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The President's Message

Greetings Friends:

It is an extreme pleasure to be able to take part in the continued progress of our Society, and to enjoy the association of such fine people. I am looking forward to a pleasant and prosperous year.

This issue of our Quarterly is the new Planting Guide, which gives me an opportunity to extend a welcome to each new member. I believe there is no more fascinating hobby than gardening, and no flower more beautiful and inspiring to grow than our Primrose.

Whether it be a longtime grower or an amateur planting his first packet of seed, there is no greater thrill to be had than watching the seedlings develop into lovely blooms of unlimited color range.

Before Florence Levy issued the first Quarterly, there was very little material available for study by those who desired to grow Primula.

It is with genuine satisfaction that I have watched the steady increase in membership and continued interest by the affiliated groups. The Society's progress, in fact its very existence as a Society, depends upon spreading the culture and improving the Primrose. To this end our Shows play a very important part. It is here that the connoisseur may find the newest and rarest, and the beginner obtain complete cultural information at the education booth, which is part of every Show.

I am gratified to announce that my home group, the Eastside Garden Club of Kirkland, will be host for the National Show this year. The dates are the 17 - 18 - 19th of April and I extend a cordial invitation to all of you to attend.

Sincerely,

Anne Siepman

1959 National Officers

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We are pleased to welcome Connie Babbit, long-time member of the Society, as our Recording Secretary for 1959. With the exception of the office of President, this is the only change in the roster of officers.

The two new members of the Board of Directors, Douglas Duncan of North Vancouver, B. C., and Dale Workington of Portland, Oregon, are both well known and are welcome replacements on the Board.

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A Primula Manual For New Members
Our Editor Emeritus points out in this beautiful introduction to the Planting Guide that the most garden worthy of the Primula are the easiest to grow

BY FLORENCE LEVY

When the new member first meets the Primula family and learns there are over six hundred species in addition to hybrids too numerous to count, plus varieties fitting neither species nor hybrid status, he is apt to feel dismay. That this large family has been separated into thirty closely related groups, called Sections, to bring order to its numbers, is small comfort to him when he is primarily interested in the kinds that will give him the most pleasure and grow to best advantage in his garden. For him this simplified manual has been written. When he finds that only four of these thirty Sections are widely grown and that these four groups, together with a handful of plants from a few of the other Sections, comprise the most beautiful of all the Primulas, have the widest form and color range, extend the Primula blooming season from late winter through spring and into summer, are of the easiest culture, that they are eager to fit into the varying degrees of shade and sun and the type of soil with which he must work, he realizes he has struck a horticultural bonanza.

For greater understanding and enjoyment of flower families, a working knowledge of their names and how they got them is handy equipment. Plants belong to a certain plant family, or genus, because of similar botanical characteristics based largely upon the reproductive parts. They are given specific names for purposes of identification, just as you and I, such as Primula burmanica, P. pulverulenta, P. Bulleyana, P. Beesiana; Primula being the genus, or family, name; burmanica, etc., being the species or given names. These four plants belong to the Candelabra Section, or tribe, of the family, because all bear their flowers in a succession of whoads in addition to being closely related in other ways. Each is a true species because each is native to a specific location or country and reproduces itself from seed without material variation. The names were most likely chosen by the classifying botanist, the first, P. burmanica, for the country of its native location, Burma; the second for its outstanding characteristic of silver powder on its stalk, pulverulenta, meaning powder; the third for a man who helped sponsor many a plant-hunting expedition in Asia, Mr. A. K. Bulley; and the fourth for an English plant firm, Bees, Ltd., also for their sponsorship of expeditions.

Hybrid plants are not indigenous wildflowers and the children they reproduce from seed are not in the parents’ image. Hybrids are the result of plant marriages usually between two or more species; and the children, exhibiting separate and blended characteristics of the parents involved, do not come true from seed except over a rather long period of deliberately controlled line breeding dedicated to that particular end. But they still remain hybrids. In print, a hybrid is recognized by the letter “x” which means “crossed with”, i.e., P. x Bulleysiana is a hybrid between the two species Primulas Bulleyana and Beesiana. Or, as in the case of a hybrid strain, such as Mrs. John P. Hannon’s Pagoda Candelabras, properly written it appears as P. x Pagoda hybrids, the name being chosen because the plants’ style of bloom is much like that of the pagodas of the Orient.

Returning to the subject of the species, you have seen wildflowers that differed from the type in color, form of flower or leaf, size, or some other characteristic of sufficient significance to mention, but insufficient to be classified as a new species. These are known as variations, and are given a descriptive name following the specific one, such as P. pulverulenta var. Bartley Strain, meaning the pink form of P. pulverulenta, originating in the Bartley Nurseries in England. Often the abbreviation for “variety” is omitted.

Of the four Sections most widely grown, the Vernales Section is cultivated in largest numbers; the Candelabra and Auricula Sections probably tie for second place; and the Sikkimensis Section, commonly termed the Belled Primulas, is third along with a scattering of species such as Primulas denticulata, Sieboldi, and rosea. Practically all of the Vernales, or spring-flowering, Section in cultivation are hybrids. The Polyanthus is hybrid among the English Cowslip, English Primrose (P. vulgaris), and the Turkey or Levantine, Primrose native to the Levant and Caucasus. Blue, purple, lavender, and pink Polyanthus carry a preponderance of the Levantine primrose and become active earlier, bloom earlier and are therefore in danger of freeze damage unless protected by a covering of loose and airy mulching material in sudden drops of temperature. Other colors of Polyanthus are later in bloom, taking after their English ancestors to the north, and remain inactive during the inclemencies of late winter and early spring.
except in mild climates or mild winters.

A close second to the Polyanthus is the Acaulis which is hybrid between the English primrose and the primrose from the Levant, with no Cowslip blood as in the Polyanthus. Whereas both the Cowslip and the Polyanthus are staked, the Acaulis and the common English primrose and its Levantine cousin have no stalk, but flower on single stems. The double form of Polyanthus and Acaulis are increasingly hard to find.

Although Polyanthus and Acaulis have been developed until their blooms now measure two inches, and more, across, the Julians have been deliberately reduced to one-half inch blooms, preferably less, using the creeping miniature species, P. juliae from the Caucasus, in combination with other species and hybrids of the Vernales Section. Juliana hybrids are both staked and single-stemmed — the first being designated as Staked Julienses, the second as Cushion Julienses. In working for dwarfs there are many beautiful staked plants not small enough to qualify as Staked Julienses, and not large enough for true Polyanthus, and these are classified as Miniature Polyanthus. There are, likewise, many unstaked plants too large to qualify as Cushion Julienses and too small for Acaulis, and this intermediate class has become known as Cinderellas. The species, P. juliae, is not in wide cultivation and is a penny-pinching plant with its flowers while an Improvident profusion of blooms is one of the captivating habits of its hybrids.

A sizable volume could be written on the Vernales Section of the Primula family, so the foregoing is not even a thumbnail sketch of its beauties, characteristics, and possibilities. But no book is needed to grow these beautiful plants with the widest color range in horticulture. Just put them in more shade than sun for they come from moist meadows and light woodlands, give them plenty of water during dry periods, a soil made spongy and rich with organic matter and you will have a perennial delight every winter and spring.

Perhaps due to the increasing supply and the fact that Candelabras solve the problem of what to do with those heavy, sticky spots that are probably too shady for other flowers, they have, in the last ten years, overtaken, perhaps out-distanced, the once sun-loving Auriculas. Candelabras are not choosy as to soil. It need not be heavy. Loam does as well, but they love water and heavy soil holds moisture longer than a lighter medium. However, I have seen Candelabras summer-over in bad droughts, among tall weeds in rather thin soil with little artificial watering where well established. If they do not, lost plants usually manage to set prodigious quantities of seed before passing on, which is in the tradition of China's millions, and most of the Candelabras are Chinese. When these plants first came to your gardens, almost all were species, wildflowers native to western China, bordering the length of Tibet. One, P. japonica with its many color variants, is a native of Japan and will have no marriage relationship with the Candelabras of China. It is the Chinese Candelabras that cannot get near one another without thoughts of inter-marriage, and with the guiding hand of those specializing in these hybrids, magnificent strains and forms are being produced so that the hybrids are now seen as often in the garden as the species. Blue is the only color missing in the array of soft tints and brilliant shades of this unbelievably dramatic Primula to be found growing in the high mountain meadows, thin woods, and bamboo brakes, bending its one to three-foot stalks under the lash of the summer monsoon and, for the most, losing their leaves after the first hard frost and remaining dormant under mountains of snow. Accounts of the perilous hardships endured by plant hunters who first brought them out of Asia during the early part of this century make fascinating reading.

As easy as Auriculas are to grow in sunnier, rather than shadier, situations, it is only the blissfully ignorant who charge, without trepidation, into the battlefield of classification. It is well to remember that however an Auricula is classified, it is a thing of beauty, velveted and perfumed, and in the long run is simply to be grown, admired, and loved. About it a trilogy could be written and yet its culture, whether pot or garden, boils down to sunny sites shaded during the heat of the day, a well-drained, porous, loving Auriculas. Candelabras are not alpine plants, and why some enthusiast of the last century chose to call this definite class of Auriculas, "Alpines", has caused more guessing than all other Auricula guesses combined.

Briefly, since Show, Alpine, and Garden Auriculas have been described and discussed at length in previous issues of the Quarterly, Show Auriculas are cultivated in pots under glass, not because they are tender, but to keep the meal unmarrined by rains and overhead watering. Here are the green, grey, and white Auriculas, known as Painted Ladies in more romantic times, which still cause many to collapse with desire when seen for the first time. They have no color, no fragrance, for they are mutations wherein petal texture has been replaced by leaf, and the degree of meal, or farina, on the leaf appears in that degree on the pip, or bloom. There is a narrow zone of petal texture overlapping the leaf texture next to and encircling the eye, or paste, which is often black or so dark as to appear black. For definite rules pertaining to
the concentric circles made up of tube, paste, body color, and edge; and the unnotched, flat petals fitting into a flat pip; and the other laws governing blue-bloods of the Show Auricula class, you are referred to past issues. There is one Show Auricula that is petal textured, and that is the Self Show Auricula. It must fit itself into the rules for the three Edged Show Auriculas, and must be of a dense and unshaded color.

The blooms of the Alpine Auricula, like the Show Auricula, must be perfectly flat, the petals untouched, but the color must shade from dark to light from eye to petal edge. There must be no meal (paste or farina) anywhere on the Alpine Auricula, and the eye is either a light cream or deep gold and the Alpines are divided accordingly into these two classes: light centers and gold centers. Predominant among the light centers are the gorgeous blues and purples, and among the gold centers, the burnt orange and red shades. There are numerous intermediate shades and all so rich and deep one feels they are drowning in ecstasy in the depth of their pools.

Garden, or Border, Auriculas have been considered the poor relations of Show and Alpine Auriculas. But this is not really so. True, they are not harnessed by strict rules, but they have an exquisite color range of mostly muted shades with brilliant yellow, reds, and purples, and there is the relief one feels in the presence of a more casual beauty as opposed to classical. They have a fragrance and air seldom matched, the blooms often very large and ruffled which is anathema to the Show and Alpine lover. The foliage is in fascinating variety of shape and degrees of silver-mealing and, like the Show and Alpine Auriculas, its leaves are rather thick and leathery. In recent years a strain of double Auriculas has been originated and developed by Mrs. Denna Snuffer. They have a hardy constitution, great beauty of form and color and are by far the greatest development of doubles in Auricula history. To the long-time cultivator of Show and Alpine Auriculas, this voice raised in behalf of the Garden Auricula is as one piping in the wilderness, but I do so in the interests of horticultural balance and perspective, remembering these many years the massed plantings of Auriculas as first seen in the garden of Mrs. A. C. U. Berry with the frames of Shows and Alpines in the foreground.

In Mrs. Berry's garden, also, I saw for the first time drifts of Belled Primulas, the fourth group under consideration here and known, correctly, as the Silkimensis Section. In the Primula para de, Belled Primulas bloom last, reaching their peak in June (in the Pacific Northwest), following the Auriculas and Candelabras in late April and May, which in turn, follow the Polyanthus in March and April and the Acaulis and Julianas in late February and March. It is not only a continuous succession, but an overlapping of bloom for at least five months. The Belled Primulas in cultivation are almost all species native to the northeastern province of Sikkim in India on the Himalayas southern slopes, and to southern Tibet high on the northern slopes of the Himalayas. Little has been done in hybridizing the Belled Primulas, the Florindae hybrids being the only significant ones. These are a cross between Primulas Florindae (yellow) and Wal toni (purple) and throw yellow, purple, and shades of rust and red offspring. As they say in occupied countries: one

white, one black, and two khaki. Color is not the outstanding virtue of the Belled group. Rather, it is their grace of carriage and perfume, each species being individual in scent and all spicy, oriental blends as intoxicating at a distance as close up.

Culture is of the easiest, more shade than sun and a moist, loamy soil. They are their own worst enemy for they sleep a long time, going dormant with the first frosts, utterly disappearing until late April when the beautiful, new bronzed leaves push up almost visibly. But often the plant, always small and fine of root, is destroyed inadvertently by gardeners uninformed about this habit which is not slothful but a fixed pattern caused by the deep and long-lying snows in its native homeland.

Appending this barest possible sketch of the four Sections popularly cultivated, is the handful of plants belonging to other Primula sections. Of these Primulas Sieboldi, dentiflora and rosae are the best known and widest grown deserving the name of beautiful pot-boilers. It is almost impossible to kill P. Sieboldi either by drought, for it goes dormant in the summer after blooming in late April and May, or by pests, for its roots are too fibrous to be as attractive as fat ones, or by starvation for it remembers the thin rations of its homeland—Korea and Japan. Yet it flowers in the most ethereal of snowflake patterns and is so dainty of leaf as to appear fragile. The Japanese have capitalized on its habit of petal patterns and color variations and have developed many more, naming and cataloging them by the score. However, they are all, simply, P. Sieboldi, and not distinguished by botanical variations, only by growers' designations. Colors range from white through blush, pink, rose, magenta, lavender and purple, often one color on the face of the bloom and another on the reverse. It is a plant for every garden, indestructible, multiplying by stoloniferous roots in constantly widening patches.

(Continued on page 25)

Azure Blue Garden Auricula
Photograph courtesy Barnhaven
Growing The Species Primula

Growing species, or wild Primulas, is fascinating but most of them require more care than the average garden plants. Alpine plants growing in full sun in high altitudes seem to need more shade in our heavier air of low altitudes; they should be shaded at least during the hottest part of the day. Most of them do well under high shade. A general rule is to plant in a well-drained soil of humus, loam, and coarse sand. They may be raised in pots in an Alpine House (unheated green house). If planted in deep flats or cold frames, always have plenty of drainage material on the bottom, then your compost mixture. The greatest loss in plants seems to be from letting them get too dry, then giving too much water at once. A steady supply during the summer months is best. Another need of species is good air circulation — stagnant, moist conditions are fatal to a good many. I usually use Ortho-Gro once in early spring when growth first starts; then again when the plant is in bud, using the recommended feeding for house plants. A safety measure for most species is to cover on the soil around the plant. This may be coarse sand, pea gravel, or stone chips. This protects the plant from being splattered with mud, and eliminates all chance of moisture concentrating around the neck of the plant for any length of time.

The auricula section, with its species and sub-species, are rock plants of the European Alps. A little more easily grown than some other species of Primula, P. marginata, P. glaucescens, P. rubra, and others are oftentimes available. P. commutata, a sub-species of P. Villosa, grew readily from seed and bloomed well, crowded into a coffee can. Root confinement often times gives better bloom with some auricula species. These were from a self-pollinated plant, and sturdier than the parent plant, grown out in a raised bed. One should always hand-pollinate the auricula species, as they cross at will, which results in many natural hybrids in their native habitat. These are a long-lived group.

P. capitata should be started every year from seed as it is quite apt to die out after blooming. Polyneura and saxatilcs of the cortusoides section are good woodland primulas and will re-seed naturally. P. kisoana, another woodland plant of the cortusoides section, propagates itself by underground runners. These plants are all dormant during the winter.

P. denticulata needs little introduction, but since reading about the lush growth of this "weed" in India after burning the fields, I have used wood ashes as a mulch which produces very sturdy plants.

The Farinosae section give us a good many primulas — Farinosa, Frondosa, and others with white powdered leaves. These plants must be divided once a year because they will rot when crowded. Others in this section without powdered leaves, such as involucrata, yargangensis, Clarki, rosea, and luteola, need more humus and will stand bog conditions if not stagnant — all are easily divided after blooming.

My P. chionantha of the section niveals is doing well in a raised bed of nothing but a compost of rotted leaves, but must be kept well watered during the summer.

An easy method of raising seedlings is to plant them in coffee cans — they seem to need less watering. A pre-treatment is given the seeds by taking them from their package, then wrapping them in a piece of absorbent paper, secured by a small rubber band. These are placed in wide pint jar with a screw top. A heavy piece of blotting paper is cut to fit the inside of the lid. Water is poured over this until it has absorbed all possible; then drained and put on the jar. This is placed in the lower part of the refrigerator for ten days or two weeks. When ready to plant, the cans are prepared by holding holes in the bottom — a large nail is handy. Drainage material is put in — coarse sand or small gravel; and quite often I use fir needles. The can is filled to within a half inch or so of the top, with sand then set in a pan of hot water until the sand is saturated, then drained and cooled. Seeds are scattered on the sand, covered with a pan of glass, and set out on the ground in a shady spot. Prick off when true leaves appear.
An Amateur's Backyard Methods

Mr. Dickson raises thousands of plants each year both Primula and other perennials. As he says, he does not go in for "fancy and complicated procedures. His methods are simple and easy to follow.

BY H. H. DICKSON

Polyanthus seed can be planted any time of the year if you have a greenhouse or hotbed where you can control the light, heat, and ventilation.

Because I must rely mainly on nature I plant all my primrose seed in the early spring, February or March in the Northwest. I supply a little heat at nights and on cold days as needed to speed germination and keep the plants growing fast until the weather is such they won't need extra heat.

I don't believe in fancy and complicated procedures. I start out with any garden soil available; then proceed to make it loose and friable so that water will drain through readily yet it will retain enough to stay moist. You can use anything you have to do this, such as leaf mold, compost, sand, peat moss, vermiculite, etc. in any combination that gives you a soil you like.

This soil should then be sterilized to kill weed seeds and disease organisms. For small batches I prefer cooking moist soil in the oven until well done. For large batches I like methyl Bromide gas applied to flats of soil under a plastic cover.

For a small batch of seed, I place drainage material in the bottom of a pot then fill it level full with the loose sterilized soil and press it down lightly (caution, don't press it down hard). The soil level is then about one-half to three-quarters inch from the top. Without any previous treatment of the seeds, I sprinkle them evenly as I can over the top of the soil, then cover the seed with about one-quarter inch of vermiculite that has been screened to get rid of all the fine powdery dust. If you can keep the pot watered by setting it in a pan or bucket of water almost as deep as the soil level in the pot, good. If not, and that takes too much time for me, I put a cloth over the pot so I can water it from the top without disturbing the seeds.

For larger batches of seeds I use flats and follow the same general procedure.

Use hot water (about 120 degrees) for the first two or three days. This makes more even and quicker germination. Try to maintain temperature between 60 and 65 degrees for best germination.

After most of the seeds have germinated remove the cloth and be careful with watering. It is important now to keep the pots or flats well ventilated to avoid damp off. If damp off starts Natriphen or Pano-Drench will control it. For good plants, keep seedlings growing fast and healthy. Use any balanced liquid fertilizer according to directions of the manufacturer.

You can transplant the seedlings into flats when they get their first set of true leaves, the crinkled ones, or wait until later if they are not too crowded. One caution on transplanting. If you have waited until the seedlings are changing from hair roots to the heavy typical primrose roots you will have considerable losses. If you have waited this long, wait a little longer until the heavy roots are developed. Your losses will be about the same from overcrowding, but the survivors will transplant easily.

Planting seeds in the spring allows the seedling to develop while in the flats to good sized plants to be set out into beds in late summer, where they will be established and anchored before the freezes come along to heave out plants that are firmly rooted.

If at any time your seedlings' leaves begin to turn white they are suffering a deficiency of nutrients. Primroses need lots of magnesium, iron, and sulphur. At this stage you haven't time to test which one they need. Give them all three. Use one rounded teaspoonful of salts, one of iron sulphate, and one of wettable sulphur to a two-gallon sprinkler can of water. The sulphur doesn't mix very well so stir it. Water the plants once a week with this solution. Spray the leaves afterward with a fine spray of water to avoid burn. This usually restores vitality in a hurry.

REPORT OF THE ANNUAL MEETING

Olympia, Washington, November 8, 1958

Minutes of annual meetings are pretty dull reading, as a rule, and when we report that the panel of officers as recommended by the nominating committee was elected and that the suggested amendments to the Constitution were voted in, we have said all. That about fifty members were present, that the accommodations were very good, and that the chicken was excellent can be taken for granted.

This meeting was unique as meetings go, inasmuch as, although our British members are no doubt always with us in spirit, one British member was not only with us in spirit but was able to speak for himself and did. A wonderful tape recording arrived from Mr. Dan Bamford just a few short hours before the members were due to sit down for dinner. To say that the members were inspired and moved to hear Mr. Bamford speaking from far-off England seems to fall far short of the way we really felt.

This reporter was thrilled not only by hearing Mr. Bamford's resonant voice but by the knowledge that, having the tape recording, records can be cut for affiliated groups and can be played again and again.
Florist Auriculas

Cyrus Happy is one of the Premier Auricula Floriculturists in America and present holder of the Bamford Trophy which he also won in 1956. If Mr. Happy's article seems out of place in a beginner's manual, it is only to give the ambitious Auricula grower something to shoot at.

Cyrus Happy III

I should like to be able to pass on to others a few hints on successful Auricula culture, a most rewarding science. The requirements are a greenhouse or good cold-frame, and a sharp observant eye.

The Soil. It must be porous and be able to remain so for one year. The key to that problem is fiber. If you were to examine my potting soil, you would find it made of about one-third inorganic particles—clay, sand, pumice and shell, and two-thirds fiber—equal parts partly decayed leaves and old horse manure. Each bushel of soil then has added to it a four-inch pot of shell, wood ashes, and a handful of hoof and horn meal and another of super-phosphate. (When the fiber content did not look quite right this year some spent hops went in, too.) The potting soil is then put into boxes and stored in a dry place. When it is nearly dry, it is ready for use. Aldrin is added if wire worms, angle worms, or grubs are present.

Repotting. The answer to "When do I repot?" is—when I have time. A plant may be gently knocked out of its pot, have its soil removed, and be repotted at almost any time with no shock to the plant. June is the preferred time. When the roots are bare, look for and remove any signs of rot. If there is much rot to be cut out, I find the plant will benefit from a twenty-four hour soaking in Fermate solution (Miller's Fermocide) which stops any further rotting. During repotting the most convenient time to remove offsets, but as long as they are rooted they may be removed at any time. Offsets without roots present more of a problem. I find they will root best if taken in March and, next best, if taken the last week in August. The main reason for removing offsets before they are rooted is to reduce a proposed exhibition plant to a single crown. A single crown plant produces the best bloom and looks much neater. The wound made by removing an offset should be allowed to dry or else dusted with a fungicide or powdered charcoal. For mature plants you will need three and one-half and four inch pots. I put a piece of oyster shell in the bottom of the pot and cover it with about one half inch of egg shell. Then the plant is put in the pot at its proper level and the dry soil is put around the roots. To eliminate air spaces, the pot is tapped as the soil is added. Light pressure from the thumbs firms the soil and then the repotted plant is put in a pan of water to soak. If you have re-potted during the summer, the plants will benefit from several months outside, plunged in a bed on the north side of a building.

During the fall, before severe freezing starts, they should be cleaned up—dead leaves removed and the pots wiped clean—and put under glass. Very little watering is required through the winter because a dormant plant is very liable to rot when it is water-logged. As the sun gets brighter in February, watering can be increased. Frost will not injure the plants if they are not exposed to bright sun while they are frozen.

As the flower trusses appear, thin the smaller buds from those that seem too crowded. Be sure to get some shading on the glass before the buds open or a hot, sunny day can spoil them. You will find that each variety will require slightly different treatment. For example, Argus has a short stem and can be kept further from the glass than Joy or Gordon Douglas. Some plants bloom well every other year. Examples of this are Kingcup which is usually out of character on the even years and Sladen which will bloom for me only on the odd years. Cater to the differences in each variety and you will produce good show plants.

For those that wish to hand pollinate the edged Auriculas, this word of advice. In an edged flower, the pollen is normally ripe just as the bud is opening, if not before. It must be looked for and used then. A fully opened flower will produce no more pollen nor will it be receptive to pollen you might wish to apply to it. You will have to make up your mind whether you want flowers or seeds and act accordingly. You can't have both. Seed can be sown as soon as ripe or "when you have time." Watering with Fermicide will prevent damp-off and not burn the seedlings if you follow directions. And there you have my system of caring for Auriculas, not complete instructions, but enough so any interested gardener can adapt his schedule and methods to successful Auricula culture.

School for Judges

Plans for a two or three day seminar for judges to be held in mid February are going forward, but as we go to press the only thing we are assured of is that there will be a judging school. Plans are for sessions in Seattle and Tacoma with competent instructors in charge.

The school will cover the whole range of Primula commonly shown, with special emphasis on Polyanthus and Show and Alpine Auricula.

Information regarding dates and cost will be furnished by the President on request. (Mrs. Anne Steppman, 3616 E. Bellverne-Redmond Road, Kirkland, Washington)
Primula X Pubescens

Mr. McLecs' property rises sharply in the rear, where he has created a miniature Alps so that his Auricula hybrids will feel at home.

By James Stuart McLecs

The Auricula Section of the Genus Primula contains twenty-one or, according to some botanists, twenty-two species all practically confined to the great mountain systems of Europe. Each of these occupies an area of its own and, where these areas overlap, there are sometimes found natural hybrids between the species. None of these hybrids can be said to be common but by far the least rare is Primula pubescens, described and named by Jacquelin in 1778 as a hybrid between Primula auricula as seed parent and Primula rubra (long known to most of us by its former name of P. hirsuta) as the pollen parent. It is not surprising that Primula pubescens should be relatively the most common of the natural hybrids because its parent species are by far the most widespread and the most common species of the Section and their areas overlap throughout a large part of their range.

Primula pubescens has been recorded as a garden plant since before the year 1600 when it is known to have had a place in the gardens of the Emperor of Austria and his nobles. Highly variable in nature and producing fertile seed in cultivation, it proved to be even more variable in gardens and it is believed by many to have been the ancestor of all forms of auricula, including the show and the alpine varieties, that we know in our gardens today. While this may have been true until a generation or so ago, it is certainly not true now because in their search for new forms and colors plant breeders have introduced into the strain the "blood" of other species of the Auricula Section, notably P. marginata.

What we grow in modern gardens under this name, or more familiarly speak of as pubescens hybrids, is vastly different from the simple hybrid brought down from the Austrian mountains, although any batch of seedlings will contain forms that are not far removed from these originals.

They may be thought of as a race of small flowered auriculas although they differ from these in many important respects, having as a rule relatively longer scapes bearing very many more pips, and they are harder and especially valuable for growing in the rock garden. In fact they are particularly well adapted to life in rich but well drained compost tucked into crannies and pockets among the rockwork, where, given a position protected from the noonday sun and supplied with reasonable moisture, they will flourish and grow quickly into admirable clumps, blooming beautifully in the spring and usually again in summer or in the fall.

There are on the market a few named varieties, superior forms that are propagated, as are auriculas, by detaching from the parent plant side branches that have taken root (which they do with great freedom) and growing these on in cold frame or cold house until large enough to fend for themselves in the open rock garden.

Alternately, unrooted side shoots taken with an inch or more of rhizome may be treated as cuttings and rooted in moist sand or other sterile medium, then potted in the standard compost until large enough for planting out. Either operation is best performed in spring soon after the plants have flowered, but the pubescens hybrids are best allowed to grow into sizable clumps and are by no means to be reduced to single shoots as is the practice with the highly bred auriculas.

Pubescens hybrids are easily raised from seed and, although extremely variable, nearly all the seedlings are beautiful so that if the grower will save seed from his choicest plants or will beg or buy seed from dependable sources, he will have little difficulty in selecting from among the numerous plantlets a group of superior forms to suit his own taste, and these he can propagate by taking offsets or cuttings as described above. The color range is from blue-purple through red-purple to pinkish lavender, and from a wonderful golden yellow to creamy white with, rarely, a plant bearing white blossoms of unbelievable purity. Near reds appear, but rarely, and these tend to be more delicate in constitution than the others. Meal is often present although usually scantily on the foliage and on the "eye" of the flowers. It may be entirely absent or it may be present in such volume as to suggest the stage varieties of auricula. Shaded body color is usually absent but may occasionally rival the best of the shaded alpines. The Beamish strain, in which P. marginata plays a part, is distinguished by flowers with petals margined with silvery white, and there are other strains and races, any one of which may show up in a batch of seedlings.

In size and shape of leaf and character of leaf margin, there is no end to the variation. Scapes may be one inch long or closer to nine. Umbels may contain few to very many flowers. One of last year's seedlings, a lovely lavender-pink, had leaves two inches long and outlined like those of P. marginata. It threw two scapes each about seven inches high and bore, on one scape, more than thirty and, on the other, about fifty pips most of which opened at the same time. While it lasted the show was wonderful and its fading covered the adjacent rocks with fallen lavender snow.

I grow my plants in a compost made up of one part each of Canadian peat-moss with which has been mixed pulverized sheep manure five parts to the bale, coarse sand that has been passed through a quarter-inch mesh, and good garden soil that has been sterilized in the kitchen oven for thirty

(Continued on page 32)
Growing Primroses In Pennsylvania

Primrose lovers living in climates similar to northeastern Pennsylvania will find encouragement from Mrs. Klaber's experiences

BY DORETTA KLABER

If you live in another part of the land than those who live in the favored Northwest, don't get the idea that they have a monopoly on primroses! In the past I have grown some of them in the New York, Chicago, and Washington, D. C. areas, and now in north-eastern Pennsylvania they fill every half-shady nook and corner in my garden — near the house, near the barn, under shrubs, next to big rocks, by the pool, and the woods are full of them.

The easiest to grow are those in the vernales section, which means the acaulis (P. vulgaris hybrids), polyanthus, and the Julianas (P. juliae hybrids). As you probably know, the acaulis are those with low clumps of leaves covered with single flowers on short stems. The polyanthus are the bunch-flowered primroses, with a head of flowers on a stalk, and the Julianas vary from P. juliae with small leaved creeping plants covered with single stemmed flowers to others with stalks of airy flowers, and still others close to P. vulgaris. There are so many hybrids of all of them that sometimes their special characteristics get lost. The polyanthus include such definite forms as the gold- or silver-laced, the Hose-in-Hose, the Jack-in-the-Green, and many other named varieties.

I grow all my primroses from seed. Fresh seed is ordered from reliable growers (important!). This is usually ready by midsummer. As soon as it arrives, the packets are placed in glass preserving jars in the refrigerator (not in the freezing unit).

In a January thaw, or not later than February, they are taken outdoors and planted in coldframes which were readied in the fall. Here in this part of the country they will get the freezing and thawing they need to germinate well. These frames (with drainage material beneath) are filled with a friable mixture of loam, peatmoss, sand, small stone chips, a trace of very well rotted manure and a small quantity of insecticide to take care of any creatures in the soil. The proportions can vary. What is aimed at is a fairly loose soil that will drain well, yet hold moisture and have some nourishment in it. Over this I spread enough vermiculite to just hide the soil. Even in freezing weather the vermiculite stays soft enough to make a seed bed, allowing the omission of the sifted soil layer I used to put just under it. (Short cuts, whether in gardening, general housework, or cooking are my aim.)

The seeds are sprinkled lightly in rows, patted in, then a sprinkling of sand over each row, labeled, and watered gently from a can with a fine rose with warm-to-the-hand water. They are then covered with two layers of newspaper; next a cello-glass cover is placed over the frame and held down by stones. Whenever it snows the covers are lifted and the snow piled in. Otherwise they need no attention until the approach of spring. Then they must be watched carefully, slugshot dusted around, and ant traps placed in or near every frame. One watches for creatures, for moss forming, for heaving. At any sign of trouble, papers are removed, and if the ground has heaved it is patted back into place. The beds are kept constantly moist by gentle sprinkling with the hose once or twice a day, depending on the weather. As soon as any green sprouts show, the paper is removed and another anchoring sprinkling of sand put over them. When the sun gets hot, shade-cloth covers are substituted for the cello-glass. Some of the seeds germinate more slowly than others, but eventually more come up than you put in!

Any time they begin to look overcrowded, whether they have two or four leaves, or more, they are moved into nursery beds (with same soil) where they are planted several inches apart. Here they are cultivated, weeded, watered as they need it.

About mid-August they are ready to transplant into the garden. Most of them are put along the Primrose Path in the woods, where they get the shade and rich woodland soil they like. There, their flowers are accompanied by many other woodland flowers, ferns, and bulbs, with native undergrowth and huge rocks for their background.

After a year or two the clumps should be divided. This is done by digging up the clump, shaking the soil off the roots, looking for the natural offsets, each making a rosette of leaves, and pulling gently but firmly apart. Each division will have roots.

The leaves can be trimmed back about a third, and each piece replanted in fresh soil. Primroses are hearty feeders and will soon wear out a soil that is not replenished. In autumn the natural fall of leaves gives sufficient protection to their evergreen foliage. Only the heaviest of the leaf cover is removed in the spring, the rest soon rotting and helping to renew the soil.

Once you've started with the vernales primroses you won't be satisfied to stop there.

Other sections of primroses that are easy to grow (all of which are grown from seed as outlined above) are the following: denticulatas — very early spring before the vernales—with balls of bloom on straight stems, deciduous, leaving a big bud at the surface in winter. Plant near rocks or tree or shrub roots — winter wet is their only enemy.

Farnosa, frondosa, and rosea, all
of the farinosa section. Also very early. *Farinosa* is the smallest with white meal on the reverse of the leaves and sprays of small pink flowers; *frondosa* is a larger *farinosa*, and *rosea* has smooth leaves without meal and with brilliant pink flowers. They are all deciduous, the first two leaving white buds at the surface in winter and *rosea*, pink buds. All want moisture, but good drainage, sun or light shade.

The so-called woodland section (*cortusoides*) is best exemplified by *P. sieboldii*, with fine low foliage and foot-high stems with flowers in sprays. *Polymenra* (an aggregate of several forms), *kisona*, a lovely woolly leaved good pink, and *heucherifolia* are some of the others in this group. They are all deciduous, disappearing completely over winter—*P. sieboldii* going earliest. *P. sieboldii* is a bit erratic from seed, sometimes not showing up at all, and at other times every seed germinating.

 Auriculas of the alpine and garden sections are not difficult, but are much slower to develop from seed than the others, usually taking two years to bloom from seed instead of one like most of the others. They bloom about the same time as the vernales, a long spring season, and they seem equally hardy. Their decorative flowers over their firm leaves are among the most picturesque of primulas. They need rich soil, appreciate some shade and stones to get their roots under.

The *candelabras* follow all these earlier primroses, blooming in late May and June in this section of the country. *Japonica* is the hardest and most reliable, and will self-seed in most positions. They all need shade and ample moisture. Their characteristics are taller growth and flowers in tiers, opening from bottom to top successively, the whole plant disappearing over winter.

There are many other primulas that can be grown here, and still more where the snow covers them all winter. Here, for instance, the *sikkimensis* or bell-flowered primroses are biennial, but they are reported perennial from further north, and of course from the milder west coast.

If you have come this far with primroses, you won’t need any admonitions, instructions, or advice. You will be on your own—investigating, experimenting, trying, perhaps failing, trying again. The Primrose Path is long; you will find it enchanted and it will not matter that you never reach the end.

Doretta Klaber’s new book “Rock Garden Plants - new ways to use them around your home” (with a “large chapter” on Primroses) will be published by Henry Holt & Co., Inc. at $3.50. Here is another one for your Primrose library. The book will be released about March 19th and will be available at J. K. Gill’s (see ad on page 30). It will be reviewed in a later issue of the Quarterly. Mrs. Klaber is a Regional Editor for the Quarterly and is a frequent contributor. Her article on these pages should be an incentive for many more Easterners to join the growing group of primula growers.

### Primroses In New England

Here is “know how” from an expert grower in her section

By Alice Hills Baylor

To those who wish to add another experience to gardening pleasure with high rewards for observing a few fast rules, the family of *Primula* will give companionship bloom to spring flowering bulbs and the more popularly known “harbingers of spring.”

Each planting season brings many requests for Primroses from those who have not grown them but have seen them in gardens or have read about them in garden magazines. Each invariably asks, “How can I be successful with Primroses?”

Let us consider the groups that are best known. The Vernales group includes the polyanthus, auriculas, and the miniature *P. juliana*. (These are the hardy perennials which have been hybridized from the species *P. vulgaris*, *P. officinalis*, *P. elatior*, and *P. reisii*.) We shall also consider the garden auriculas.

The polyanthus is the “bunch Primrose” which throws a six to eight inch stem on which is borne a cluster of many flowers in the month of May in Vermont. The foliage is lush deep green and makes a handsome foil for the spring garden. Yellow was once the predominant color but today the polyanthus is in many hues. Pastels are popular, pink to rose shadings, blue—deep to clear sky blue, the spice shades of warm buff, vivid shades of crimson, garnet, and bright cherry red, and now as I write, the last day of October, a seuddling white polyanthus is in bloom and resembles the wet snow we had at daybreak.

The auricula is a mound of flowers in spring with the many blossoms each on a single stem, hiding the crinkled foliage as each plant appears as an old fashioned bouquet. The auriculas may also be had in many colors, yellow, pink, rose, blue, garnet, and white. The Vernales group, the polyanthus and the auriculas, are meadow plants.

The garden auriculas are easily grown and extend the period of bloom as they come into bud when the polyanthus and auriculas are at their height, and remain in bloom longer. The garden auriculas have been hybridized from denizens of the higher altitudes. Thier foliage is shiny, leathery light green in rosette growth, often heavily powdered with farina in the center, which makes a handsome, ornamental plant when out of bloom. The flowers, borne in a bunch on a three to four inch stem, are velvet in texture and their range of colors runs the entire scope of the chart. White, lavender, light to dark blue, pink, rose, purple, yellow, buff, salmon to orange tinged. They are suitable for the shady rock garden, for wall crevice planting, along stone steps or used as a border. The best companion plants for the auriculas are the low Campanulas: *C. murale*, *C. garganica*, *C. cocklearifolia*, and those related species which are in bloom later in the season.

The entire family of *Primula* requires partial shade or a more accurate and picturesque term might be dappled shade. Suitable planting sites may include under an apple tree or flowering hawthorn or crab in naturalistic effect; along a shrubbery border (but avoid overhanging branches), on the east side of an evergreen planting or tucked against a friendly rock. It is of the utmost importance that they be permitted to
breathe and not be smothered by more space-greedy plants. **Columbine** and **Thalictrum** are good background plants as their foliage allows both air to circulate and the sunlight to filter through.

Here in Northern Vermont we have made Primrose plantings in various sites to suggest to garden visitors how best they may be used in the home grounds. Morning sun or slanting afternoon sun is the general rule but some plantings receive full afternoon sun and among these Primrose plantings we scatter in the fall annual poppy seed for summer bloom and the right amount of shade.

The most vital requisite for Primrose success is deep rich soil. All members of the tribe of **Primula** are gross feeders and their preferred diet is one rich with organic material. We use quantities of compost spaded into the soil and well-rotted or dry cow manure in generous amounts. The roots of Primroses go deep for food and moisture and deep digging in preparation of a planting site gives results which repay big dividends.

The planting site should be prepared before the plants arrive from the nursery. Unwrap at once, place plants in a container with water covering the roots but not the crown add the prescribed amount of a transplanting medium to the water or add a trowel full of organic fertilizer. Place in a cool place for a few hours or for over night.

When planting, dig each hole for each plant deeper than the measured roots, place half a trowel full of fertilizer at the bottom of the hole and cover with an inch of soil. Hold the plant so that the crown is at ground level. Spread the roots out and, still holding the plant, fill the hole half full of soil. Now comes the most important planting item. With one's fist push the soil firmly against the roots. Put some water in the now firmed, half filled hole, and then continue to fill the hole to ground level. Avoid having soil in the crown of the plant. In planting auriculas it is wise to place a collar of small stones around the plant so that no soil is allowed to filter in between the leaves.

If such a place is prepared and the plants firmed into a well-watered area, with roots spread and food at the base, expect to see new growth within a short time, bloom, and a plant that will behave as it should!

A mulch is vital as it conserves moisture and affords a cool root run. In New England there is a good supply of sawdust which may be used if added fertilizer and some agricultural lime are spread over the soil. Sawdust robs the soil of nitrogen and also creates an acid condition. Compost is the finest mulch to use but, lacking this, one may use peat moss if it has been soaked. Dry peat moss robs the soil of moisture and is more detrimental than no mulch. Pine needles make a handsome mulch but it is wise also to use lime before putting them on the bed.

In periods of dry conditions soak the Primrose plantings only once a week. Daily sprinklings are not advised as only the top soil is moistened and the roots do not benefit.

We have had some dry summers in New England when wells were low or went dry and watering was prohibitive. Then is when the mulch pays for all effort expended. In extreme dry spells the foliage of the Vernales group and that of the candelabras have looked dry. However, the leathery auriculas withstood the dry conditions and appeared in good condition. Their performance was normal except fewer side shoots were produced (by which means propagation by division is made) and there were fewer fall flowers.

The garden auriculas require more lime than the polyanthus and acaulus. If crushed egg shells are incorporated into the planting site, it will be noted on lifting the plants that the feeding roots from the sturdy center root (called “the carrot”) have attached themselves to the egg shells. Crushed, washed sea shells may also be used. In the Midwest where the soil is neutral and where limstone is predominant, no extra lime is necessary.

During prolonged periods of drought we clean out the three pools in our lower Primrose garden. The spring that feeds them is a living spring but it runs slowly. The pools are natural ones with clay bottoms. During July we dip all water out of the pools and use it by bucketfuls on the lower garden. Then about four inches of sawdust is put in the bottom of our metal dump-truck (which is drawn by our little garden tractor), and the silt from the pools is removed and put onto the sawdust. Thus all excess moisture is absorbed and humus is added to the silt. With this medium we mulch the upper Primrose garden and no other watering has been necessary. A dry mulch is put over the silt and sawdust mixture to avoid evaporation.

The most vital requirement for Primroses is the medium in which they are planted. Heavily compost-filled soil, which may be lifted in handfuls, with organic fertilizer deep in the ground so that roots will go deep for food, will not only produce flowers in abundance but will give excellent growth and lush summer foliage.

We speak of the proper ecology for plants. For Primroses it is partial shade and rich soil. Proper ecology means the conditions under which plants thrive. Many plants will live on borderline conditions but when we plan and plant our gardens we should reap rich results. My advice to those who are beginning the exciting experience of growing Primroses is to experiment with several sites to learn just which is most suitable. Remember the conditions in each garden vary and "just around the corner" in any garden may make a great difference in the circulation of air and the amount of needful shade.

Primroses are sturdy and tough. They will withstand changes in temperature of 20 degrees during the blooming season. The flowers are not harmed. The only winter covering that is needful is the placing of some light medium over the plants to protect them from wind and also to collect snow. Light and airy evergreen branches are used here.

Today, October 31st, we began our day with a wet snow with the temperature at 28 degrees at seven this morning. The pink acaulus is in bloom—polyanthus, blue, spice, and yellow — auricula seedlings of last March sowing are throwing brave single flowers of garnet, pink, white, and blue. Not in abundance but just enough to make a garden tour exciting. These sturdy ones thrive while their cousin P. rosea has settled down for a long winter's nap, their center bud glowing like a gem of deep rose color. They may go to sleep early but they will be the first to awaken in spring to give us the first Primrose bloom in April with their bright gay flowers to usher in a long period of bountiful rainbow colors from this rewarding family of Primula.
Experiences In Germinating Primula Seed

Mr. Balcom demonstrates that seed that does not germinate readily may not be sterile but only hiding its time.

By Ralph Balcom

Anyone who has grown Primulas from seed surely has had occasions when the seed did not germinate well and even plantings where there was no germination at all.

Usually the factors that contribute to these failures can be readily determined, but occasionally there are times when there just seems to be no logical explanation for poor germination. Such an instance occurred with a planting of mine when the seed in one end of a flat failed to sprout, yet in the other half they grew well. Why did they germinate in one end of the flat and not in the other, since surely they all received identical treatment? There must have been a reason, of course, but I was never able to discover it.

Often valuable lessons are to be learned from these apparent failures, as will be shown in the following experience of mine in the planting of some Auricula seed.

A few years ago, one day in the latter part of February, I planted six different packets of Auricula seed, each in a separate flat. One was Show seed, one Alpine, and the other four were from the species, *P. auricula*, *P. rubra*, *P. viscosa*, and *P. glaucescens*. They were all placed at the same time under artificial heat and given identical treatment. The Show and the Alpine seed germinated exceptionally well but, strangely enough, none of the four species grew—not even a single plant. In disgust, I stacked these four flats in a back corner of my basement intending to dump them later. There they were accidently buried beneath some empty boxes and promptly forgotten. Eighteen months later I found them there all dried out and very sad looking indeed. For some vague reason I still didn't dump them but decided to try again.

In November, I put them out of doors and sheltered them with glass for protection from the freezing rains but raised the glass a few inches to allow a good circulation of air over the tops of the flats. They stayed outside all winter, freezing and thawing with the changing weather and receiving no care, except that I watered them very sparingly—just enough to keep the seed always a bit moist but never soggy. It snowed on two or three occasions, at which times I removed the glass and allowed a mantle of snow to cover the flats, replacing it when the snow storm was over. I was doing my best to imitate nature's way of doing it.

About the first of March the next spring, they had not yet germinated and, still experimenting, I placed them in the hot house and gave them heat again. Ordinarily it takes at least two or three weeks for Auricula seed to germinate, so you know how astounding I was when I examined the flats three days later and found all of them sprouting profusely. In fact, it seemed that all of the seed that had been planted two years before had suddenly decided to grow. Evidently old Mother Nature's way was best after all.

Since that time I have not discarded any plantings that have not germinated well. I now pick out the seedlings that do grow, being careful not to disturb the soil any more than necessary, set the flats in the basement and let them dry out as before (which keeps the green moss from growing on the surface of the soil) and then, the following November, put them out of doors for the winter. In a majority of cases I get quite a good second crop.

*P. Sieboldii* seed and others in the *Cortusoides Section*, which includes *P. saxatilis* and *P. kisoana*, are often difficult to germinate when given artificial heat—at least that has been my experience after two failures trying to grow *P. Sieboldii* in the hot house, I now sow it in November and set it outside to winter over out of doors. I have not yet had a failure when I have used this method.

Growers who do not have a hot house nor the facilities for giving their plantings heat, can use this out-of-doors method and in the spring just leave them out and let them come up by themselves when the weather warms.

The lesson learned from my apparent failure is: "Do not give up too soon in germinating Primrose seed". These sometimes perverse little bits of suspended animation may just be "playing possum."

(Continued from page 9)

and is easily grown from seed when planted to catch natural freeze, or artificially frozen and planted in early spring. Hot watering the seed after freezing and planting brings it into germination quickly.

*P. denticulata* is the species making the most dramatic strides in the last few years with the least help. The flowers, in large compact heads like bass-drum sticks, are typically purple. But because the plant has such a wide range, both across country and in elevation, its color varies naturally and by selecting out, many variants can be fairly well stabilized. The white, violet, and lavender forms are the best known, but in recent years pinks, rose, and red have been encouraged. And because it has adapted itself to the many climatic conditions encountered in its home spread over the entire two-thousand-mile length of the Himalayas, it is easily pleased in the garden. I have seen it live through months of drought in baked soil but this is abuse no plant should be made to endure. Its good nature merits fat soil and plenty of water and then you will see a burgeoning fit for the gods in March or April.

*P. rosea* is a companion plant to *P. denticulata*, both in native habitat (although restricted to the more western reaches of the Himalayas) and in time of bloom. Like the *Denticulatas* whose bloom stalks precede its leaves, *Primula rosea*'s bloom stalk makes a brilliant entrance on the early spring scene by carmine pink flowers emerging from bronze resting buds, beautiful in themselves and unforgettable with the *Denticulatas*. And like the *Denticulatas*, it enjoys a heavy soil and plenty of water.

All the Primulas mentioned in this sketchy manual have had full and individual treatment in past issues of the Quarterly. All have acquired devoted champions who have, since the Society's birth, added to their numbers and to their beauty. Collectively they comprise a group of plants with which Americans have made horticultural history in the last two decades, a group of plants giving gardeners a very special kind of enjoyment, a winter-minimizing anticipation of spring culminating in color and charm without end.
Notes on the Seed Exchange

BY ELMER C. BALDWIN

We wish to give recognition to the members contributing to the Exchange for the service they have rendered and to take this opportunity to thank them on behalf of the Society for the friendly spirit of their cooperation in making this enterprise possible. We are, in fact, somewhat overcome by the splendid job they have done and to them, I am sure, go the sincere thanks of us all, for their work.

The Exchange is open to all members of the American Primrose Society. Seeds should be ordered by number on the order blank to be found on the back page of the seed list. As in the past, a nominal charge of five cents per packet is made to defray the cost of postage and handling. Two- and three-cent postage stamps may be sent with requests for five packets. Requests for more than five packets should be accompanied by check or money order.

Alternate choice should be included for each kind ordered as some are in very small supply. A total of twenty varieties may be ordered. Should the member care to do so, he may indicate on the order blank that he wishes a second order blank, in the event the seeds hold out.

Plant names are those furnished by the donor, as are the brief notes, where given, following the plant name. An asterisk* indicates that the seed was collected in the wild.

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