ROCK GARDEN WORK AT THE CHELSEA SHOW
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PICTURE ON THE COVER: Some of the most beautiful and naturalistic rock gardens in the world can be seen in Great Britain and especially at the Shows where the talent is the greatest and always inspired.

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AMERICAN PRIMROSE SOCIETY 113
Freelancing For Flowers In Britain

A trip through England and Scotland with note-book and camera during April, May, and June.

DOROTHY B. MARSHALL

For years I had harbored an ambition to go to England. From correspondence, I felt the people there were very friendly, and from what I had read, I knew I admired English gardens. So when circumstances gave me a chance to go last spring, undaunted by the fact that I was unable to find a congenial traveling companion who had the time, interest, health, and cash to go with me, I started off alone. At times a companion would have been most welcome, but when you are alone you can make your own choices of time and routes. Between gardens and shows, I "did" some cathedrals, of course, but my primary interests were the gardens and the people who made them. They both surpassed my expectations.

Of course in three months many places I had planned and wished to see I did not have time to visit. I was fortunate in having with me films of Oregon native plants which opened opportunities for contacts which ordinary tourists miss. In fact one American couple I met suggested facetiously that I had a "racket".

I flew to London, arriving the day before Easter. While I found the season there was later than in Oregon, I was cheered in this distant country to see frequent plantings of Oregon grape and red currant. And as I started out sightseeing of historical spots, I was delighted with the great naturalized plantings of daffodils beneath trees; at Hampton Court, along the River Cam in Cambridge, and on the embankments at the foot of old walls and castles of York, Norwich, and Durham. On the early journey to Cambridge I spied on the banks of the railroad "cuts" patches of pale yellow. Could it be?—it certainly was!—real, real wild primroses! I was to see them frequently and they are just as sweet as they are pictured.

When I phoned Norman Lawfield he insisted that I was to make their home in Surrey my home while around London. When I asked how his wife would welcome the idea, he insisted, "You don't know Nita!" I soon did and found her the most gracious hostess, and pretty to boot. She said I was not to be company but to have the "run of the house".

For me that is the nicest sort of hospitality. The son, Tony, and I had fun trading giggles on the other's accent.

There are "Fortnightly Shows" in the R.H.S. Halls in London, and Nita took me there, where among other sights I saw some commercial exhibits of polyanthus of heavenly colors, and really for size they were enormous. Norman said they had been raised under glass. Nita and I went to Hampton Court where we almost froze with the sharp wind and showers. On Saturday Norman went with us to Wisley gardens when the weather was even worse, but I was so enchanted with the place that I went back on Sunday and returned quite drenched. But what does one expect in April?

In Wisley in the woodland gardens the rhododendrons were just coming into bloom and anemones carpeted the ground. (Anemones are almost a weed
in England.) In this situation they grow various species of Primula, and here in June I found great plantings of candelabras blooming. One primrose with which I was not familiar but which I found quite common here and in other gardens was P. gracilipes. The rock garden in Wisley of course has choice species, and in April the nearby hillside was yellow with hop-petticoat daffodils, through which came a little rill bordered with a great cascade of Primula rosea. One area is made into test gardens, where great blocks of polyanthus were blazing.

On April 14th was the big Alpine Society Show in the R. H. S. Hall, where I was fascinated with the display of small rock plants, and more thrilled by the kind reception given me by the members there. That weekend there was to be a Study Weekend at an old manor near Tring, which is not far from London, and Mr. Saunders, the Society's Secretary, arranged a ride out for me. I found this a rewarding and instructive weekend.

The next adventure was a journey to Scotland for the alpine shows and for an engagement in St. Andrews. In Perth I found a small but a very choice show, and exceedingly friendly people. Perth is an ancient and historical town, with pink stone buildings. The surroundings are attractive, and in general the people are nice. It was fun to walk down the narrow streets, very busy at times, and hear conversations liberally sprinkled with "Aye's." There are some particularly fine gardens in this vicinity. I had the opportunity of visiting the Branklyn Gardens, which show the great knowledge and good taste of the owners, the Rentons. They have many wonderful plants, very well displayed. I was completely bowled over by the most gorgeous bed of Erythroniums I ever saw. I also had the privilege of viewing the magnificent gardens at Keillour Castle of Major and Mrs. Knox Finley. The castle is not the original pile, but a sizeable manor which they have developed to display a great collection of interesting and unusual plants. They showed me about, and as a storm came up, insisted that I go in for tea, then try for pictures, but I am sorry to say the weather did not cooperate.

St. Andrews has a very old university in connection with which are quite extensive botanic gardens. In the peat garden Primula bellidifolia was growing just as though I enjoyed it. The people there also were very hospitable and pleased to show their charming countryside, which borders on the North Sea.

Edinburgh is a storybook city. It is fully aware of this and is able to show it off with a gay holiday air. Gardening perfection abounds here as it does in England. Of course there was a fine alpine show where I had opportunity of meeting friendly members. The Scottish people seem genuinely to enjoy being cordial and helpful. Invitations for tea are always happy occasions whether in a tearoom or, nicer, a home with delectable food; always with stimulating garden chatter.

The Royal Botanic Gardens of Edinburgh were magnificent and were easier of access than Kew and Wisley. One can hop a bus on Princess Street and in no time can be puzzling whether to view the Primulas in the peat garden and woodland and along the lake, or ramble through the great greenhouses, or study the borders. I am being quite factual when I say one must take care not to get lost in the rock garden.

I noted especially in the Edinburgh garden P. alpicola, P. aureata, var. violacea, and P. Veitchii (now called P. polyneura).

Jack Drake had invited me up to his place in the highlands—well, almost in the highlands. He had said his mother would give me shelter, which she did, and I found the family as warm in welcoming me as he had promised. It is a picturesque country on the River Spey. I was so busy seeing the sights I never did see all his nursery, but I spent not a little time in his garden. He declared his soil is so bad that if anything would grow there it is sure to really flourish after it is transplanted into a customer's garden. After seeing his plants, however, I won't accept that completely. If I could have one plant of P. chionantha such as grew in quantity there I would feel I had reached the ultimate; huge stalks of great creamy balls. On Sunday we drove with his sister and a friend to Inverewe, which is a great garden built up from the moor on a western sea loch. You see, the west has a very mild climate, but the soil is highland soil, not naturally productive. So quantities of humus were added and trees planted to make a magnificent natural garden, where rhododendrons and azaleas and many rare and sometimes tender plants flourish. I loved the highlands with the mountains, not particularly rugged or high, but extremely wild, touched in May with snow, and between which frequently are the bluest of lochs. Here and there along the lochs are pines and birches, which in May were in early lacy leaf. In little glens occasionally primroses were spread.

I was unable to attend the Southern Section Auricula Show, and was obliged to interrupt my stay in Scot-
I think the people who head this Society are even more precious than the flowers. I hesitate to mention any one person, for where shall I stop? After so many years of exchanging occasional letters it was indeed a happy meeting with Mr. Briggs. On this day he was busy with secretarial duties, but gave me warm welcome, and arranged for hospitality for me later. Mr. Middleley of course was THE judge, and there seemed to be no questions of his decisions. For one thing he was on hand all the weary day to answer any questions, and one could usually find him at a table, the center of an interested group, discussing the plants. At a show if the crowd is not too heavy, I think such a custom more rewarding than an "Educational Table". Dr. Newton, a clever grower, made me think of our own Dr. Riddle, with his enthusiasm for his plants as an escape from his professional cares.

Polyanthus season was over when I visited the Blackmore and Langdon Nurseries near Bath, and seed harvest was in swing; but at the Bartley Nurseries the Asiatics were in glorious flower. The Nursery is in the New Forest, which is definitely neither New nor a complete forest. They have a considerable area under glass in which they grow such items as freezias. The *Primulas*, however, were in beds or blocks in small clearings among the thick woods.

One delightful morning I spent with Mr. and Mrs. Haysom. He is retired but keeps busy with his garden where flowers are grown to perfection; roses, meconopsis, delphiniums, and many others. Right now he is working on improving a strain of Gold Laced. After an hour of friendly gossip he displayed the Auricula plants in the greenhouse, through blooming now, but still interesting. Mr. Haysom is full of delightful and vivid stories, such as how he and Mr. Dalrymple started growing Auriculas.

The ultimate of shows, of course, is the Chelsea Show, held this year the last week in May. This is put on every year in London under the auspices of the Royal Horticultural Society. It was quite beyond promises and expectations. There were, of course, the usual commercial displays there of all things pertaining to gardens. Then there was a magnificent garden display of azaleas. In one area were marvelous rock gardens, put in for the occasion and most artfully and naturally contrived, complete with brooklets. But the big show was in the marquee, great tents covering three and a half acres. In this the growers of Britain had blocks or tables to display their best; great banks of tulips, delphiniums, roses, gladioli, lilies, annuals in variety, rock plants, and, of course, *primulas*. When the public was admitted, for a price indeed, the crowd became so great that it was practically impossible to move about.

When I was in London in June I went with Norman and Nita one Sunday to Kew Gardens. It has a bit more formal air than Wisley, perhaps, but I cannot say which I enjoyed most. Many Londoners were on hand, enjoying the lovely day, the park, and the flowers. The rhododendrons were a rare sight, and the great rock gardens were in their prime. Here also were some fine specimens of Asiatics.

I made another trip to Scotland to see later blooms, and this time I had a happy day with the people at Edrom Nurseries. This is situated near Coldingham, a short distance from the North Sea coast. The country about is farmed, but sprinkled with some woodlands, and the cottage where Molly and Edith Logan-Home live looks out across the fields, while about are plenty of trees to shelter the shade-loving plants. When I arrived they were serving tea to Dr. and Mrs. Davidson, and Mrs. Davidson urged me to view the woodland garden before the light faded. I went around the house and there, with the afternoon sun glowing through them, were drift after drift of Asiatic *primulas* in magnificent variation of color and species. These are interspersed with rhododendrons and azaleas, and here and there were patches of blue meconopsis. The shrubs were mostly through blooming which gave full op-
Sentimental Search

Plant hunting is a fascinating business anywhere; but do your hunting in an Irish County and see how much more charm is added to the chase.

Gladys Emmerson

"Now" I said, when we moved into our little house in Country Derry, "now" I said, "I shall grow all the plants we had in the garden at home, all my favourite shrubs and flowers. And all the flowers that grew in Auntie Mary's garden."

So most of the docks and nettles were cleared away (I say "most" for how they do re-appear, to be sure). The garden was duly dug and redug, some draining ditches were made, and the rather heavy soil lightened by wood ash and so forth.

Then the hunt began, and really it was quite easy. One pored over the nurseryman's catalogues. One received kind presents from the neighbours. "Did they give us anything for the garden?" the gardener would ask whenever we came back from a tea party.

It is quite a long time ago now. The pink may trees tower and flower, the lilac bushes cover themselves with scented blossom. The Autumn borders star the autumn days with Japanese anemones. The red hot pokers glow. All the dear humble friends are here. And far, far, too many of the dear humble weeds,—for I allow nobody but myself weed this cherished garden.

The Spring border is the joy of my heart. For it transcends my childhood's memories. The hepaticas, the scyllas, the chinodoxa, the double wood anemones, the snowdrops, the lecojums, the dog tooth violets, the crocuses flower and flourish. The dear little brown striped crocuses were quite easy to come by when I discovered they were called crocus sativus and not "those little crocuses of of Grandma's" as I had supposed.

There are fritillaries of every colour and above the bulbs grows the dwarf almond,—anemones—much beloved so many years ago. That was a little difficult to come by but I found it at last and it increases itself in a most obliging way. "On its own roots it runs about," said a nurseryman's catalogue.

"And of course," I said, "I shall have lots of old double primroses. They shall grow round the edges of the rose beds as Auntie Mary's did, I shall have the Old White, the Old Lilac, and that lovely pink variety, Rose du Barri. I shall collect them," I said, "I shall get all the rare ones."

Now there is something very strange about these old double flowers and the other old-fashioned primroses, the jack-in-the-greens, and the hose-in-hose. There is something so engaging about their little round blossoms, like tiny roses rising massed above their rich green leaves, that one is quite beguiled. Each variety has a history and most of them are known — so keep away from them altogether unless you mean to spend hours in their company. Well,—to edge one's rose beds with double white and double lilac primroses was the easiest thing in the world—but where in the world are those Rose du Barri primroses of which I spoke so glibly? Where indeed?

My little collection threw and waxed. By shameless searching in old gardens ("Oh, could I have just a tiny bit"?), by guileful barter, and by sometimes making a present to oneself from the stock of one of the few nurserymen who specialize in old primroses, it is possible to obtain most of the old varieties, Madame du Pommardour may be found, and Prince Silverswing, Curiosity, and the lovely double Blues... but where, or where is Rose du Barri... gone alas, with the snows of yesteryear, and taken with her Rex Theodore and Old Tortoiseshell.

Until... It was an evening to remember forever. So blue were the towering mountains... so blue was
their reflection in the quiet lake.

"Now we simply must not be late," we told visitors whom we had brought to see these beauties. "Think of the poultry, the kittens and the cats all watching and waiting, and we shall die of hunger too."

"Now we must not stop for anything," we said when we piled at last into the car and tumbled away down the little winding lanes. The sun had almost set. "The edge of the dark" as we say in County Derry, would soon steal upon us. The lane grew twistier and twistier... and then I saw the pink double primroses.

The little front garden was packed with the satisfying flowers of the late spring. Wallflowers there were, tall polyanthus, and a great patch of double white primroses and before them some round pink faces, which simply must be, must be... Rose du Barri. Then out of the side gate came a tractor trailer... the road was suddenly full of sheep... there was a grocer's van... there was a straying two-year-old... how could one possibly stop?

"Well" said the visitors at the supper table, "you were quite Spartan. How could you be so restrained? I would have yelled the roof off."

"We'll all go back there tomorrow," we said. It was quite difficult to arrange. But go, we felt, we must.

I filled a wooden box with enticing little plants—alluring pieces and bits that would enliven even that lovely little garden. "We do admire your garden," we had planned to say, "Do accept these plants for it... and could you spare me one of your lovely pink primroses?"

"But sure," said the owner of the garden, "they's not primroses, they's double daisies." And so they were—just double daisies, bellis perennis

**flor-pleno**, commonly known as "Bachelor's Buttons".

A concentrated effort is being made for the sale of all the back issues of the Quarterly which has been published for seventeen years. Back issues which are still available are listed in the comprehensive Index of the first sixteen years. Copies of the Index and of the Quarterlies may be obtained from the Treasurer, Mrs. Orval Agee, 11112 SE. Wood Avenue, Milwaukie 22, Oregon.

**Jack Drake's Meconopsis**

Photograph courtesy Dorothy Marshall

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**A "Downeasterner" Visits The Northwest**

*It takes a knowledgeable vacationer to point up just how blessed the Pacific Northwest really is.*

**By Grace E. Butcher**

A train trip of eleven thousand miles across the continent and back, through the Canadian Rockies and the Pacific Northwest from Maine gave me a chance to see some of the native flora of the west.

A change in flora became noticeable in North Dakota which, with South Dakota, is said to be the dividing line between the flora of the east and west. The first different plants seen were low sagelike plants, then came patches of flax in bloom beside the tracks, something that resembled Zigadenus elegans and others which I could not identify from the train.

At Banff, Alberta, on Mt. Norquay I found a small wild area near the chair lift where there were Antennaria rosea, Aquilegia flavescens with one flower left on it and a fine two foot specimen of Pedicularis groenlandica, the spike still in the bud stage with the edges showing reddish purple but not advanced enough to photograph.

At Lake Louise a walk partly around the lake (altitude 5,680 ft.) showed familiar New England flora which grows from near sea level to boreal regions at about the same altitude. Among them were Cornus Canadensis, the Rein orchid, Pyrola, Ladies tresses and Twin flower. A closer look at this, however, showed that it was the long tubed form, Linnaea borealis var. longiflora. One annual plant in bud was noticed. All of those seen were about three or four inches tall and seemed to be some kind of gentian. I was told real alpines were over two miles higher.

There were beautiful gardens at both Banff Springs Hotel and Chateau Lake Louise. One of the most admired plants was Nemesia in many colors. Used in large masses they made a striking display. They were also used in the gardens at Emerald Lake causing more exclamations of admiration.

In Yoho National Park a stop was made for snowballing (July 29th).
Here were patches of Ranunculas, Mysotis alpestris and Potentilla fruticosa in bloom. Farther along the beautiful Yoho Valley by the more than twelve hundred ft. high Takaklakk Falls and later at the Natural Bridge among other things were Moneses uniflora, Erythronium (in seed) and Dryas octopetala.

At the Olympic Hotel in Victoria, British Columbia, there were beautiful gardens and interesting forms of clipped holly trees. The Victoria flower baskets, five hundred in all we were told, on the street light poles, in doorways and any place one could be used, were the most beautiful I have ever seen.

The world-famous Butchart Gardens in Victoria, made in an old worked-out limestone quarry more than fifty years ago, displayed excellent plantings of seasonal flowers in the formal gardens and among the magnificent trees and rare shrubs and rock gardens.

Mt. Rainier was a thrilling place. A perfect day enabled us to see it in all its glory. A quick trip of exploration around Paradise below the Nisqually glacier revealed flora of great interest. Spirea densiflora was at its peak of bloom with very nice rosy-red flowers. Nearby were those large domes of Anemone occidentalis with the seed plumes that are so striking. The bus passed large patches of Phylloclode empetriformis in bloom, but here only one small plant could be found in bloom to photograph. One Cassiope martensiana had two little white bells left on it to show how lovely it had been. However, the magenta Castilleja oreopola was in full bloom as was Potentilla flabelliformis. Other plants noted were cushions of Saxifraga austromontana (follage only), Erythronium with seed pods developing and foliage of Gentiana calycosa. A little more time here would have yielded many other things.

A high spot in Seattle was when I was met at the hotel by Mr. and Mrs. Rodney Allen and shown some beautiful estates featuring rock gardens, then driven to the home of Mr. and Mrs. Robert Putnam at Kirkland. Here I saw their garden with many choice plants, the greenhouse and propagating beds. Mr. Putnam showed color slides of prize winning primulas, some of his own fine specimen plants and trips of exploration and plant hunting with Prof. John W. Thompson.

It seemed as though western growers have put more emphasis on growing primulas, especially auriculas, as specimen plants than we have in the east. For most of us have grown auriculas as garden subjects and have allowed them to develop into several crowns and flower trusses for better display.

In Oregon high perpendicular cliffs, themselves high above the Columbia River, were spotted from top to bottom with vegetation that upon examination proved to be sedum growing in patches of moss clinging to the cliffs. Most of it had flat grayish-green rosettes and some old flower stems but some had succulent oval leaves and yellow flowers. Specimens collected proved that they were the same as the succulent ones flattened out and turned grayish after blooming and becoming somewhat dry.

Glacier National Park, Montana, had many things of interest. A walk up a mountain at Many Glacier showed many plants past bloom or in the late stages of bloom. Among the taller plants were the sticky geranium and wild hollyhock or stream globemallow. Lower growing plants were Arctostaphylos uva-ursi, two kinds of

(Continued on Page 139)

Corral Pass Revisited

Although no Primroses were sighted on this trip, when you are within eleven miles of Mt. Rainier on a clear day, it doesn't seem to matter.

ROBERT C. PUTNAM

During the middle of July this year I decided to revisit a spot to which I had been during the second World War. At that time my interest in the area was fishing in Echo Lake. My tastes have changed. I now seek out and admire the wealth of native plants and shrubs. They are collected in the pictures I take of each.

Three of us decided Corral Pass in the Snoqualmie National Forest was our destination for a one day trip. Leaving home at nine in the morning, we easily reached the camp site by eleven in the morning. We left the car at the camp site and proceeded to take the Castle Mountain Trail to the top. It was a good trail with a gradual ascent. We would have time for plenty of restful diversion on the way but, at the same time, could study the native plants. Our first thrill was seeing the Lewis Monkey flower in bloom in a little meadow near a creek. Along the trail were Rhododendron albiflorum, Aquilegia formosa, and a Saxifraga in full bloom.

We were taking so much time with plant discoveries, the mile climb was still above us. Our decision was to continue and admire the lower growth on the way down. With frequent backward looks at the beautiful meadows dotted with alpine firs, we reached Castle Rock. Here was a sight to behold. Directly across from the rock formation stood Mt. Rainier in all its splendor. One could seemingly reach out and touch it. The map showed the 14,408 foot summit to be eleven miles distant.

The rock was dotted with Penstemon rugicola, sedum, harebells, and the dainty Erigeron compositus. Poten-
1960 International Flower Show

The dates for the 1960 International Flower Show have been set for March 5-12 at the New York Coliseum. The 43rd annual edition of the world's gardening classic is co-sponsored by the Horticultural Society of New York, Inc., and the New York Florists' Club, Inc.

Correspondence concerning the Show should be directed to the Executive Director, John F. Edwards, c/o The Essex House, 157 West 58th Street, New York 19, N. Y.

A light covering of evergreen boughs over the plants after the ground is frozen is adequate protection in very cold climates or when severe weather threatens in the more mild regions. This is done so much for warmth as for breaking the full blast of dehydrating winds which sap moisture from the leaves at a time when roots are unable to replace the loss because of the frozen earth.

From ASP Quarterly Vol. 1, p. 16 (Second edition.)

CULTURE CHARTS

Culture Charts are still available. For the benefit of new members, the Culture Chart was made up by our Seed Chairman, Elmer C. Baldwin, in collaboration with other experts. It gives at a glance information regarding soil make-up, lime tolerance, and many other points of culture, covering all sections of Primula genus.

For each chart send 25c to the National Treasurer, Mrs. Orval Agee, 11112 S. E. Wood Avenue, Milwaukie 22, Oregon. The chart will be sent to you in a mailing tube, post prepaid.

Timely Tips From Burnaby, British Columbia

Grace M. Conboy

I hope that all you good gardeners have been collecting those piles of leaves that have been drifting down so persistently. Composting them (with some of the good products we have been carrying advertisements for) will convert them into valuable soil for next year's garden.

Bear in mind that chemical accelerants are practical all year round, while organic ones require summer temperatures (60° plus) to sustain their bacterial action.

It is getting too late in the season to do much more setting out of plant material unless it is large rooted and deeply planted. The soil is too cool for quick establishing. When it is necessary to plant trees or shrubs this late they should be mulched to allow roots to establish. Newly planted trees (even small ones) require some support against winter wind and storm. Apply a stake securely at time of planting—before earth is filled in, so that roots are not broken. Deciduous shrubs which have been transplanted from the wild will come up more compactly if they are cut down to the ground, and thereby forced to send up new growth. Before replanting, trim off all broken roots, cutting them cleanly with a knife or pruning shears.

Most of us have some lawn area in the garden. This is an opportune time to top dress low spots or irregularities to overcome these trouble. Use good soil, not more than two inches, and the grass will come through again. A light top dressing of good compost over the whole lawn at this time is beneficial. Keep all leaves or other heavy material off the grass, as it smothers easily during cold weather. This also applies to growing plants in your garden—the evergreen types, such as the Primroses. I have found that leaves that fall naturally around them do not seem to harm them, but a wet mass of leaves on top of them is apt to warm up in a mild spell and cause the plants to rot.

I would like to emphasize my precaution to place some shelter—or piece of glass or cloche—over your Petiolares Primulas and your Soldanella plants. The former have powdered clusters of buds already in evidence. If the weather should continue mild, they may display fragile and lovely lavender blooms early in January so I see promise of another Spring already in my garden. As for the Soldanelias, my own experience may serve as evidence; I have had a nice planting, out of doors, of a number of Soldanelias for several years, but never did I see a lovely blue fringed blossom head. I gave a nice plant to our good gardener, Mrs. Boyes, and, lo and behold, the next Spring into the meeting came a lovely Soldanella with several lovely bloom spikes! Why? A simple pane of glass. I followed the same procedure the next Winter—result, a lovely show of bloom! Apparently the buds form in the late Fall and, out of doors, perish by rotting away with our over-abundant moisture if slugs do not get them first. So place slug bait around them and cover, and you should have bloom. I am going to try several plants in a rock crevice, growing somewhat vertically. They should bloom—we shall see.
While the editor was issuing the monthly Bulletin for the Washington State Primrose Society, way back when, he was wont on occasion to point out the hazards of growing Primroses. There are no statistics on how seriously he was taken, but with this announcement he feels vindication.

The Quarterly has been informed that on October 2nd, 1959, Dorothy Stredicke, our Slide Chairman, and Herbert Dickson, our Vice President, will be joined in holy wedlock.

The editor has been a friend of both of these fine people for many years and takes great pleasure in wishing them every happiness and success.

Hybridizers Group Formed
Amateur and commercial hybridizers get together for the benefit of all.

NANCY FORD

Because so many members of the Washington State Primrose Society are interested in hybridizing they have organized a Hybridizers' Club to meet monthly apart from the regular Primrose Society meetings. A scientific study of the Vernales Section is the project for the first year. Later they may study other sections. Specific hybridizing problems will be assigned to individual members who will keep accurate records and photographs of results. It is hoped that a test garden will be possible for all examples of plants under study.

Some of the aims of the group are to develop a commercially sound Vernales plant. One that can be sold with the assurance that it will remain in the purchaser's garden for years. This will mean that the plant is hearty and disease resistant as well as being able to look well after heavy rains or too much sunshine, followed by sudden and extreme cold spells. The ideal plant should be able, also, to live in one place without dividing and transplanting. The average gardener will never give his plants the loving care that the primrose specialist does, and so, if we are able to help promote the use of primroses, we must give him plants that will flourish with the minimum amount of care.

It is hoped that primroses will become popular on the cut flower market as they are in Europe. Experiments will be made as to the best time to cut the flowers so that they will retain their freshness for a long period.

Qualities Of An Ideal Primrose In the Vernales Section
As Compiled by the Hybridizing Group of the Washington State Primrose Society

1. Pleasing garden effect
   a. Flowers
      (1) Live bright color.
      (2) Held well above the foliage.
      (3) Enough flowers to give a mass effect of color at blooming time.
      (4) Look up and stay up after a rain.
   b. Foliage
      (1) Healthy looking.
      (2) Compact growing.
      (3) Rosette form.
   c. Plant as a whole

2. Cut flowers will last a long time without special treatment.
3. Plant is hardy—will stand our wet winters with their long warm spells followed by sudden and extreme cold spells. Plant tends to be dormant in winter regardless of temperature.
4. Plant will live a long time in one place without dividing and transplanting.
5. Plant can be increased rapidly for commercial production.
6. Disease resistant.
7. Strong slender stem rather than thick coarse stem.
8. Pest resistant.

Excerpts From Announcement Of September Meeting Sent To WSPS Hybridizing Group
Reprinted for Adaptation By Other Study Groups Who May Be Interested.

From the enclosed material you will see that the study topic for September is Basic Nomenclature. The official texts will be Botany by Wilson, or The Genetics of Garden Plants by M. B. Crane. If you cannot get either, any good botany text will do. You are asked to study up on the subject and to bring your textbook to the meeting.

Please list below any plants in your garden with particular characteristics according to the enclosed list of the qualities of an ideal primrose in the Vernales section. Also, list any species in this section (vulgaris, elatior, etc.) as we may need to go back to some of them.

(Example)

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Color</th>
<th>Special Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Acaulis</td>
<td>Pink</td>
<td>Flowers massed in center</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Live bright color</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tidy attractive plant thru summer</td>
</tr>
<tr>
<td>6</td>
<td>Elatior</td>
<td>Yellow</td>
<td>Plant extremely hardy</td>
</tr>
</tbody>
</table>
Basic Outline Of Subjects
For Study At Meetings—One Hour Limit

SEPTEMBER—Basic Nomenclature
—Descriptive terms.
Texts: Botany by Wilson, The Genetics of Garden Plants by M. B. Crane, or any good botany text.

OCTOBER—Nomenclature of Primroses.
(Parts of flower—Vernales only).

NOVEMBER—Basic Reproduction Process.

DECEMBER—Mendel's Law.

JANUARY—Chromosomes & Genes.

FEBRUARY—Hereditary linkage and blending.

MARCH—Mutations. What they are, how to induce them artificially, how to recognize mutations.

August meeting.
1. Compile characteristics of the ideal plant. Keep and increase these selected parent plants so they can be available for our selected projects and for other members to recheck and repeat experiments if needed.
2. Start thinking of ways and means for a test garden.

September meeting.
1. Study and have with you your text book for first class.
2. Report on the plants you have available with outstanding characteristics from our list of characteristics of the ideal plant. Select for single characteristics first, then combinations.

October meeting.
2. Select our projects for experiment.
3. Assign the specific experiments where possible.

November meeting.
1. Finish assigning experiments.
2. Discuss standardization of methods and records.

December meeting.
1. Discuss ways and means of setting up the test garden to provide a source of plants with proven characteristics and to evaluate new plants.

January meeting.
1. Complete arrangements for the test garden if possible.

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Is The Clay Pot On The Way Out?

Speculation in the gardening press on the relative merits of clay versus plastic pots has led to this comprehensive survey by a well known Midlands, England, horticulturist.

A. H. KNOWLES

As it was decided at the outset that the plastic material itself of which the pots are made was unlikely to have any effect, beneficial or otherwise, on plant growth, effort was concentrated on those factors known to influence the development of plants in pots. It appeared that the major difference was in the non-porous nature of the plastic pots and tests were devised to assess the influence of this characteristic.

Forty-eight seedling double petunias were potted on May 10th in clay and half in plastic three inch pots. These plants were selected because they were suitable summer flowering pot plants and so were ideal for observation at that time. Owing to uneven germination there was a wide range of development, but the seedlings were carefully matched in pairs. Thus, of the twelve best, six were in clay pots, and of the twelve worst, six were in plastics.

During the first week it was obvious that the plants in plastic pots had established themselves more rapidly and were growing on. In the second week the difference in growth became much more marked. Those in plastic pots were now, without a single exception, noticeably bigger than the corresponding ones in clays. They also had a healthier appearance and had branched out well, the plants bearing three to six side-shoots while those in clays were mostly on single stems. During the third week the latter showed some branching, but in most cases this was less than in their counterparts in plastics. They appeared to gain a little in growth during this period, but by now most of the plants in plastics were forming flower-heads. The first flowers opened during the fourth week on June 5th (two plants), on June 6th and June 7th. A number of others were showing colour but as yet none of the plants in clays had reached this stage. At the end of the first month the eight best plants were all in plastics while the ten worst were in clays. All this time the plants had received the same treatment, water being given in equal amounts and at the same time.

During the next two weeks almost all the plants in plastics came into bloom and of the best twenty-four plants only six were in clays. Many of the plants in plastics were bearing up to five large fully double flowers although they were still in three-inch pots. None in clays had more than three flowers, and indeed most had one only. On June 24th one had still not flowered in plastics and seven in clays.

Comparative evaporation tests.

(a) The same amount of John Innes compost was weighed out into two six inch pots, one each of plastic and clay. Tapes were threaded through the drainage holes and wound round inside the pots, with a length of about four inches protruding through the bottom. Both pots were then watered with 10 ozs. water and allowed to stand until drainage was complete. They were then stood on jars each containing 20 ozs. of water in which the tapes were suspended.

(b) As the pots evaporated so water was drawn up through the tapes to replace it. The amount lost through evaporation was measured daily at the same time, in units of .1 oz. The following results were obtained during the first week.

<table>
<thead>
<tr>
<th>Day</th>
<th>Plastics</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.6</td>
<td>2.6</td>
</tr>
<tr>
<td>2</td>
<td>1.2</td>
<td>4.9</td>
</tr>
<tr>
<td>3</td>
<td>2.0</td>
<td>7.3</td>
</tr>
<tr>
<td>4</td>
<td>2.6</td>
<td>9.6</td>
</tr>
<tr>
<td>5</td>
<td>3.1</td>
<td>11.2</td>
</tr>
<tr>
<td>6</td>
<td>3.4</td>
<td>12.5</td>
</tr>
<tr>
<td>7</td>
<td>3.7</td>
<td>14.0</td>
</tr>
</tbody>
</table>

(c) During subsequent weeks similar figures were obtained, the average amount of water given off by the clay pots being about four times that of the plastics.

(d) In practice these observations have been borne out fully, plants in plastics requiring attention to watering every four to six days. Gloxinias and Begonias which require shading and careful watering, grow normally when watered once a week.

(e) Owing to the relatively small amount of water evaporated from the plastic pots for all practical purposes this can be regarded as constant. It is therefore possible to estimate the days on which water should be given with considerable accuracy. Since watering is probably the greatest factor affecting plant growth in pots, and is the most skilled operation when clays are used, it seems likely that it will become simple and safe with plastics.

Comparative temperature tests.

(a) Two pots, one plastic and one clay, were prepared in a range of sizes. They were filled with compost and watered equally. Thermometers were then pushed into each pot, to about two-thirds their depth. Readings were taken throughout the period of observation, when the air temperatures and humidity varied considerably. Of the many hundreds of readings none showed the soil in the clay pots to be as warm as that in the plastics. Indeed, the difference was never less than 2 °F. higher in the plastics, and varied to a recorded difference of 10 °F. The soil temperature in the clay pots was always several degrees below the air temperature, so that after watering the temperature was raised slightly for a short period.

(b) Thermometers were placed in different positions in the two types of pot, and at different depths. Readings showed that the soil temperature in the plastic pots was constant throughout. In the clay pots, however, the soil near the outside of the pots registered up to 3 ° lower than that in the centre.

(c) Two pots, one of each type, prepared with compost and watered, were placed in temperatures of approximately 80 °F. until the readings in each pot were the same. Both were then removed and placed in a constant air-temperature of 65 °F. This never varied more than .5 ° either way. Readings, taken over the next two hours, showed the
It will be seen from Tests C and D that although the soil in plastic pots cools more slowly it warms up more rapidly. This is of great importance when temperature changes are pronounced, such as on frosty nights or when spells of bright sunshine break through a dull sky.

**General conclusions.**

Since clay pots are porous they are constantly evaporating moisture. Evaporation lowers the temperature and this is reflected in the difference in soil temperatures of the two pots, and especially near the outside of the clay pots. The latter is a cold zone. Owing to this continuous evaporation from all sides the soil in clay pots is successively moister as it approaches the outside. The centre is a dry zone.

It is the function of the roots to seek for moisture, and in clay pots they go horizontally outwards until the walls of the pots are reached. They cannot turn inwards again as this would be to drier conditions and so wind round and round the soil ball, or out through the drainage holes if moisture can collect below. They are unable to make use of much of the soil in the pots and rely largely on dissolved salts reaching them through the evaporation flow. The bulk of the root system therefore remains in the cold zone and so plant growth is reduced.

In both pots there is also a flow of moisture upwards to the surface. Only that film of moisture on the surface of the soil crumbs can ascend, through capillary action. Water in the interstices between soil crumbs, which forms the bulk of the moisture in the pots, will go to the bottom through gravitational pull. The upper surface of the pots will therefore represent a dry cold zone. This fact, and also that roots respond to gravity and grow downwards, causes all root-growth in plastic pots to be directed towards the bottom of the pots, away from the dry, cold zone. They are in a stable condition, and since the moisture is evenly distributed across the pots, root growth takes place throughout the soil ball except near the upper surface. Thus the plants in plastic pots will remain without wilting even when there is less than the minimum amount of water in the soil to cause wilting in clay pots. Another factor which seems to delay wilting in plastic pots is the formation of a completely dry layer at the surface after some days without watering. This prevents the further evaporation of water from the soil and since no roots are formed in this zone no damage is done.

In the case of plants in clay pots root growth appears in the surface layer and is damaged by extreme drought. Also under this condition the central zone, which possibly contains the main structure of the root system, will dry out, resulting in severe damage. This surface dryness in plastic pots is deceptive to those used to clay pots and should not be taken as a guide that water is needed. It is better to fill the pots to the rim every four days.

The different root growth in the two types of pot is of great importance. In clay pots, the failure to repot soon after the roots emerge at the sides results in the familiar "pot-bound" condition. In extreme cases the outside of the soil ball will be covered with a dense mat of roots, which will also have pushed through the drainage holes. When "pot-bound" plants are potted on into a larger size pot they do not get away easily, and in very severe cases many refuse to form any contact with the new soil. When growth does occur it again proceeds to the side of the pot. Thus, examination of a plant which has been potted-on several times reveals the shape and size of all the pots used, in the form of root mats.

With plastic pots this does not occur, and the pot-bound condition is not reached until the soil is exhausted. It appears probable that two advantages could result from this. First, pots of a smaller size could be used, resulting in a great saving of compost and greenhouse space, and secondly plants could be set into their final size pots from the start without waiting for any intermediate stages. Tests are continuing to verify this theory.

The temperature tests show three main points, all of which give practical advantages to growth in plastic pots.

1. The higher readings always obtained in plastic pots in the normal range of temperatures found under glass promote speedier growth, since this is dependent on soil and not air temperature. It should be possible to obtain similar results from plastic pots in greenhouses running at 5°F. lower than that for clays. This represents a considerable saving of fuel.

2. Since the coldest part of the soil in clay pots is near the edge the practice of rooting cuttings round the rim of pots will be more effective when plastic pots are used.

3. The fact that plastic pots lose heat much more slowly than clays is invaluable when a sudden drop in temperature occurs, as when a sharp frost follows a sunny day. This is a common occurrence during the spring growing season.

Seed Exchange Notes

BY ELMER C. BALDWIN

Editor's Note: Please send clean seed if possible and, if not possible, as clean as can be made, as it will present an extra problem if the seed must be cleaned upon arrival. Seed must be received not later than November 15th. If this cannot be done, then a list of seed to be sent should be received by November 15th. The earlier the seed is received, the less the burden on the Seed Committee. All seed should be sent to the Seed Director, Elmer C. Baldwin, 400 Tecumseh Road, Syracuse 10, New York.

For all you seed-minded members, Mr. Baldwin will send instructions and sample of an efficient seed envelope you can make at home. Just write him.

The Editor

THE SCOTTISH ROCK GARDEN CLUB

A rock garden without Primulas is like roast lamb without mint sauce. A lover of Primulas who is not a member of the Scottish Rock Garden Club is also missing something.

Locally, woodland flowers, (seeds) are practically non-existent due to the cold spring and very dry and very hot summer just passed.

Our thanks go to the members for their interest and assistance in this enterprise.

NATIONAL AURICULA AND PRIMULA SOCIETY, Northern Section Invites all Auricula and Primula lovers to join this Old Society Membership of $1.50 per year includes Year Book Hon. Sec., F. H. Briggs Springfield, Haslingden, Rossendale, Lancs., England

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American Primrose Society

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Taylor, Thomas James ......................... 603 East 5600 South, Murray, Utah

A "DOWNEASTER" VISITS THE NORTHWEST

(Continued from Page 124)

Penstemon, one kind still in bloom,
about six inches tall had small cream
colored flowers, possibly Penstemon
destus. There were Draba, Cinquefoil,
Lupin, Delphinium, Eriogonum pip-
eri, Phacelia sericea all very dry. Some
saxifraga and sedum were so dry they
were rolled tightly into tiny balls.

Together with the sedum found on
the Columbia River Highway, this
points up a difficulty we sometimes
have in the east in trying to grow
western plants that need this period
of drought, but get instead a period
of rainfall.

At Many Glacier, Beargrass, the
park flower, was past blooming but in
Logan Pass it was a beautiful sight in
full bloom with Going-to-the-Sun
Mountain above it.

Going-to-the-Sun Road, said to be
one of the great roads of the world,
leads through beautiful scenery to the
meadows of alpine flowers on Logan
Pass. Here was a fine display of
Avalanche lilies in bloom, Indian Paint-
brush, Mimulus lewisi, and many
others which lack of time prevented
checking. Descending from Logan
Pass where the snow stayed late was
a beautiful spot with early blooming
plants in full bloom. As the bus
passed Aquilegia flavescent, large
camps of Penstemons, at least two
kinds, Mimulus and Castilleja could
be noted.

Many other kinds of flowers and
trees were seen from our dome train
as it sped through the wilderness,
winding through tunnels, snow sheds,
and beside beautiful rivers, some blue,
some green, affording an interesting
and relaxing end to our vacation.

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(Use one half as much as you would with most liquid fertilizers,
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Lawn feeding, Mist feeding and for activating the Compost Pile.
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substitute for wonderful Blue Whale. Water your peat moss
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peat moss and very little will leach away.)
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1959 FALL QUARTERLY
Even the most casual weekend gardener knows that the most frustrating part of growing roses or any other flowers or shrubs, is the problem of bugs or insects.

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John Paul Edwards of Oakland, California, is a leading expert on roses in the U.S., and a prolific writer and lecturer on gardening. A Consulting Rosarian of the American Rose Society, he is the author of a best-selling book on growing roses.

The name of this powerful bug killer is Isotox* Garden Spray—one of the famous ORTHO* insecticides. Developed by the California Spray-Chemical Corporation during ten years' research, Isotox is actually a skillful combination of several new insecticides, including Lindane, Malathion, and DDD.

It's as easy to apply as watering your plants, since Isotox can be used in an ORTHO Spray-Ette which attaches to your garden hose. What's more, it is surprisingly economical—costs about nine cents per diluted gallon.

Many gardeners in the West are also using Isotox in combination with Orthorix* Spray, a fungicide, so that in one spraying they control plant diseases like mildew or rust, as well as kill any one of 43 bug varieties that may be around.

Yes, modern science has given us all a little greener thumb—and an infinitely better chance to grow healthier, more beautiful roses and other flowers and shrubs with a bare minimum of special care—and worry.