is a delightful subject, having glaucous leaves, and somewhat resembling one of the smaller growing Taxus. Our plant is shaped rather unique, it is four inches high on the front side, while the rear side is six inches in height, and having a sheared appearance on the top side, very much as if strong winds had constantly cut the top foliage ; this little shrub has never been pruned. Its growth is very slow, even last summer during a very wet season, it grew only about half an inch on each small twig. The over-all

size is twelve inches by fourteen inches. I have no idea how old it may be, but judging by the yearly growth this little fellow is far above legal age ; it is a very compact grower.

The *C. nootkatensis form* (for want of a name for this variety) grows a bit faster than the above shrub, and is not nearly so old.

The leaves are all juvenile, there are no adult leaves on this little shrub. Its height is now seven inches and its spread is six inches. I have done some pinching on the upright growth to stimulate a thicker shrub. The colour is a rich green which holds well in full sun. If one would group a number of small seedling *Cupressus sempervirens* together in a pot, the appearance achieved would resemble this little shrub. Out of a number of these plants, this is the only one that has retained its juvenile habit of growth, the others having had several twigs that had adult leaves appear on them.

Both shrubs are planted in a coarse material, and are in full sun. They do enjoy a cool root run, with frequent watering during a dry summer, but should have rapid drainage.

Kent, Washington, U.S.A. L. M. L.

RAMONDA PYRENAICA VAR. WISLEY ROSE

RAMONDA PYRENAICA with its very attractive sprays of lavender blue flowers is very well known. The variety Wisley Rose is not nearly so often seen, however. It is not really any more difficult to grow than the more common form. It has most attractive rose-coloured flowers which are freely produced in May and June, four or five on stiff stems two or three inches long. Both forms like at least part shade, and damp, 'humusy,' but well drained soil.

A crevice in a north wall is a very suitable site. Ramondas may be raised from seed and sown in spring. As the seedlings are very tiny and liable to be strangled by moss and liverwort, sterilization of the soil is most important. and permanganate in the water used for watering also helps to prevent the growth of these two pests. Leaf cuttings strike easily in a shady frame in August, and the easiest method of all to increase is by division or removal of offsets in March or April.

Ramondas like plenty of water in the growing season, but they will stand quite a severe drought. I have seen them quite frizzled-looking and then after a good soaking they quite recovered.

Edinburgh. M.-L.

TWO PLANTS

PLAGIORHEGMA DUBIUM. Those who find this name somewhat 'ticklish to the tongue' may be slightly consoled by the fact that it has a synonym, *Jeffersonia dubia*. It appears that even the authorities are a little uncertain which *is* the name, for some treat *Plagiorhegma* as

the synonym and some *Jeffersonia*. It appears to be a case of paying your money and taking your choice. As I first knew it under the name given here, I have kept to that name. In any case, whichever name is the correct one, it is a plant well worth having.

My introduction to it was through a coloured illustration which greatly attracted me. Then almost immediately, I saw it in the flesh on the Show bench. The sight of it made it most desirable. There followed a long hunt aided by many enquiries which continued for nearly two years before I was able to secure a plant. And what a small one it was when it arrived ! It was rather ironical that during this time of search I came across a description of it in which the phrase 'is *Jeffersonia dubia* of catalogues' occurred. '*Of* catalogues' is probably right enough. My trouble seemed to be that it was not '*in* catalogues.' Even now it appears to be very uncommon, for though I see a fairly large number of catalogues and lists, I cannot recall seeing it mentioned, with one exception.

After the arrival of the small plant there followed another fifteen months before it flowered for the first time, but that was sufficient reward. Since then it has not failed to reward me with flowers. (Greedy-like, I could always wish they were more !).

It belongs to the Berberidacae and is a close relation of the Epimediums, there being a marked similarity in the leaves. The flowers are a delicate pale lilac-blue, about one and a half inches across, rather like a large Hepatica, borne on thin 3-inch stems in May or June, usually before the foliage is developed completely. It hails from Manchuria and requires cool, woodland conditions, with sandy peat and some shelter. Given these, it appears to be hardy.

Cytisus hirsutus demissus. This is a perfect little broom for the rock garden. Its stems are quite prostrate and grow slowly. The flowers, which are produced freely, grow from the leaf-axils of the topmost half of the stem and their clear yellow, enhanced by the brown keel, makes them extraordinarily attractive. A well grown patch is a breath-taking sight and, for the grower, a source of justifiable pride. For, though hardy, it is not too easy, nor is it commonly met with. It comes from S.E. Europe and Asia Minor and requires a sunny, well-drained position. Together with *Plagiorhegma*, it is an admirable subject for the Alpine House.

Aylesbury. J. E. S.

PULSATILLA PUZZLE

IT IS CONSIDERED good practice to sow *Clematis* with the end of the carpel containing the seed speared down into the damp compost, and the feathery tail flying high and dry so that it will not set up infection from moulds and "damping-off" disease. It seemed to me a good idea to try the same method for *Anemone Pulsatilla*. To be consistently

careful I ought, I suppose, to have watered only from below, but after a hot and windy day I gave the pans a quick overhead sprinkling with a watering-can. Almost immediately the feathers began to sway, and then to swirl round in clockwise circles. They continue to give repeat performances of this amusing trick until long after the seeds have germinated.

The mechanism by which this movement is brought about is easy enough to find. Halfway down the shaft of the feather there is a tightly twisted kink, and when this becomes wet it slackens and unwinds.

I wondered whether this movement might serve the purpose of strengthening the ripening seed-head by twiddling the separate feathers together to prevent their premature dispersal in stormy weather, when their air-borne range could be limited by their water-logged condition. Observation during a sudden shower on a hot day showed that although the feathers writhed and circled, no twisted cable was formed. A friend has suggested that the action might be to corkscrew the seeds into the soil, but I do not think so, because the movement occurs only in the upper half of the feather.

This peculiar behaviour seems to be confined to *A. Pulsatilla*, and its red, white and dark purple colour forms. I have not tried the yellow form *caucasisa*. The feathery seed-heads of *Anemone sulphurea*, *Dryas octopetala*, *Geum montanum*, and *Clematis* all lack the twisted kink in the shaft which causes the movement in *A. Pulsatilla*.

Can any member please suggest the purpose of this movement ?

East Lothian. L. C. B.-H.

SCHIZOSTYLIS COCCINEA

PURISTS would probably say that this is not a rock garden plant, but it does come from the mountains of South Africa and it does give a splash of colour when colour is short in the rock garden. It is a bulbous or rhizomatous plant, and quite hardy if grown in full sun and in well-drained light soil. There has been a large clump of it for many years in the Rock Garden of the Royal Botanic Garden, Edinburgh. I myself have a clump flourishing in 50 per cent. ash scree.

It has stiff upright lance-like leaves perhaps 9 to 12 inches long and flower stems 15 to 24 inches high. The flowers, somewhat reminiscent of a gladiolus but shorter, rounder, and more open, are a good coral red in colour. There is also a rose-pink variety, Mrs. Hegarty by name. It flowers from September onwards and this year (1953) it still has a few flowers out on 1st December.

Edinburgh. M.-L.

S. R. G. C. Journals for Sale

Principal Contents :

No. 3 (1946). Three Eastern Aristocrats, by G. Anley ; *Nomocharis*, by A. Harley ; A Dozen Good Bulbs, by L. Walmsley ; Dwarf Brooms, by J. L. Mowat ; *Sempervivum*, by H. Archibald.

No. 4 (1947). *Lewisias*, by D. Livingstone ; Bulbs and Tubers, by J. M. van Blitterswijk ; Heaths and Heathers, by R. E. Cooper ; *Sedums*, by H. Archibald.

No. 5 (1948). *Primula aureata*, by D. Livingstone ; Visit to the Jura Mountains, by Colonel Dundas ; Native Plants in the Rock Garden, by J. L. Mowat ; Ben Lawers, by Colonel Dundas ; *Primula Clarkei*, by D. Livingstone.

No. 6 (1949). Primulas, Petiolaris Section, by D. Livingstone ; Notes from Westmoreland, by C. Crewdson ; Some Plants from the Dry W. Himalayas, by R. E. Cooper.

No. 7 (1950). Journey in Sierra Nevada, by V. H. Heywood ; Habitats of the Himalayan Alpines, by R. E. Cooper ; Notes on *Primula Wigrāmiana*, *Saussurea stella*, *Primula Boothii*.

No. 8 (1951). Petiolaris Primulas in the South, by D. E. Saunders ; What is soil pH ?, by H. Tod ; Hints on Showing, by A. Walmsley ; The Ludlow and Sherriff Airmail Plants, by H. R. Fletcher.

No. 9 (1951). News from Nepal, by D. G. Lowndes ; Peat Garden Construction, by L. G. Kinnear ; *Saxifraga* : Kabschia Section, by D. Livingstone ; Sawdust, by M. W. and W. G. K. Finlay ; Exhibiting, by J. T. Wall ; Notes from Westmoreland, by C. M. Crewdson.

No. 10 (1952). Snowdrops, by R. Ginns ; N.W. American Irises, by J. Drake ; Dwarf Narcissi, by E. B. Anderson ; *Saxifraga* (2), by D. Livingstone ; Daphnes for the Rock Garden, by J. Keenan ; Wall Gardening, by A. L. Winning.

No. 11 (1952). Some Cyclamens, by J. E. Steward ; Dwarf Rhododendrons in the Rock Garden, by E. H. M. Cox ; Soldanelloid Primulas, by R. E. Cooper ; Some Introductions of 1950, by D. G. Lowndes ; Lautaret, by C. E. Davidson.

No. 12 (1953). Autumn Gentians for Beginners, by D. C. Pape ; Dwarf Rhododendron Species, by E. H. M. Cox ; Some Cyclamen (2), by J. E. Steward ; Dwarf Shrubs, by A. Evans ; The Genus *Nomocharis*, by D. M. Murray-Lyon ; Dwarf Aquilegias, by K. C. Corsar ; Spring Flowering Crocus Species, by J. L. Mowat.

Obtainable from S/Ldr. J. J. BOYD-HARVEY, Hon. Secretary, Boonslie, Dirleton, East Lothian. Price 2/6, post free.

There are only very limited numbers of *Journals* No. 3 and No. 6.

Library of Lantern Slides and Films

A Club library of Lantern Slides and Films is being formed for the use of members of the Scottish Rock Garden Club. It will be composed of any size of lantern slide from 3¼ ins. to 35 mm. colour films, including 2 in. colour slides. If any member who is interested in colour photography of Alpine Plants either in the garden or in their natural habitats has any colour slides or duplicates to spare, he or she will greatly help by donating these to the collection. Black and white slides, especially of rare or well-grown plants, will also be appreciated. A payment to cover expenses will be made in the case of colour slides and films to those who wish. The collection will be available for lectures to local groups. Those who are interested are asked to communicate with Dr. J. Davidson, Linton Muir, West Linton, Peeblesshire.

THE COUNCIL
OF THE
S. R. G. C.

take this opportunity of thanking advertisers for their support.

●

Club members will find much to interest them in the advertisements section.

A larger Journal and better Illustrated

Would cost MORE Money

●

MORE members would bring in MORE Money

Try and Get at least ONE!

H. P. M.

WANTED

Is there a plant, or perhaps seed you badly want to buy or exchange? Try one of our "Small Advertisements." See page 95.

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 Mrs. D. E. Hansell, 19 Pittsford Way, Summit, New Jersey, U.S.A.

In addition to its bi-monthly Bulletin, the American Society has a Seed Exchange in operation and issues special plant leaflets under the name of Saxiflora.

W. C. HENDERSON & SON, LTD.
UNIVERSITY PRESS
ST. ANDREWS