Mrs. John Karnopp, Bamford Award Winner

It was with many qualms that I accepted the responsibility of being the judge for the presentation of the Bamford Trophy. How difficult to choose among all the professionals and amateurs: the growers who are doing so much to popularize and improve all the Primulas, including the Auriculas as well as the Editors of the Primrose Quarterly, both past and present, who have done and are doing the first most necessary and important job of education.

The letters began to trickle in. Some writers seemed to think that an amateur standing should bear weight. This I did not agree with. I hesitate to use the words "commercial growers" for somehow the word "commercial" bears the stigma of working for profit rather than love. Of all people in commerce, it is my guess that flower growers are in their work mostly because they love it. It should be classed among the arts as well as music or painting or architecture. There is no stigma attached to a musician who earns his bread through his beloved work — nor should there be for professional flower growers. Certainly Mr. Bamford made no such distinction.

More letters kept coming in. The runner-up is Mr. Ralph W. Balcom of Seattle, Washington, who was most convincingly described as one who has done much in educating and influencing others in the growing of Auriculas and in the breeding of Auriculas with perfection as his goal.

Still more letters with a final climactic brochure from the Portland Garden Club (to whom we are indebted for the accompanying photograph of Mrs. Karnopp) — now all for one person — one who seems...
Mr. Ralph W. Balcom

Mr. Ralph W. Balcom, runner up for the Bamford Trophy, well deserves any recognition he may be given for his work on behalf of the Auricula. He has worked long and hard to further public appreciation of Primroses in general, and since 1947 the Auricula in particular. He had the “best Auricula” in the Show in Portland that year and missed the Sweepstakes by only a point or two. Though his formal studies in Botany and Plant Pathology at the University of California were cut off by his service in the first World War, his approach to the propagation and improvement of the Auricula is entirely professional. He has been an inspiration to members of the Washington State Primrose Society since its inception, and in 1948 started the Bulletin which is a running account of the activities of the Society. He has been

Dorett Klaber, Quakertown, Pennsylvania

Federation Honors Canadian
For Discovery of New Soil Builder

MRS. OTTO H. YORK*

For the first time since its organization in 1933 the Women’s Health Federation of America Incorporated has reached into the field of agronomy to honor not a scientist, holding degrees and previous honors, but a plain modest one-time farmer who has worked out a new formula for organic soil-building which will soon attract world-wide attention.

Federation interest in this soil builder arises from the fact that its Committee on Research and Education in Organic Gardening follows many authorities in declaring that a depleted soil, deficient in organic components, is a sick soil; that a sick soil produces sick plant-life; that sick plant-life leads to sick human beings suffering one or another of the deficiency diseases so prevalent today.

With this in mind, the Executive Board for a number of years has granted a certain part of its funds to education and research in organic soil education, and has sought an organic compost that could be recommended as part of the Federation program for encouraging greater interest in the development of subsistence gardens for home owners.

In 1953, the Federation, Western States Division, heard through a well-known research and consulting chemist of the West Coast, that a practical-minded Scotch-Canadian, with a great deal of farming experience back of him, and now in the peat-moss industry, had developed an ideal one hundred per cent compost meeting the required standards of the Federation.

The Federation Institute was requested to follow up on this, and thus contacted James W. Watson, originator of the new compost. Arrangements were made to test out the formula through an impartial mixed panel including nursery men, growers, home gardeners and others. Through the Acme Peat Company of Vancouver, B.C. sufficient bags of the compost were forwarded to different parts of the U.S., Canada and Mexico to make a fair test of the product.

In 1954 sufficient reports were in the hands of the Institute to warrant an exceedingly flattering report to the Federation Board as to its unusual merits as a soil-restorer and soil-builder, with the result that James W. Watson has become the first recipient ever to be honored with the Federation Honor Award in this particular field. In addition, the product itself, which is now on the market under the trade name of Blue Whale Brand, Ready Mixed Organic Compost has been officially endorsed for display in the Federation Exhibit of Blue Ribbon Products, and has been granted the Federation Certificate of Merit for 1954.

*Mrs. Otto H. York of 21 Curtis Place, Maplewood, New Jersey, is Chairman of the Agronomy Committee of the Women’s Health Federation of America Inc.

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Pictorial Dictionary of The Cultivated Species Of The Genus Primula (continued)

Please refer to the April 1954 Quarterly, page 48, for explanations of the various abbreviations used in the text.

floribunda (12) W. Himalaya. "This small, tender, winter flowering Indian Primula has long been cultivated in our warm greenhouses and conservatories where its cheerful golden yellow flowers are always welcome." (WI) A hairy plant without farina. Leaves, including the reddish petiole, 1 1/4"-8" long; 1/2-4" broad; ovate or elliptic to broadly spatulate or ovate, contracted to a short winged stalk. Larger veins bear abundant long white hairs. Flowers 1/2" across, several scapes 4-8" high, downy with 2-6 superposed 5-6 flowered whorls, pedicels 1/2" long, slender, spreading bracts 1/2-1" long, ovate, serrate, leafy. Flowers from March to May.

Florindae (26) One of the most popular and widely grown of the Tibetan discoveries of Kingdom Ward. It is a robust early species, a plant which often reaches a height of 3' in culture. The root system is highly fibrous, characteristic of bog plants. The leaves are 2-8" long, broad-ovate, rounded at apex, deeply cordate at base, dentate, glossy. Dark green petiole 3-5" long, stout, winged, often reddened. The scape, usually smooth but sometimes bearing farina near the tip, bears an umbel; sometimes 2, one above the other; made up of 40-60, and in extreme fecundity, 80 flowers. The bracts and 1-4" pedicels are heavily coated with softly hairy, stalk 2 1/2" long. The flower clusters are nor so open and graceful as they are in malacoder which it resembles. "It flowers profusely, commencing when it is quite young — some 3 or 4" high and continuing until its full stature is reached. It grows well from seed, and blooms well all the winter. It should be given a corner in the greenhouse where there is plenty of light and space to develop, otherwise the flower stems become weak and spindly, and the plant loses half its beauty." (C&T)

Forrestii (3) NW Yunnan. The usual height of the plant in culture is 18" although plants in favored habitats have been reported to reach 3'. It is robust, somewhat shrubby, hairy, and prone to form a heavy woody rootstock. The leaf blade is ovate-elliptic, 2-4" long, obtuse, crenate-serrate, rounded or subcordate at base, covered, like all other parts of the plant, with glandular hairs, stalk or petiole up to 4" long. As the plant matures and reaches the fruiting stage the blades enlarge, reaching a length of possibly 8" and becoming 6" broad. Foliage is carried upright to a more or less degree and scapes rise from numerous crowns, bearing somewhat one-sided umbels, similar to those of elatior or veris. Each umbel is made up of 20-40 flowers, golden yellow with a contrasting touch of orange at the throat. Flowers May to June. "The home of this species is in dry crevices, with its long Woody rhizome trailing over the rocks and its culture is not difficult if it is given a position where it can stay dry in the winter time. We give it a place in our alpine garden which faces north or east, never toward the weather side. We place Forrestii under a ledge of large flat rocks which prevents rain from falling directly on it. During richly colored corollas that the best and most sweetly scented hybrids are being perpetuated by hand pollination. This handsome primula grows along the creek at Barnhaven as if it were its native home. Its fragrance is flowery and yet it is like nutmeg. It was quite drowned in the flood but it bloomed magnificently last June. To me it is exotic and extravagant and I am grateful that it likes our creek. The hummingbirds love it" (FL) "Loose head s of danglin g mealy-amber bells, ambrosially scented on 4-5" stems (we have never seen any this tall) above lush foliage of brightest green." (Richard Sudell) Flowers here in June and July.

Forbesii (14) Annual, easily grown in the cool house. Flowers vary from a good solid pink to mauve and have a conspicuous white ring surrounding the throats. The corolla is 1/2" across. The scape is about 1" with 3 or 4 superposed 6 flowered whorls. The farinose pedicels are 1" long. The leaves are ovate, 1-1 1/2" long, acute, coarsely dentate -lobulate, hairy, and pron e to form a heavy wood y rootstock. Th e leaves are 2-4" long, obtuse, eremite-serrate, round ed or lat erally, page 48, for explanations of the various abbreviations used in the text.

P. floribunda
P. Forrestii
P. florindae
P. Forrestii
P. florindae
spring and summer we see that the plants have adequate moisture. As soil we use a mixture of rotten leaves, sand and coarse peat with mortar rubble, or small lime stones to make it rich with lime. (JL)

frondosa (11) "A plant of the Balkans, called the 'Southern Bird's Eye,' but with leaves of a different shape than farinosa, and powdered in all its parts. It was added to our collection here at Floraire by Prince Ferdinand of Bulgaria, and sent out from our gardens at Geneva. It flowers during May and June." (H. Correvon, Geneva, Switzerland) The leaves appear in larger clusters and are shorter than in farinosa; dark green and smooth above; well plastered with pure white farina below. The flowers are larger and of a deeper color. The scapes, quite stout, are 1 1/4-5" high, bearing umbels of from 10-30 flowers. The flower color has been termed bright pink, also rose-lilac to reddish-purple. Cultivated plants produce more meal than do plants in their native state, these latter, at times, bear none at all. 'Leaves are gone, January 4th. Budding March 23rd. April blooming! Silver buds circle main crown, beautiful. Seed June 5th. Leaves very white underneath, pale green on top, white mid-rib.' (Field notes from Barnhaven).

Gambeliana (25) A plant of the high altitudes. It is found in Sikkim growing most in clefts or crevices where a moist condition prevails at least in the growing season. The small rounded, stalked leaves, often farinose, spring from a central crown, and mingled with them are the short flower-stems, 1 1/4-10" high. Each stem bears 3-4 flowers, large for the size of the plant. Although the root stalk of the plant is short from it are produced a mass of fibrous roots and these must be given consideration when transplanting. "Gambeliana has flowered here in the Alpine House for two seasons, but, although lovely, it does not appear to be particularly robust and unfortunately only a few plants survive. This Primula is entirely glabrous, and has rounded serrate leaves. The flowers are a rich purplish pink with a yellow throat. Its shorter stature, larger flowers, and lack of farina distinguish it from rotundijolia." (John T. Renton, Branklyn, Perthshire, Scotland.)

gemmifera (11) Asiatic. The specific name comes from the budding habit of the plant; the term "gem" being used in a botanic sense to indicate a bud. Perennial, although at times short-lived. "Some of the buds may become quite detached, but one usually remains near the old base and produces a rhizome-like portion (sometimes 1" long) before forming new roots and giving rise to the flowering plant of the ensuing year while the old rootstock disappears." (S.F) Leaves, including petioles, 1/2-2 3/4" long; 3/16-9/16" broad; oblong or obovate broadly to broadly obovate, blunt or rounded at apex, gradually narrowing to petiole, which may be as long to twice as long as the blade. Somewhat dentate at margin. Texture of leaves thin. Flower stem 3 1/4-12" tall, stoutish, mealy at tip, bearing one umbel of 3-10 flowers. Bracts green, tinged with purple. Flowers in color a soft pink running into purple in certain individuals. Farrer called this Primula acclamata, The Welcome Primula, and immortalized it in his book THE RAINBOW BRIDGE. Seeds of the southern form of the plant which has been named gemmifera var. zambeliensis may be more often offered by seedsmen, and may appear under its synonym P. chrysopa. This variety is more robust than the type, with flusher leaves and larger flowers. "We grow this Primula in light humus mixed with plenty of stones and kept only reasonably moist, but not too dry." (JL) The picture of gemmifera facing page 128 in Farrer's English Rock Garden could almost be of our Idaho Farinosa Primula incana.

gemnifolia (7) Tibetan, Sikkim, Nepal, Bhutan and Yunnan. 9,500-13,500'. Found in woods and in the shade of the rocks. The specific name refers to the foliage which looks somewhat like a Cortusa or some small Geranium. "The leaves of this most attractive small plant, are on distinct foot-stalks, are crinkled and cut around the margins and are softly hairy. It is a good perennial and easily grown in gritty soil in a cool, well-drained spot. The 4-7 1/2" (12") high scape bears a loose truss of pretty, rather deep-red (rose to purple) flowers (3-12) which generally provide a fair crop of seeds from which additional plants are easily raised." (WI)

gabra (11) Asian alpine. "It is a short-lived plant which might be roughly likened to a slightly inferior farinosa with all the mealy farina washed off." (WI) The John Rentons raise gabra in their Alpine house. They are collectors and have it as a curiosity as it is not a good garden plant and hard to keep. The leaves form a compact rosette and are 1/2-1 1/4" long. The scape is 3 1/4-4" tall. The flowers are pinkish-purple to blue-violets, sometimes with a yellow or orange eye, as found by Kingdon Ward in Tibet. (Pictured A.G. Vol. 7, p. 282)

glacialis (18) "It has the typical leaves of the tribe: lance shaped, green on the upper surface and heavily mealy below a thick midrib. The flower stem rises to a height of about 4", and bears a head of 4-6 flowers of a pretty lavender shade. This plant attains very high altitudes in the Lichiang range in Yunnan, and in gardens grows well in a scree with underground watering or in a mixture of chips and peat in a cool corner. Charming." (Stuart Boothman's description of the plant which brought the Certificate of Merit to R. B. Cooke, Esq. A.G., Vol 2, p. 296)

glaucescens (2) Judicarian and Normandy Alps. 1,500-8,000'. Subsp. calycino from Bergamo region in Normandy and subsp. longiflora, which is especially attractive in the rock garden, chiefly from the Judicarian Alps. Extreme forms of either of the two are distinct, but between the extremes there is found a rather complete chain of intermediate forms. Plants rise from stout rootstocks, which bear long, thick, fleshy roots. The leaves, leathery in texture and with cartilaginous margins, form a compact rosette; in length 3/4-4" long, 1/3 as broad. The leaves tend to cup. The rosettes are formed with open centers from which arise the flower stems, 1-6" tall, stout and upright, bearing an umbel of 2-6 flowers. Flowers are rose-lilac or purple. Plants show a preference for gritty soil in a more or less sunny position. Plants withstand a heavy frost at Barnhaven and lived to bloom on May Day, none the worse for being inundated.

glomerata (5) This species differs from denticulata by being smaller and by developing flowers and foliage at the same time. The scape, 4-12" tall, is stout and upright.
The corolla is blue, and said to be a good blue, fumel shaped, with lobes obcordate and emarginate. The many flowers are carried in a dense head which is compactly round like the toyos balls made by English children on May Day. The bracts, pedicels and corolla buds are often mealy. The leaves have petioles which are usually shorter than the blade which may be as much as 4" long and 1 1/2" broad, minutely toothed, and of typical primrose shape. The midrib is conspicuous and the radiating nerves are prominent on the lower surface. It may be possible to get seed of _glomerata_ under the synonym _crispa_.

_glatinosa_ (2) "A lovely jewel, but difficult. On very high, wet, peaty places in the S.E. Alps, _never on limestone_, it forms tufts of narrow sticky leaves, with 3" stems and heads of imperial blue-violaceous flowers, richly fragrant. Must have a damp, cool, peaty and non-calcareous corner. Not hard to keep but very shy to flower — even in nature, though there its multitudes are so incaulcable as to fill the distances with blue. _P. glatinoi's_ stickiness confers on all its hybrids a certain immunity to slugs." (R.F. The Rock Garden). There has been a rumor that _Primulas minusmin_ and _glatinosa_ meet and marry in the open moor above the Monzoni Thal, producing a series of beautiful hybrids which seem more tractable at home than the difficult _glatinosa_." (Dr. Roger Bevan, SRGC) "For many years I shared the ill-success of the great botanist Clusius, but during the past two or three years (1923) I have been able to flower several plants, and these few in pots, using a compost consisting chiefly of peat with the addition of a little powdered turf and sand. _P. glatinosa_ flowers in May." (MacW.)

_gracilenta_ (17) Nepal, Sikkim, Bhutan, and S. Tibet on limestone ledges. 13-14,000'. Resembles the better known _Vialis_. Both have acute corolla lobes but _gracilenta_ lacks the topknot of red bracts which _Vialis_ wears. _gracilenta_ has a shorter hairy scape (4-8") which bears either a very compact or a very short spike (of 7-15 fragrant bluish purple flowers), rather than an elongated head as in _Vialis_. Leaves are up to 6" long, to 1/2" broad, tip rounded, base tapers gradually to petiole, which is winged and hairy. The leaf margin is dentate and surfaces, both top and bottom, are hairy and particularly so on the midrib. The leaves are elliptic to obovate-elliptic.

_gracilipes_ (21) Scapeless bright pink-purple flowers with orange-yellow eyes, accented by a white band appear amid the foliage which forms a lovely trilly collar. Flower buds which are often densely mealy are borne on pedicels 1 1/2-2 1/2" long. Individual leaves measure from 1 1/2-6" in length and 1/4-2 1/2" in width. The midrib is very prominent both above and below. The petiole is broad and winged. This species prospers in the "Rootery" at the Royal Botanic Garden in Edinburgh, which "in the spring is an amusing sight when covered with its flowers. Indeed, they are almost as prolific in this situation as our native Primrose." (DL: from the fine article on Petiolaris Primulas in the AG, No. 81, p. 226) _P. gracilipes_ grows at Wisley in the Wild Garden where a particularly good form is cultivated. "... an attractive foliage plant which opens its pink, brownish-yellow-eyed flowers very early in the year. These vary considerably in size and in colour. Seed is hard to come by (and should be sown quite green) but this plant may be propagated by leaf cuttings like many of the _Secotria_ section are eminently suitable for cultivation in the peat wall or shaded bank. They require sharp drainage, partial shade from the strong sun and a cool, damp atmosphere." (RHS) "P. gracilipes differs from the shortly scapose _P. Boothii_ in its annulate corolla and narrow-accuminate calyx lobes." (S.F)

_grandis_ (13) Caucasus, 6-10,000'. Has been grown continuously in Edinburgh since 1895 as a novelty as it is known for its foliage. "Grows up to a height of 20" and under favorable conditions may reach nearly 40". The leaves are large (including the petiole, 4-16" long), ovate-cordate. The peduncle is well developed, and the pseudo-umbel contains many light-yellow insignificant flowers. Demands a heavy soil, and a moist shady location. We cannot call this primula pretty, but we reserve a place for it in a natural setting in our wild garden." (J.L) "As it has not much merit as a horticultural plant it is somewhat rare in cultivation but is always of interest from its corolline structure. ... In the appearance of its inflorescence as well as in the shape of its individual flowers it is unique in the genus." (S.F) "The foliage is heart-shaped and as of an almost tropical splendour, like that of some penstemons, and well worth planting for its own sake in some rich corner of the bog, where it will have room to develop. The tall scapes shoot up high in the summer, and then break, like a rocket, into a thick crowd of trailing little sparks—long tubular small flowers in great numbers, hanging and shooting from graceful long pedicels, the whole effect being delicate, but the blossoms in thousands are preposterously mean for a stalwart of such size and pomposity of promise." (RF) "Cytologically it is distinguished by its very small chromosomes and the basic number twenty-two." (B) Easily raised from seed. Clumps divide readily in late summer. A lovely foliage plant and remarkably easy to grow.

_Gristiti_ (21) "Glory of the Rhododenron zone." (RF) Chumbi Valley in Bhutan. "Much the finest of the recent Ludlow and Sherriff air-mail Primula introductions is _P. Gristiti_ (Watt) Pax which both Mrs. Knox Finlay and Lord Aberconway induced to flower last year. From a great fat yellow-farinose winter resting-bud, ovate leaves develop, quickly followed by a stout scape which overtops the leaves and carries a many-flowered umbel of deep violet-blue golden-eyed conspicuously annulate flowers. Recently I saw this plant in flower in the Keillour garden, growing beside fine flowering plants of _P. souceftolka_ Francher, and so magnificent were they that the latter plants looked almost commonplace. When in fruit the leaves develop enormously and may reach 2' in length, giving the plant a facies quite alien to that at flowering time. Major and Mrs. Knox Finlay have harvested seeds and should soon have a fine stand." (F. RHSJ 11/51, fig. 180) At flowering time the scape is 4-8" tall and the leaves including the petiole are 2 1/2-12" long and 3/4-2 1/2" broad. The leaves have sharply accented midribs, are toothed, and taper abruptly to a point. The scape, the pedicels and the calyces are covered with meal. The umbel carries 5-25 flowers. Can be propagated, like _souceftolka_, from the vegetative buds which form at the ends of the flowering scapes. (The magnificent specimen of _Gristiti_ on which Mrs. Knox Finlay won "a well deserved award" is pictured in the AG: Vol. 21, p. 302, in full bloom. It is also pictured, just as it is emerging from its great winter resting bud in the AG: Vol. 18, p. 560)

_Halleri_ (11) An explanation is necessary in discussing this plant, for it has
been known and cultivated under the synonym P. longiflora for over two hundred years. In 1775 a heretofor undiscovered work published by Gmelin contained a complete Latin description under the name *Halleri* and according to the accepted rules of priority, the first name must stand. This species is found in the Alps, in the Carpathians, Croatia, Bosnia, Albania, Serbia, Bulgaria, and possibly in the Caucasus and Armenia, 4,800-6,500'. It is easily distinguished from the other members of the Farinosae by the remarkably long corolla-tube (9/4-1 1/4") the corolla is violet with a yellow throat, and the stamens are always inserted in the throat of the corolla. The stems are from 4-12" as a rule, and the leaves are a pale green and are from 9/4-2 1/2" long. It is not dusted with powder as is *farinoso*. This handsome primrose is most effective when planted closely together in clumps and in large numbers, and it will thrive in half shade in a heavy soil to which a peat has been generously added. Planted in this fashion it will persist for years. Leo Jelitto, to whom we are indebted for the accompanying illustration, finds that seeds germinate easily only if frost action is withheld and that they prefer soil rich in lime. In nature *Halleri* strays into damp rock fissures from the Alpine meadows and thereby is a connecting link from the meadow to the rock species, which Jelitto calls "The jewels in the Primula Kingdom."

**belodoxa** (4) Burma and Yunnan, "a tall Candelabra, whose whorls of rich yellow gleam like a ray of sunshine on the darkest day, bringing light, life, and fragrance into the garden picture. It is indeed a great acquisition and rightly earns the title Glory of the Bog." (Mabel Hibernson, Victoria, B.C.) "I cannot imagine anything, even *prolifera*, easier and better than *belodoxa* as this lovely plant grows in the Wild Garden at Wisley — often 5' tall and with 8-10 tiers of flowers... it is a plant for the woodland, the river bank, the marshy meadows, and even the bog." (F:RHS, 12/52) "*P. belodoxa* is without a doubt one of the most outstanding Candelabras. Under local conditions, part shade and a deep weekly watering during the summer, we have grown this Primula to extremely large dimensions. It certainly has character of foliage (leaves 14" long and 3" broad, tapers to a long winged stalk with a heavily thickened midrib) cannot be mistaken for any other species. It does require ample spacing in planting. It gives no trouble at any stage of propagation and is really satisfactory. We do not find the flower stalks weak." (George B. Boving, University of B.C., Vancouver.) *P. belodoxa* is starting to naturalize itself by the creek in the ravine at the Quarterly garden and everyone has enjoyed them with the exception of one guest who wanted the flowers to be closer together in the whorls and who thought that the whorls were too far apart and that the foliage could have been a little smaller. As far as we know, *belodoxa* seed comes true as it does not cross with any species in bloom at the same time. We are very anxious to get seed of *imperialis* so that we may save pollen from this early blooming candelabra to cross later in the spring with *belodoxa*. At Mrs. A. C. U. Berry's garden there is a raised bed of a host of *belodoxa* framed in natural logs and placed at the base of a hill which is covered with species rhododendron of every size and shape and color. Rare trees and blooming magnolias take up the vista to the left and to the right are several beds of other blooming species of Primula. *P. belodoxa* commands her audience with all this competition, her color is beautiful when seen in the individual flower, but it is truly a "Glory" when seen in a mass.

**beucherifolia** (7) W. Szechwan in grassy waste and shady places at 6,500-10,500. "One of the loveliest of Primulas. The thin wiry flower scapes are 6-12" tall and carry an umbel of 3-10 pendant bells of a rich deep wine. (These may range from a mauve pink to a rich deep purple and according to Fletcher may have variously coloured concentric rings at the throat.) The rich deep color inten-
sifies and concentrates toward the throat to disappear behind the platinum anthers. The calyx is star shaped, the foliage is scant, the leaves are held above the ground, are downy, and are 2 1/2" long, deeply scalloped and veined. It bloomed for us here at Barnhaven about the first of April, by the middle of May it was just past its prime. The plants were still making new leaves in October but were completely dormant by the first of the year at which time the plants are intolerant of too much moisture. They started pushing through the earth in March like little furry unfurled flags. P. beecherioides is easy to grow and it can be divided after blooming or be allowed to spread about on its creeping stolons. (Florence Levy, Gresham, Oregon).

*byacinthina* (17) Tibet. Maximum range 8,000' on stony hillsides and at the base of cliffs. It closely allied to *bellidifolia* and in fact may one day be listed as an Eastern form of that species. (F:SRGC) The scent is the same as that of *bellidifolia* and the chief justification of classifying *byacinthina* as a new species, when Kingdon-Ward brought it in, was that it had a plating of farina on the lower surface of its foliage. This characteristic has since been found to be not constant. Here at the Quarterly garden *byacinthina* is much smaller than the measurements given by Smith and Fletcher. The leaves, up to 6-7" (2-4) long and 5/8-3/4" broad, are usually well covered by white or pale tawny hairs above, farinose below, and arrange themselves in neat rosettes. The scape is 12-16" (4-10) tall, white mealy, bearing a compact head of rich violet colored flowers which may well measure an inch through. The plant apparently has a tendency to become more farinose under Alpine house culture where its winter rest may be complete. 'This Primula when seen at its best is a truly lovely one, and is rightly named for it has a delicious and powerful scent of hyacinths. It is easy to germinate and to get good flowering plants. It is one of the Primulas which I nearly always lose after flowering, due to the constant winter wet, but undauntedly I try and try again.' (Cicely M. Crewdson), (pictured on p. 91).

(P: incana) (4) Sikki m Himalayas. 11,500'. A beautiful, robust, deciduous perennial species with a tuft of oblong leaves, from 6-10" long, rounded at the tip, and tapering at the base into a winged stalk; margins furnished with sharp, curved teeth; both surfaces pitted with glands which exude a yellowish secretion, underside pale. Flower stem up to 2' tall, stout, coated with sulphur meal at the nodes formed by the umbels, which number one or two and are placed one above the other. The numerous blossoms are of an intense violet color, with broadly heart shaped or rounded, notched lobes, with at times a tooth in the sinus, and measure about 1" across; tube cylindrical, at least twice as long as the calyx and is dilated upwards, with a ring in the throat, smooth outside, downy within. Flowers in July. Good fibrous loam and peat, in a damp, open spot, should suit it. "... flowers of a pretty shaded pale pink, which is not quite matched in any other primula. Worth growing if variety is sought." (H. D. McLaren)

*impressa* (4) From the damp shady places on the mountains of Java at about 8-11,000'. Its leaves are up to 12" in length and to 3/4" broad; tapering sharply to the petiole, which is winged. Margin finely dentate, lower surface of leaves sometimes more than lightly dusted with meal. Scape is much longer than the leaves, and bear from 2-4 tiers of flowers, made up of numerous individual flowers. Flowers are bright yellow, orange, with the corolla-tube twice as long as the calyx. "I would place it at the head of the yellow Candelabras but unfortunately it is not hardy enough for any but the more favored parts of Britain. The hybrid between *impressa* and *helodoxa* retains the superior colour of *impressa* with the hardiness of *helodoxa.*" (F. C. Puddle: AG, Vol. 1, p. 77)

*inayatti* (11) "flourishes at low levels between 3,000-5,500' and blooms in Kashmir from January to March." (see RHSJ: 6/51, p. 197: F. Ludlow) Leaves at flowering time 21/2-4" but reaching 4-1/3" by the time the seed is ripe. The breadth extends from 1/2-3/4" to as much as 4 1/2" with maturity. The leaves remain almost strap-like, bright green above, below covered with sulphur yellow to silvery meal. The flower stem is red, is 9-15" tall, stout, downy upwards, and bears a loose, rounded umbel of 6-12 pale lilac blossoms, each with a yellow eye. The corolla measures about 3/8" across, divided into five broadly heart-shaped, shallowly bident lobes; tube short, cylindrical. Dr. Ludlow writes that he considers it worth while as a garden plant not only because of its intrinsic beauty but also because it is one of the earliest harbingers of Spring.

*incana* (11) Rocky Mountains. Mrs. A. C. U. Berry, Mr. Lew Levy, and the writer were thrilled to find *incana* in full bloom along a meadow stream in Lehi County in Idaho on May 23, 1953. The grey clay of the stream's banks was plowed by the hoofs of the wild horses of the locality and no doubt *incana* had provided brunches for these same creatures. Those clumps which were left almost poured themselves in to swift stream and none at all were to be found away from its sides. *P. incana* is a deciduous perennial with a short rootstock with fleshy, fibrous roots and a rosette of very miniature crinkled Polyanthus type leaves about 1-2" long. The flower stem is slender but strong and 4-6" tall, and bears an umbel or head of 2-14 or more white flowers. (Other forms may be lilac or lilac pink with yellow throats) *Primula incana* can never attain the showiness of a Polyanthus or an Auricula. But for those who prefer their beauty in small packages, the plant has much to commend it. The first impression is that of a silvery tuft, the
leaves all basal. The method of division is much as with Polyanthus as several crowns are closely crowded together into a tight little clump. (see art by Mark and Claire Norton in Bull. Amer. Rock Gar. Soc., Vol. 6, No. 2). Mrs. Berry planted part of the collected plants on the banks of her little stream but they did not flower this spring as yet. The ones planted by the Quarterly creek left their blue clay behind them and silently stole away. *integrifolia* (2) is found at elevations of 4,800-9,500' in the Pyrenees, not in the mountains of France, but again in middle and eastern Switzerland, the Tyrol, and extending slightly into Italy. It prefers sun, grows in humus overlaying granite and limestone. The leaves are no

(Courtesy Country Life)

P. *integrifolia*

more than 1½" long, and the entire plant is something like 3" high. The leaves at first form a compact rosette, later become of a loose habit; rather soft and thin in texture for a plant of this section. The color of the flowers is rose-\-lipac, or magenta lilac and rarely white.

*intercedens* (11) Great Lakes region. It has been grown in gardens but it is rather a difficult plant and at best short lived in captivity. The species is suspected of crossing with an associate, *mitasiatica*. The accompanying picture has been published as *incana*, but *incana* has leaves of an entirely different character although the flowers seem similar. *P. intercedens* is a slender plant with obovate or oblanceolate to spatulate leaves, from ½-2½" long, narrow, with yellow meal on lower surface; margin crenate-dentate or sub-entire. Scape, calyx and pedicels are more or less mealy. Scape 4½-10" tall, bearing an umbel of 1-10 flowers, lilac, with a yellow eye.

*involucrata* (11) Himalaya from Kashmir to S.E. Tibet. 10-14,000'. Dr. Ludlow found this species associated with *Reidi* in moist situations such as marshy meadows and along the banks of streams, the two white-flowered Kashmir Primulas together, a most pleasing combination. The flower stems are 4-12" tall which makes it larger than either of its close relatives, *sibirica* and *yungogensis*. The leaves are smooth, small, oblong, and very glossy. It derives its name from the elongate bracts which form a kind of involucel. "It has long been a favorite in our rock gardens where its white, or slightly mauve-flushed flowers exhale their sweet scent in May and June. It is a perennial plant without form. The umbel bears from 2-6 (4-10) usually somewhat nodding flowers. The flowers are most commonly white with a yellow eye. A cool spot and soil rich in humus suit this plant well and old clumps may be freely divided in early spring. (WI) *P. involucrata* appreciates moisture at the roots the year around.

*ioessa* (26) S.E. Tibet. 11,500'. Leaves are from 2½-8" in length, smooth, papery in texture, midrib prominent. Calyx almost black. Flower stem from 4-12" tall, mealy at top bearing an umbel of 2-10 flowers, pedicels are dusted with yellow meal. The flowers are pale madder-pink, pinkish-mauve to violet, funnel shaped. Cultural requirements are much the same as for its nearest relatives *Waltonii* and *yikkimensis* var. *Hopeana* from which it differs in a much inflated corolla and in the form of its leaves. *P. ioessa* var. *subpinatifida* varies from the type only in flower color, being white to creamy-white and sometimes purple or violet tinged. The best color forms are preserved by careful selection and weeding out of the poorer forms.

*Jaffreyana* (11) S. and S.E. Tibet. "A short distance from Sang we climbed a rough track through dry evergreen oak and entered mixed forest. It was rather surprising to find a species of Primula flourishing on the sun-baked banks but

(Courtesy Mark Norton, Laporte, Colorado)

P. *intercedens*

P. *Jaffreyana* is happiest in such exposed situations. Later in the season we saw an abundance of the species, in similar places, in its winter resting state when the rosette leaves were shrivelled and dry, powdering to the touch and the roots were wrinkled and contracted and merely served for anchorage. In the centre was a tiny hard bud with no external appearance of life whatever, but removal of the tight bud scales, however, revealed the minute green germ from which the next year's plant would develop. A number of these desiccated plants were pulled up and brought home, surviving about two months' journey, and produced beautiful flowering specimens in the following year. (Dr. George Taylor: *RHS* 4/47) It is important to *Jaffreyana* that it have excellent drainage during its rest period and its position in nature could be imitated by growing it on a bank which would insure it from suffering from too much wet. If it is planted among but not under Rhododendron and Magnolia it will be well suited as it starts its growing period with the same nourishment afforded these shrubs. The best stand of *Jaffreyana* was found by Ludlow, Sherriff and Taylor on their wonderful and productive
journey in 1938 at about 12-13,000' where the rosettes measured nearly 6" across. The stalk which grows from 2-10' in cultivation was 8" and the inch-wide corollas were held on pedicels an inch long. In cultivation the flower stalk and the flower measure only half as much. The corolla is mauve to pale blue-violet and has a green eye. This is the plant whose picture graces the jacket cover of the new edition of Corsa's PRIMULAS IN THE GARDEN. There are those who prefer Taylorana.

japonica (4) Endemic but not common to the two northern-most islands of Japan. P. japonica was one of the four species, the others being imperialis, prolifica, and Poissoni, which Sir Joseph Hooker, in 1892, termed the "Imperial Primroses." It has been proven at the Quarterly garden that japonica is perfectly hardy under adverse conditions. It has been grown on a hillside with little water and in heavy soil and has even nurtured baby plants to maturity without the prescribed care. The plants are not as large or as lush as plants grown by the waterside, but they are very beautiful in droves down the hillside. They grow in the borders with average border care, in fact they seem to grow and thrive anywhere the seed is scattered. Of course this part of Oregon is known for the humidity. Except for the inside of the calyx lobes, which are thickly coated with white or cream colored meal, the plant is free of farina. The 12" leaves are typical, 5" broad through the middle. The margin is sharply irregularly dentate; lighter green and thinner in texture than those of other Candelabra. The scape is stout, erect, to 30" tall, bearing as many as 6 superposed whorls, the topmost umbel crowded. The original plant, before garden culture brought changes, bore purplish-red flowers. It is said that this species planted in a mass is a weed killer and this can easily be imagined as the huge tropical like leaves cover an area as densely as some of the soil hugging dandelion. We cannot get such a stand here as it is much too attractive. It is a fine gift for the neophyte as it is so easy to grow. We generally give two large plants and a handful of seedlings and the next year we meet our triumphant recipients who are ready to tackle practically any garden subject after their great success in growing this spectacular plant.

joseana (7) Mountains of central Japan. The species was first flowered in Edinburgh in 1932. This is a handsome plant with long pedicels supporting the leaves which are obicular in general outline, the blade 3 1/2-4" long, 3 1/2-5" broad, often hairy, usually deeply cordate at the base, 7-9 lobed; the lobes lobulate, irregularly dentate to incised-dentate at margin. Dark green and almost smooth above, but some specimens bear sepals hairs on the upper surface; paler below, often with hairs along the veins. Midrib and certain of the basal or subbasal lateral veins impressed above and prominent on the lower side. A soft hairiness is evident on the pedicels, scape, bracts, pedicels and calyx, often times reaching the density of furminess. The scapes are long, reaching a height of 24", bearing 1-4 umbels with 4-6 flowers each. Corolla rose or rose-purple, with yellow eye. Farrer says that it has no special charm but the leaves alone, on a well grown group of plants, are a beautiful addition to the shaded wild garden where it grows to perfection in a pocket of leaf mold, peat moss, bone meal, and good loam.

Juglandiana (28) Known only from Bhutan and only Ludlow and Sherriff have collected it. (L & S 21187) The only member of the Soldanelloides Section which deviates from the type by having a scape which bears a solitary flower. The rather spathulate leaves which form a rosette and are glabrous and effusine, are about 4 1/2" long and taper into winged petioles which are equal in length to the blade which is about 3" long. The corolla has an annulus, funnel-shaped, mauve-blue with a wine-purple ring, and is suberect or nodding. The calyx is green or blackish-green, cup-shaped, occasionally bearing farina lightly. Mrs. John T. Renton "brought Juglandiana in triumph (and in flower)" to the Scottish Rock Garden Club Show, in Edinburgh, in May, 1950. It is "a most delicate little plant about an inch tall usually carrying on the slenderest of scapes, a single nodding mauve-blue flower." (RHSJ: 11/51)
have no rock work. The plants as a whole contrive to project an air of well-being, of a certain happiness and friendliness, which most gardeners learn to recognize.

Kausmanniana (7) Although grown and flowered at Edinburgh until recently and remaining in gardens of England and the continent, seeds have never been available to gardeners generally. The plant is native to central Asia and to Turkestan at elevations of 5,000-12,500'. It is closely related to and occupies the same general area as lactiflora which was originally discovered in golden Samarkand. Kausmanniana is a more or less hairy plant. Leaves, including the petiole, which is tawny haired, are 3/4-8" long; the round deeply lobed blade measures ¾-3 ½" through. The leaves are usually smooth above, deep green, lighter in color below and covered with fine hairs. The midrib and four to six pairs of lateral nerves are impressed above and conspicuous below. The flower stem is 3½-8½" tall, bearing one, sometimes two closely superposed umbels, with 3-6 violet colored flowers to each. "Plant in loose humus and half shade." (J.L)

kidensis (11) 6,500-13,000' Szechwan. "One of the many from China that have been lost." Farrer named it "Rock Nymph Primula" and he has written of it beautifully in many of his books. . . . you may best picture scorpilorum (kidensis) as a specially fine head of hirsuta (rubra) applied upon a creamy mealed single rosette of frondosa."

Kingii (1) was first collected in 1878 at 13,000' in the Sikkim Himalaya by the indomitable Dungbo, Sir George King's collector. Seeds have been available through the Scottish Rock Garden Club Seed Exchange. Kingii is a difficult species but excellent gardeners such as Mrs. Shaw MacKenzie may be able to tie her record of having ten year old plants. These were raised in a bog garden and are a black flowered accolade to her genius with plants. The complete length of the unmatted leaves is no more than 2½", they are elliptic-lanceolate to lanceolate; scape tall for size of the plant, reaching a height of 8", bearing and umbel of up to 10 semipendant flowers of an unusual dark colored flower to each. "Plant in loose humus and half shade." (J.L)

Kitaibeliana (2) "My own plants are doing much better planted out than in pots. It forms a very characteristic rosette of ovate, yellowish leaves, which are intensely sticky, and are said to have an unpleasant odour, though this I have not noticed. Perhaps I was too excited and pleased to have the rarity at all to observe any unpleasant traits in its character, though I was hard put to remain so charmed with it during its first season here, when so many of the plants died. The scape is two or three inches high, and carries but one or two large flowers of rose-lilac, paling at the throat. It hails from the untrodden tracks in the mountains of the Balkan Peninsula; so far it seems to prefer limestone, and not too full an exposure to the sun." (W.I.A.G. Vol. I, p. 60)

Knuthiana (11) (the following is not substantiated by Smith and Fletcher) Farrer explains the controversy about this species in the following manner. "Its home is in Shensi, where it has two forms of which ours should clearly be Knuthiana var. major Pax, which spindly specimens were figured by Pax, thus leaving us in wonder as to how worthless must be the lesser variety, Knuthiana brevipes, which Pax indeed figures as neater in the leaf and fuller in the head—but far indeed from the full-fed amplitude of the Knuthiana we possess, thanks to Purdom in 1910. . . . Its rosette is rather like that of a most magnificent frondosa, crinkled and waved in the powdery grey foliage; the stem rises stoutly up for 3 or 4 inches, as sturdy as a dentilata, and with flowers to continue the comparison, such is the almost artificial opulence of the round head of blossom it has to carry, the corollas being large of soft lilac-rose, and so spaced in the royal orb as not to crowd upon each other, but show their individual outlines, which have a waviness that adds to the sumptuous effect of the whole portly plant. It is of perfectly ready culture in good and well-drained soil; it not only seeds but throws out rooting runners; it not only throws out rooting runners but makes younglings from root-cuttings, with the most admirable readiness. (The English Rock Garden, Vol. II, p. 148)

Kisoon (7) Cultivated for over two centuries in Japan for its foliage as well as for its "beautiful flowers of brilliant deep rose" which are carried in umbels of 2-6 on stems 3-8" high. P. kisoon is a tufted, perennial species with the whole of its foliage and stems more or less clothed with silky down. The leaves are rounded, roughly heart-shaped, about 2½" long and the same across, borne on hairy stalks; margins furnished with rounded teeth or lobes which turn out and are wavy. The corolla is about ¾" across, divided into 5 broadly heart-shaped, notched lobes; tube cylindrical below, dilated upwards, twice as long as the calyx. This species grows easily in Portland gardens in cool shade; places bedded in leaf mold with a groundwork of small stones to give required drainage. The plants lose their leaves in winter, going underground leaving but the tip of the bud exposed. The flowers open before the leaves are fully developed. Once a plant is established it is easily propagated by division.

lacerata (21) If this species is not in cultivation it should be. "For some years it grew very vigorously in Edinburgh, producing an abundance of bright pink, orange red flowers (with the petals conspicuously fimbriated or lacerated). . . . it offers a ready means of vegetative propagation for the scape produces vegetative buds at its apex, exactly in the manner of bracteosa. . . . (these) produced roots within a few days." (F: SRGC) A slender, delicate, perennial species of great beauty, with a tuft of papery leaves 1-2½" long, with nearly circular blades about ¾" across. Flower stems usually numerous, slender, minutely downy, 6-9" tall, bearing from 3-7 sweetly-scented, lavender-blue blossoms to bright pink with an orange eye, on erect stalks about ½ long. The corollas are as toothed and lacy at the edges as are frost pictures. This species enjoys a long blooming period. (see fig. 154 RHSJ 12/52)

laciniata (11) Szechwan in wet places or near springs and seeps at near 14,000'.

(Courtesy Country Life)

P. Kitaibeliana

(Courtesy of Al Monier)

P. kisoon
Leaves up to 5" long, narrow; cleft, but not midrib; irregularly toothed; at times with a few inoperative farina glands scattered over upper surface. Scape up to 21", mealy toward the tip, carrying 1-2 umbels of 5-2 flowers; bracts thickly farinose; corolla pinkish-mauve with a white eye, marked with yellow at the throat, lobes deeply cleft. . . . the cut-leaved pinkish-mauve flowered *laciniata* Pax et K. Hoffmann which Dr. Harry Smith gathered in 1934 and introduced to European gardens. From Dr. Smith's seeds plants flowered at Kew and at Edinburgh in 1937 and these were beautifully figured in the Botanical Magazine two years later. In Edinburgh they were very shy to produce ripe seeds and are now lost. If *laciniata* is in cultivation elsewhere it is exceedingly rare. (F:SRGC)

*P. luteola* (7) Tibet, 11,000', in dense shady forest. A handsome, deciduous, perennial species with a slender roottstock which produces a sparse tuft of membranous leaves, with generally deltoid blades about 2" long, very deeply cut into about 7 narrowly egg-shaped lobes, with wide, rounded notches between each lobe; both surfaces clothed with long, white hairs, the underside densely so; the blades are borne on slender stalks about 4" long, covered with long hairs. Flower stem about 6' tall, slender, more or less hairy, bearing an umbel of rose-colored blossoms on erect stalks about 1/2" long. Corolla about 3/4" across, with broadly heart-shaped, notched lobes; tube cylindrical, smooth, about 3/8" long. Flowers in June. . . . never apply water overhead in such a way that it might fall on the leaves or penetrate into the heart of a plant. Old plants may be divided up in early spring, at the time when the new year's growth commences; seed is more or less freely produced. Increase of stock is, therefore, by no means difficult, and as the species is not troublesome to grow there is scant reason for its absence from British gardens." (C) It is grown out of doors at Wisley.

*P. latissima* laurentiana (11) is a comparatively small plant common to the lands on the Laurentian highlands of Labrador, Quebec, Nova Scotia and Maine. The plant was long confused with *farinosa* of Europe. It is, when typical, taller than the European plant, with longer bracts, a more farinose calyx, and larger seed capsules. It has been in cultivation in England since 1831, usually from Canadian seed. A mealy plant, sometimes fragile in appearance, leaves nearly always white farinose below. Flower stem sometimes reaches height of 18' carrying an umbel of 1-17 flowers. Corolla lilac to pinkish-purple, orange eye and yellow tube.

*Loeseneri* (7) is a species with its identity much entangled with others, especially *jesoana*, and its present status is not firmly established. First plants grown in European gardens were probably those grown by a Danish gardener from seeds originating on the banks of the Yalu River on the Korean-Manchurian frontier. It has never attained popularity as a garden plant of the west. It is a large species up to 28' tall, with leaves 15" long and 7" broad. In color the flowers are rose to crimson-lake, with greenish or yellow eyes.

*longipes* (18) Alpine house as intolerant of wetness in winter. "*P. longipes* is a fine robust Primula forming tufts of oblong leaves from which will rise a 12" scape supporting an umbel of a dozen purple flowers. The requirements of this species, as far as soil is concerned, are easily met, just a heavy loam which can be kept moist during the active season is all that it needs. The drainage of pots must, however, be good, for excessive moisture at the roots or around the neck of a plant during its dormant period will certainly cause death. As this is a strong-growing Primula mature plants will require rather large pots, and one of 6" diameter will not be too roomy for a flourishing specimen. Annual repotting after the flowers have withered will be necessary, and a top dressing with a rich compost during the early part of the year will prove beneficial." (C)

*P. luteola* (11) E. Caucasus, 4,500'. Foliage very lush, forming large crowns of lanceolate, elliptic, coarsely dentate leaves, which stand upright held so by stout buttressing stems. . . . well above these in July and August it sends stout stems of 8 or 10' or more, carrying large rather dense balls of large, soft sulphur-coloured blossoms, full in outline and of the utmost preciousness and comely charm in themselves, to say nothing of the fact that they have no competition then to meet, though they would cope well with the keenest. *P. luteola* can easily and often have its clumps divided, and grows with equal zeal in sun or shade, the only thing it asks for being richness, coolness at the root, and good drainage." (RF)

*macrophylla* (18) 13-17,500'. That this Primula is variable in all its forms is evidenced by the variance in its pictures which may be found in AG, Vol. 14, p. 136, and in the RHS Journal of June 1950 and 1951. The more definitely developed form inhabits the western Himalayas, but also occurs in Nepal, Sikkim, Bhutan, and the extensive half-explored upland between eastern Himalaya and the western-most provinces of China. Here dwell many members of the Nivalis Section, differing but remaining very similar, and with them are an array of intermediate forms, not fully established as to identity. A puzzling group for the taxonomist working with an inadequate amount of collected material. The stout scape is 5-10", is farinose toward the top, and bears an umbel of 15-20 purple to lilac flowers with a dark purple or yellowish eye. The lanceolate yellow powdered leaves thrust upward 2½-5" from broadly winged petioles, which may equal the blade in length, and which are wrapped at the base in a sheath of outer scales. The corolla is annulate and measures nearly an inch across. Dr. Ludlow has remarked on the variance of and described the varieties of *macrophylla* in his fine article THE PRIMULAS OF KASHMIR in the RHS J. 6/51. . . . more distinctive (than the type) is the plant we call *macrophylla* var. *macrocarpa* (Watt) Pax and not only is it dwarfed more than the type, but the farina on the underside of the leaves is usually yellow, the calyx large and leafy and cut almost to the base, the eye of the corolla constantly white, and the fruit quite huge for the size of the plant, often an inch long in fact. I do believe this
plant should be given specific rank. (F:SRGC). If it were possible to go to Major and Mrs. George Finlay’s "wonderful garden" at Kellour Castle in Scotland, where **P. macrophylla** var. **macrocarpa** is grown, the sight could reinforce the description. **P. macrophylla** var. **lanceolata** has narrow lanceolate leaves which equal the petiole in length. **P. macrophylla** var. **Moorecroftiana** is not at all impossible to flower but is difficult to keep. It varies from the type in its smaller size, longer bracts, notched corolla lobes, and longer leaves. **P. macrophylla** var. **nigridia** is distinguished with the calyx cut almost to the base into linear segment.

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P. *malacoides* as grown outside in Dr. Blasdale’s garden in Berkeley, California

**malacoides** (14) "It is a dainty grower, carrying light and loose flower clusters rising on slender stalks which appear from the handsome rosette of basal leaves. The flowers reach some 18"-2' in height, and when grown in the mass the feathery appearance is most attractive. The blossoms are a delicate rosy lilac. This is shown off to advantage by the white mealy calyx and white flower stems." (C&T) In Yunnan, near the village of Tali, the very numbers of this plant make it a weed of the cultivated fields. It is bound with bundles of bean vines and with other cereals, and its seeds are thus widely scattered. The seeds are easy to germinate and transplant and the resulting plants are a decorative addition to any coldhouse in a moderate climate and to the greenhouse in colder areas. It will bloom inside for several months during the winter and early spring. This "Fairy Primrose" is a perennial which is better treated as an annual. Walter Blasdale, to whom we are indebted for the accompanying photograph, has fully and interestingly described this species and its improvements, which have resulted from selection of the best forms, in his book **CULTIVATED SPECIES OF THE PRIMULA**. In California, it is grown out of doors and is considered to be one of the most desirable bedding plants for spring flowering. "I have known it to survive six degrees of frost for five successive nights without injury." (B)

**malvaea** (15) Yunnan 7,500-12,000'. The corolla is pale or dark rose, occasionally blue with a yellow or greenish-yellow eye. A peculiar feature of the plant is its inflorescence, which sometimes is in whorls of 1-8 individual flowers, but at other times its flowers are arranged in a raceme. The leaves resemble those of *buthangensis*. The scape is from 1-4'/6' high, sometimes slender, more usually sturdy. The white form **malvaea** var. **alba** has taken to garden culture more easily and is more or less widely established.

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**P. marginata**

**marginata** (2) Maritime and Croatan Alps, 2,500-8,500'. "... of all the rock species the easiest, and the most fascinating, and the most beautiful. The large pointed leaves are of a hoary grey-green, and their deep-toothed edges are most delicately scalloped with white meal (thus the specific name). Mealy too are the (3") stems, and then the flowers (up to 20) are very large and of a soft, clear lavender blue (3/4-1" across.) The plants are inclined to form long woody rhizomes and the leaves are narrowly ovate, deeply and regularly toothed." (F) Members of this species require good drainage, are not particular as to soil, "grow on limestone or granite, sun or shade. We grow it between stones or high on a ledge. It is not so beautiful as its hybrid Linda Pope." (Mrs. Sharples, Lancashire, England.)

**Matsumurae** (11) Japan, Korea, E. Siberia. Leaves, including the winged stalk, which is shorter than the blade, are 3/8-3/4" broad, ovate or obovate, margins obscurely toothed, sometimes with a little farina above and densely yellow mealy below. The 2-6" scape bears an umbel of up to 12 bell shaped flowers which are almost 1" across, purplish-rose in color, tube often yellow or of a yellowish hue.

**Maximowiczii** (18) was found on a mountain near Peiping in China at about 8,000'. It was first flowered in England in 1910, the plants coming from seed sent by Purdom to the firm of J. Veitch & Sons. There is some question of the color of the corolla, it having been recorded as dark, clear purple, intense crimson, red and yellow.

... At 11,500' amongst shady rocks in the forest, we found **P. Maximowiczii**, one of the least attractive species with maroon corolla tube and plum-purple reflexed lobes." (Dr. George Taylor: RHSJ, 4/47.) More curious than beautiful.

**megaseaefolia** (30) is at home in mountains bordering the Black Sea. It is found in moist shady gorges at about 1,000' under Rhododendron shrubs. In some localities it is considered winter hardy and trustworthy except for a reluctance to set seed, but its flowers, 2/3" across are a strong magenta-lilac. It produces flowers in midwinter. The plant is hairy, with leathery leaves, roundish, supported by short red petioles. Scape to 6", red-tinted as are the petioles. In the N.W. U.S. and in England this species is grown in an unheated house where it is valued for its early flowering.

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Margaret A. Quick

Photograph by Walter Blasdale.
The base of the plant above the root is often encased in a mass of papery scales and the remains of old leaves, and may extend thus for as much as 4". Above the mass appear the true leaves with wide-winged petioles, which at the beginning of growth may be quite short but as the leaves mature lengthen to half the length of the blade which is 10" long and 9½-1¼" broad, lanceolate, with the entire or finely crenate margin obscured by recurving. Leaves are of firm texture, heavily covered below with white or yellow farina to obscure the veins but not the prominent midrib. Scapes stout from 3-1½", 1-3 from each plant, white mealy at apex, bearing 1-2 umbels with 5-12 flowers to each. Corolla deep Tyrian purple with a black eye, (many variations) tube almost twice the length of the calyx. In form the plant resembles a dwarf chionantha, with sweetly fragrant flowers.

membranifolia (11) Yunnan. 9-11,000'. A beautiful tufted perennial species, with thin, pale green, broadly oval or egg-shaped leaves, from ¾-2¼" long, tapering towards the base with unequally toothed or bi-serrate margins; upper surface more or less smooth. underside densely coated with sulphur-colored meal. Flower stem ½-2" tall, coated with yellow farina, bearing an umbel of 4-9 soft, violet-rose, slightly fragrant blossoms with a yellow eye. Corolla ¾" plus, slightly concave; lobes broadly heart-shaped, notched; tube funnel-shaped, greenish-yellow, 2-3 times as long as the calyx. Flowers from May to August. Grow in peat, leaf-mold and chopped Spaghnum, in a cool, shady spot, keep saturated with moisture when the plant is in growth. It should have a moist soil, well founded with humus either leaf-mold or peat, and good drainage, for it cannot tolerate moisture about the crown during dormancy. Andrew Harley of Devonhill advises that it is better lifted and divided every second or third year and that it can be flowered 18 months after sowing seed.

melanops (18) 16,500'. S.W. Szechwan. The leaves are Vi-Vı " long, tapering towards the tip, 6,500'. S.W. Szechwan. The base of the plant above the root is often encased in a mass of papery scales and the remains of old leaves, and may extend thus for as much as 4". Above the mass appear the true leaves with wide-winged petioles, which at the beginning of growth may be quite short but as the leaves mature lengthen to half the length of the blade which is 10" long and 9½-1¼" broad, lanceolate, with the entire or finely crenate margin obscured by recurving. Leaves are of firm texture, heavily covered below with white or yellow farina to obscure the veins but not the prominent midrib. Scapes stout from 3-1½", 1-3 from each plant, white mealy at apex, bearing 1-2 umbels with 5-12 flowers to each. Corolla deep Tyrian purple with a black eye, (many variations) tube almost twice the length of the calyx. In form the plant resembles a dwarf chionantha, with sweetly fragrant flowers.

minima (16) Syn. Heydei. A dwarf, mealy plant growing at altitudes of 11,500-17,000'. Mat-forming, with leaves and flowers barely lifted from the earth. Leaves small, ¾" long, 1/16" broad. Sometimes stoloniferous. Corolla dark reddish-purple with a yellow eye. . . has a single microscopic pink bloom resting on a rosette of leaves less than half an inch across; this absurd Lilliputian is further delicately powdered with a silvery-yellow farina.

mystassinica (11) was first collected by Michaux near Lake Mistassini in Quebec, and its distribution extends over Labrador, Newfoundland, and the eastern provinces of Canada, and in Maine, Vermont, Michigan, Minnesota, and New York States. It is a small perennial plant at times forming flagellums or leaf-bearing stolons. Leaves up to 3" long, narrow, ¾-½" broad, ob lanceolate or spatulate or obovate, rounded or blunt at apex, sessile or borne on short petioles, often dentate or denticulate in the upper half with 2-15 pairs of teeth, or subentire. Sometimes the plant is lightly farinose. Scape 1-8" broad, bears an umbel of 1-10 pale pink, blue, lilac-purple, or white flowers with a yellow tube and with or without a yellow or orange eye. P. mystassinica var. noveboraccensis is a white form found as far south as Illinois. The largest stand that I have found was in the gorge at Taberg, N.Y., growing on the almost vertical sides of the gorge. Many plants in a very small area will be found showing that they seed in readily and also multiply from the mother plant as does Juvia. In the Taberg area, I have found white, pink and lilac colored flowers among Blue Bells of Scotland, native Columbine and Grass of Parnassus. These grow together with Bladder Fern and Maiden Spleenwort on the narrow moist ledges of the shale. The rocks in this gorge are always moist. I have transplanted plants of mystassinica to my garden but the only location they will grow is in a north wall made of limestone rock where the natural seepage from a high bank keeps them moist most of the year." (Miss Willfrieda Mott, Baldwinsville, N.Y.)

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modesta (11) To create an attractive display this Japanese Farinosa should be grouped, and for their well being they should be supplied with some shade, and good turfy loam in a situation similar to that furnished its European relative, fari-
nosa, which it closely resembles. The corolla is pinkish-purple, however, and it is smaller generally, the scape measuring less than 6”.

mollis (7) Bhutan. To some gardeners the foliage, the flattened clusters of broad leaves, oblong elliptic-spatulate, 1-5” long with winged petiole of equal length, is more attractive than the flowers which are dark rose to lighter shades, with sometimes a shading of maroon, with a gray-green or yellow eye. The corolla is less than ½” across and is held on 5” scapes in whorls of 3-4. “When I received seeds of mollis from the last L & S expedition I understood it was a semi-tender species, and a cold house at least was required. I was agreeably surprised to find they all survived outside during their first winter and have done so up to the present. (April 1954) The big leaves in this species are round and roly poly hairy. The flowers, I admit, are small and even insignificant, but they are pretty being a peculiar shade of rosy-red. A mass of plants together is an attractive sight.” (Cicely M. Crewdson, Kendall, N.W. England)

moschophora (16) 12,000’ on moist stony pastures in W. Yunnan and Burma. Dwarf, mealy, stoloniferous, with a short rootstock. Naked flagellums up to 3” are produced, each tipped with a leafy bud. The leaves, densely white farinoso below, are arranged in rosettes. Scape slender, mealy, about ½” tall, usually 1 flowered but sometimes bearing 2-3. Corolla lilac to purplish-rose with a gray or yellow eye and is pomponed and napped at the throat with a wispy of hairy hairs.

muscarioides (17) Yunnan, Szechwan, S.E. Tibet in moist open spaces as in meadows or pastures. Once a widely cultivated species which has lost popularity to Vslai. Leaves light green, obovate-spatulate or elliptic to oblong, up to 8”, tip rounded, margin crenate-dentate, upper surface slightly hairy and shining. Scape to 18”, bears heads of small fragrant “dainty flower heads” of “soft violet blue,” reflexed and closely set in a spike-like head. The corolla tubes shade into pink. “It is sometimes very early flowering, I have known one accidentally to open in March, though April to May is its proper season. Seed can be sown green, which seems to hasten germination.” (Louise Walsmsley AG, Vol. 13, p. 69) It is best to save and sow seed as this species sometimes has a monocarpic action in cultivation.

nepalensis (21) This year (1951) the very close ally of P. Griffiihi, the yellow-flowered cordate-leaved P. nepalensis W. W. Sm. (L&S 21015) has also flowered at Keilour for the first time in culture and seeds have been harvested. This introduction is of particular interest, for until Ludlow and Sheriff sent home their plants from Bhutan, P. nepalensis had been gathered only in Nepal.” (F. RHS) 11/51) “An earliesse plant with a short thick rhizome from which spring numerous fleshy roots and at flowering time enveloped at the base by ovate to oblunq bud-scales 1 3/16-2 3/4” long, sometimes stained purple.” (S.F) Leaves including the petiole 4-10” long, 1 1/2-2 3/4” broad, elliptic to ovate-cordate, deeply and irregularly dentate, glabrous and farinoso on both surfaces, distinct midrib petiole 1 2 times the blade, distinctly winged, sheathing at the base. Scape 8-12”, sturdy carrying an umbel of 6-12 flowers. Corolla yellow, with a very large annulus, limb measuring ½” in diameter with oblong to narrowly obovate emarginate lobes.

nipponica (8) Honshu. 5,500’ in alpine meadow. Resembles farinosa although its closest ally is cuneifolia. The plant is not for general outdoor growing and is hardly worthy of a place in a glasshouse. The flower is pure white, rarely yellow, with a golden yellow eye, an umbel of 2-8 flowers and infrequently two superposed umbels.

nivalis (18) Mountains of central Asia. Blade 6-7”, densely covered with farina and developing fully before the stout 10-16” scape reaches its maximum height. The 3-25 flowers are borne in a single loose umbel and are violet to purple in color. P. nivalis has no relationship with the “nivalis of gardens” which is the white flowered European Auricula rubra. In ordering plants and seeds this distinction must be made. This fine Primula needs a rich soil and perfect drainage and protection from the afternoon sun. It takes up quite a bit of space and is worthy of the trouble it takes to keep it dry during the fall, winter and early spring.

Normaniana (7) On p. 353 of the 12/52 issue of the AG may be found a picture of the plants which won a preliminary award for Mr. T. R. Renton at the R.H.S. fortnightly Show held in London. At least twenty-six plants have been planted in a big pot and the result would make any alpine plant enthusiast determined to try his luck with Normaniana which was named for Lady Norman who is the sister of the late Lord Aberconway. In AG, 9/39, p. 225, there is a picture of Normaniana as it was found in the wild by Sheriff and Taylor. These are well worth a trip to the library or an order to the Alpine Garden Society to see. “It is a fairly robust-looking but short-lived perennial. It grows in damp moss and in rhododendron forest, at an altitude of 9,000-12,000’, being definitely a shade lover. The long-stalked leaves are almost circular in general outline, deeply cordate at the base and 5-7 lobed, the lobes again jagged. It could easily be mistaken, out of flower, for a geranium. The softly hairy flowering stem may be as much as 6’ long (in cultivated plants it rarely exceeds 3-4”) and carries up to a dozen flowers in a bold head. The corolla varies in colour from crimson to rosy purple, with darker crimson or yellow ‘eye’; and the finely cut fringe to the petals gives a charming air of lightness . . . It will always be a comparatively rare plant in cultivation unless protected during our wet winters. I discovered the species in the Mishmi Hills, Assam Frontier, in 1928, and the plants which flowered in Edinburgh and elsewhere were raised from seed collected then. In 1937 I found it again in the Assam Himalaya about
hybridized on one of the most beautiful Primula nutans. The leaves are long (2-8") and oval shaped, covered with fine hairs, the spike is cone shaped and in colour a lovely pale lavendar blue which is covered tightly with a fine farina or meal and sweetly scented. There are about 5-15 nodding funnel-shaped flowers on the scape which may measure from 4-20". P. nutans is quite hardy but unfortunately dies after flowering, therefore it must be treated as a biennial. My method of growing this beautiful Primula is to sow seeds during January in gentle heat in pots or pans containing a light sandy mixture of loam and peat. To avoid damping off 1 water only from underneath and transplant as soon as they can be handled. I plant them out in soil rich in humus and in semi-shade. They are top-dressed in early spring as the frost has a tendency to force the roots to the surface. A colony of nutans in flower giving off that delightful scent is a sight never to be forgotten.” (C. G. Haysom, Southhampton, England)

There are an increasing number of reports that nutans is outgrowing its monocarpic reputation. Both Ivanel Agee and Mrs. A. C. U. Berry have kept the plants over for more than one blooming. Excerpts from Mrs. Agee's excellent article in the July 1952 Quarterly follow, “... seems to be very easily lost during the seedling stage, and a hot dry wind seems fatal to these tiny plants. My plants kept in a flat covered with glass, to moisten, survived while the exposed seedlings expired in a short time. ... In late fall the bed was covered with an inch of coarse sand, which protected the crowns from rotting ... My plants began to show growth in March; they bloomed from late May through June.”

P. nutans

(obconica) (19) This very beautiful greenhouse species is not in any way sponsored by the Editors of the A.P.S. Quarterly. We do not appreciate the fact that this one time popular primula has given primroses in general a very bad name because of its ability to cause a painful and prolonged rash to appear on some of those who come in contact with it. It is not allowed as a pot plant in many hospitals. John Bacher, who has hybridized one of the most beautiful hybrids Obconica "Portland Rose" simply left his work go because of the shortage of plants. P. obconica var. werringtonensis, is a hardier type with the same proclivity to irritate.

obliqua (18) S. Himalaya thru Sikkim and Bhutan. 13,500' on moist well drained slopes, which are deeply covered with snow in winter, and beneath Rhododendron scrub. The name is derived from the form of the corolla. "The spreading corolla lobes are attractively set in a vertical plane oblique to the axis of the corolla tube." (G. Sherriff and G. Taylor: AG, 6/40) The leaves are leather-like, lance-shaped, with blades 4-8" long, yellow green mealy below with a prominent midrib, margin serrate to crenate. The scape is rigid, mealy on upper portion, bearing an umbel of 5-10 fragrant flowers, each about 1" across. Bracts and pecihes are heavily farinose. Corolla may be pale yellow or white, tinted with rose to a fleshy color, with some farina present within the lobes which are broadly obovate or subovoid and deeply emarginate.

Please see page 59, April 1954 Quarterly for the Informal Bibliography and Key to the Abbreviations of Author's Names and Publications.

Be Wise and Buy Good Seed Now

Alfred E. J. B. Kidney, Thornton Heath, Sussex, England

During my early days of gardening, fully thirty years ago, I was continually told that Primrose seed would germinate only with difficulty. What sheer nonsense this was! It is a hard coated seed compared to that of the annuals but if it is picked when it is ripe and stored properly until it is used, it will germinate easily. Of course, we all know that the best time to sow seeds, as far as germination is concerned, is as soon as possible after they are ripe, usually July, when one can expect reasonable germination in nine to twelve days. Strange as it may seem to you, I prefer to sow the seed in flats in mid-November and allow it to be exposed to the severe rigours of an English winter. The Primrose seeds are of robust constitution and can well take care of themselves in the roughest conditions, and when the first rays of the February sun warm the earth these "little fellows" are full of vitality and "up they pop" in their thousands. But whether seed is sown in July, November, or January one has to remember first of all to purchase from a reliable grower. Above all I prefer to buy direct from originators of definite strains and I have learned by experience to PLACE THE ORDER EARLY for the choice colors. Failures and disappointments in Primrose growing are more often due to the purchase of inferior seed and delayed ordering than to any other cause. Hand-pollinated seed may cost a few more pence than what one can get over a counter, but it pays because one's efforts are helped by the hand of the hybridizer whose reputation is staked upon the results.

If the accepted and time-tested procedure of planting in January is followed, it is best to store the seed in the original packet placed in an air-tight container in the refrigerator, but not in the freezing unit. The seed thus stored will give as good a germination as in July, especially if the methods given in your own Primula Planting Guide, page 53, October 1953 issue of the Quarterly are followed.

I have found after years of experience that the ideal seedling compost is comprised of (in bulk) two parts of fibrous loam, one part of damp granulated peat and one part coarse sand (this resembles fine white gravel) adding to this 1½ ounces superphosphates and ½ ounces of chalk per bushel. I would like to have you try this mixture. I have concentrated wholly on the "Barnhaven Strain" the last few years, and whether it be the Pastels, Grand Canyons, Indian Reds, Cowichans, or Marine Blues, I have had complete success and my frames of seedlings resemble a bed of Mustard and Cress. The richness of their colour and the large but perfect blooms leave me astounded. The same reliability is found in the Julians and Aculis and I can well imagine the amount of thought, care, and work that has been put in to produce this magnificent strain. At the Southern Section Auricula and Primula Society Show, held at the Royal Horticultural Hall London on the 27th of April last, I was awarded 1st Prize in the Hardy Primula Decorative Class for a bowl of six Barnhaven coloured Primroses.
The present:ation of the trophies will be made by Mr. James McDonald, the British Consul. Members who expect to attend are asked either to write or to call Miss Ivy Spencer, 9236 S.W. 40th Avenue, Portland, Oregon. Her telephone number is C.Herry 5402.

APPRECIATION OF REFERENCE MATERIAL (continued)

One of the main reference books for the Dictionary was the old 1928 Primula Conference* which has long been out of print and which is a priceless treasure because of the illustrations and excellent articles by the old plant hunters and famous growers of the last generation. If you should put in a standing order for one with your favorite secondhand bookstore be sure that you specify the edition with the illustrations.

One of the very fine books on Rock Gardening which has an excellent chapter on Primulas, is the inexpensive cloth bound SECOND ROCK GARDEN CONFERENCE** published by the Alpine Garden Society and the Scottish Rock Garden Club. This book is especially valuable to those who like to keep up on the latest introductions. It contains much information as to the cultural requirements of growing these heretofore unknown plants.

Mrs. A. C. U. Berry once said, "My books are my next treasure to my garden." She has been collecting garden books for over fifty years and when one thinks of the many hours of pleasure she has had with them one might reach out to study the old and new book lists in the knowledge that one has the power to buy in a book intellectual and even physical storage batteries which will give one an impetus toward being a better and more inspired gardener. (to be continued)

* Published by the Royal Horticultural Society. The Quarterly copy came from Foyle's Second Hand department.

** Sent postpaid for $1.70 ($1.40 to members of the A.G.S. and S.R.G.C.) by C. B. Saunders, Husseys, Green Street Green, Farnborough Kent, England. If a private check is sent it is well to add $.25 for the cashing fee.

The Alpine Garden Society

Members of the American Primrose Society would find much of interest in the Quarterly Bulletin of the Alpine Garden Society.

The genus PRIMULA is of outstanding importance to all rock gardeners and new introductions (of which there have been several in the last few years) are fully described, usually with photographs.

In earlier volumes there have been numerous articles on European and Asiatic Primulas and the separate numbers are mostly available.

The subscription is One pound per annum, payable on the 1st of January but American Members can, if they find it more convenient, remit $2.80 to Dr. C. R. Worth, Groton, N.Y., one of the American Hon. Secretaries of the Society, who is empowered to issue receipts on the Society's behalf.

Apart from shows and meetings in which Overseas Members are unable to take part, the Society has recently inaugurated a Seed Exchange in which Overseas Members have certain priority, whilst such Members can utilize the services of the "panel of experts" and are welcomed on the Society's Continental tours.

Subscriptions should be sent to the Secretary, C. B. Saunders, Husseys, Green Street Green, Farnborough, Kent, or to Dr. Worth as above.

A Most Interesting Invitation

A tea is being given, complementing Mrs. Karnopp and Mr. Balcom, by the American Primrose Society on Friday July 9th, between the hours of four to six at the home of Mrs. Philip Hart, 12606 S.W. Edgecliff Road, Portland. Mrs. Hart has graciously offered her home for this occasion. She will be assisted by Mrs. Eric Kollowratek.

The presentation of the trophies will be made by Mr. James McDonald, the British Consul. Members who expect to attend are asked either to write or to call Miss Ivy Spencer, 9236 S.W. 40th Avenue, Portland, Oregon. Her telephone number is C.Herry 5402.

APPRECIATION OF REFERENCE MATERIAL (continued)

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It is a green world here this June, so green the stream is an emerald pattern of light and shadow reflecting ferns, tall grasses, wild roses, snowbells and mock orange. Since the rain and the maturing of seed continued this past month without check, it was necessary to begin harvesting in an unremittent downpour. The heavily fruiting stalks, bearing the scapes of April freeze wounds, offered an encore to spring with fresh, new blossoms opening in the same umbels being delivered of ripe seed. The number of new bloom stalks makes one wonder whether the vitality of the plants could actually produce a second crop of seeds if pollinated now. Perhaps, if the rains and coolness persist.

Oregonians, during June, have had the subject of rain before them in every known form, but we know that given just one bright, breezy, bee-and-butterfly day all would be forgiven and forgotten and enthusiasm for another large sowing of fresh seed would sprout. Elimination of delays is one of the requirements in blooming primroses nine months from seed; constant observation is the other. You may ask why one should try to flower them the following spring, and for the non-professional grower there is only one answer and that is eagerness to see the forward strides being made in primrose development and to make that beauty his own as quickly as possible. Here at Barnhaven, there is the advantage of a year gained in hybridizing, making twice the progress. In milder areas of Oregon and Washington, young plants can be brought into bloom easily if the once-transplanted seedlings are well developed and in the garden by late September or early October in enriched, humic soil with a heavy mulch of barnyard manure. Some use an orange as the way toward anchoring them in periods of freeze and thaw and in providing winter protection, but light coverage of boughs or other material should be used when temperatures fall to around twenty-five degrees.

In severe climates and areas of early fall freeze, it is inadvisable to plant fresh seed in July unless cold frames, cool greenhouses, or a cool room are available to winter over the young seedlings and keep them growing. Lacking such facilities the gardener should store his seed packets in a covered jar in the cool part of the refrigerator, until late fall, early winter, late winter or early spring, whichever season best suits his experience and convenience.

It does sound strange to say that we like to freeze seed for a day before planting (followed by several applications of hot water, about 115 degrees) when fresh seed germinates so readily. But, on the other hand, primrose seed is notorious for its uneven germination and tests have proved that this brief pre-treatment not only brings on an even, undelayed germination, but cuts days off the process.

Do not cover the seed, except by a wire mesh or other contrivance if your propagating area is attractive to birds. Moderate amounts of sun during cooler parts of the day should be allowed, enough for health of the seedlings, yet not enough to burn. The seed should be watched daily for appearance of a white mold which may appear just as the seed begins to germinate if your location lacks sufficient air currents. We place toothpicks beside fungus spots as markers to make sure the application of Naphrine, which is made at that time, has been effective. After years of use, it has been found not only effective in one application, but consistently safe, eliminating all concern in a matter which, in the past, has at times been disastrous. After this treatment with Naphrine (see advertisements in Quarterly) we then make a light sprinkling of fine sand, in the good English tradition, over the clean, germinating seed.

There is one more danger to guard against, that of cutworms whose hatching is timed for the first true leaves. Some use a line of soap or talcum dust, or store the seed in the seedling compost to good advantage, but we make one dusting, as the seed leaves continue to develop, with Botano deluxe DILUTED WITH TECHNICAL TALC (two tablespoons of talc to one of dust). Your favorite all-purpose dust will do, but by all means dilute with talc to avoid burn.

After transplanting, elevate your flats for a good air circulation beneath as well as above.
as around, a practice we have found produces healthier seedlings in less time.
You are welcome to Barnhaven's leaflet on growing primroses from seed in every season, a step-by-step outline of pre-treatment methods, seeding and potting composts, and many suggestions which reduce the pitfalls and increase the pleasure of primrose culture.

Thousands of packets of fresh seed of

Barnhaven's Famous
Silver Dollar Polyanthus

are being sent on advance order to every area in the United States; to Canada, England, Scotland, New Zealand, Australia, Chile and Peru.

The largest crop of the most beautiful primroses yet originated to surpass the plants winning the Blue Ribbon for Mr. E. J. B. Kidney, in the R.H.S. Hall, London, this spring.

Brilliant new Pinks and Desert Sunset shades.
Light, Medium and Bright Navy Blues
Coffee, Cocoa and other Spice shades
Striped and Unstriped Victorians
Whites and Yellows measuring up to 3''
Vivid new Grand Canyon shades, Kwan Yin, Cowichan, Indian Reds.

BARNHAVEN
Gresham, Oregon

What To Do About Insects
Mrs. John P. Hannon

For the many years we were carving out of the woods what is now known as Hannon Acres, pests were virtually unknown to us. In the spring of 1950 it seemed that a horde of insects descended upon our collection of plants, which incidentally, meant more to us than any other material possession. We had a big investment and it was up to us to protect it. We knew nothing about sprays. After we had looked in many magazines and found so many things recommended that we were confused, we turned to our Primrose Quarterly for we knew the Editor personally recommended all the products advertised. In this way we were introduced to Carco-X which has saved our garden and kept it clean.

In the first place the Polyanthus under the cedars had root weevil and red spider. These plants were dug up and "dunked" in a Carco-X solution of two tablespoonsful to a gallon of water. The ground was prepared and the holes watered in with the same solution before the Primroses were replanted. The same treatment was accorded every plant which looked as if it needed it. The Azaleas had root weevil and these were thoroughly soaked to effect a penetration through their root depth. Because we have so many azaleas and rhododendron, and because we were so worried we gave the whole place a general spray of Carco-X. Since then we use the spray method only as recommended in the booklet "Debugging Made Easy." We haven't seen a root weevil for three years and we have many thousands of Primulas growing on Hannon Acres.

We will not knowingly let any product on the place which might endanger life or health. Carco-X is not harmful to humans or other warm blooded animals when used according to directions.

I have recommended Carco-X since 1950 and many of my friends have offered to let me tell you of various victories they have had in their gardens with the help of Carco-X. When Mr. Rae suggested that I take over the distribution of Carco-X in this area I knew that I could sell it, feeling that I was really helping fellow gardeners, because I know that it works.

If you will send to me for the Carco-X you need I will ship it to you together with the free and very informative booklet "Debugging Made Easy" which gives directions for the control of many insects as well as root and crown rot which is due to fungus.

HANNON ACRES, Distributor for CARCO-X, 17300 S.E. Oatfield Road, Portland 22, Oregon. Prices are as follows; ½ Pint $1.35, Pints $1.85, Quarts $2.85, Gallons $7.75, Five Gallons $30.00 by express collect. Price on 55 gallon drum on request.

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**Alpenglow Gardens News**

If you have not received our free new supplementary folder please write for it as it contains a list of many rare Primulas including named Show, Alpine, Garden and Species Auriculas (please see our advertisement in the October 1953 Quarterly, page 69). We also have many other fine Alpine Plants, Border Carnations, dwarf Shrubs and Seeds listed.

**TO IMPORT PLANTS TO THE U.S. FROM CANADA**

**IMPORTANT:** To import plants (seeds are sent by post, without permit) to the U.S. it is necessary to make an application for a permit to the U.S. Dept. of Agriculture, Bureau of Entomology and Plant Quarantine, 207 River Street, Hoboken, N.J. This permit is free. If plants are to be shipped by post, it is very important to mention it and also to give the approximate number of parcels as each parcel must have a tag.

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**Editor’s Note:** A serious collector has a chance to get that out of the way species at Michaud & Company. Write and ask for their list, and mention the names of those plants you are trying to find and Mr. Michaud will, I know, do his best to help you.

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