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A Cooperative Supplement

The descriptive part of the Pictorial Dictionary of the Cultivated Species of the Primula is finished, as promised, but we have not been able to provide the space for the complete bibliography. This, with a supplement, will be published in the 1955 volume, in the July and October Quarterlys, which will also contain directions as to where the reference material may be purchased or borrowed. We are grateful that this volume has been well received as evidenced by the heavy and complimentary mail from members, from editors of journals and periodicals, and from other gardening friends here and abroad.

The Quarterly Staff requests that any reader who has any difference in opinion as to any statement in the Dictionary or any additions which would help to clarify the descriptions or planting instructions, would write to the Editor. The Staff is most anxious that the Supplement be made as complete as possible by containing all the essential experience of its members as well as additional photographs of species or varieties of species not illustrated in the Dictionary. It took a good deal of courage to start on the project in the first place as the ideal way for a Primula Dictionary to be written would be to grow all the species and then to study them with the botanical descriptions in the monographs. That would be a lifelong task for one person. It would take more than one garden and more than one climate to grow all the Primulas in their natural environment. Indeed even the eminent authority, Dr. Fletcher has not grown all the species. In the mean time we needed a complete reference, in easily understood terms, which would alphabetically contain the species known to have been in cultivation. This Dictionary is only a beginning; the subject matter is at best in a developing state. However, the botanical descriptions are absolutely and correctly in agreement with the most noted authorities, for these have been checked and rechecked and checked again.

It was our original intent to provide a point of reference for those who were ordering seeds and plants. We believe that the Dictionary, together with the list of Species and Synonyms in the Spring 1953 Quarterly, will help to unravel the mysteries of Primum seedsheets and indices, and perhaps give the necessary cultural hints which should help to grow and encourage interest in the species.
Pictorial Dictionary (continued)

Please refer to the April 1954 Quarterly, page 48, for explanations of abbreviations.

obtusifolia (18) Himalaya on boulder scree often near perpetual ice at 13,500-17,000'. It prefers a relatively dry situation. This lovely species varies greatly in size, probably being influenced by environmental factors. Leaves have broadly winged petioles; arising from a stout rootstock; leaf blade, soft and rather thin in variance with most Nivalids, up to 8" long and 4" in width; elliptic-obl or obovate-oblong, rounded at tip, crenate-denticulate or denticulate at margin, mealy below and those plants grown indoors in pots are inclined to produce farina on both surfaces of the leaf. Scape is from 4-20'. A well developed plant may carry 2-3 umbels, with 10-12 flowers which are bluish-purple, with yellow or white eyes. "P. obtusifolia Royle is a very lovely plant indeed, and is less difficult to cultivate than the majority of Nivalids. At one time it grew riotously in Col. Shaw MacKenzie's garden in the Black Isle, whilst seeds which we sent to England in 1940 produced plants which flowered in many gardens in succeeding years. As recently as May 1950 Mr. Jack Drake of Aviemore exhibited a magnificent pan of this species at the Scottish Rock Garden Club Show at Edinburgh." (F. Ludlow: RHSJ 6/51)

odontica (1) S.E. Tibet on open hillsides and precipitous grassy slopes at 14,500-17,000'. Base of plant covered by ovate to lanceolate scales gradually passing into ordinary leaves, which are 2-3" long, strongly and irregularly toothed, and of a papery texture. Corolla campanulate or bell-shaped, of a rich deep claret, pendulous, fragrant, borne 3-10 on a 5" scape. Gregarious like the related species Kingis and Valentiniana.

orbicularis (18) Szechwan. 10-13,500'. In many details similar to chionanthus but is not so amenable to culture. Leaves look much the same but are more spreading although there is great variance both in the leaf form and in the color of the corolla which may be cream, clear yellow, or white. Scape 6-12" tall, very white farinose toward the tip, bearing a drooping and crowded umbel of fragrant flowers.

Palinuri (2) S. Italy. Mueller discovered the plant growing on steep rock faces overlooking the sea, and massed in huge colonies on sea-washed sand and amidst boulders. Here the plant loses its foliage during the summer, the sand becomes dry and drifts over the plants but with the coming of autumnal rains the sand is washed away, the leaves begin growth and remain green through the winter. Those who have had experience with Palinuri remain divided in opinion, some designating it a plant for the alpine house where it blooms in March (at Wisley) because of lack of faith in its hardiness, but it is grown out of doors. "It delights in a sunny position, with plenty of fibrous loam, leaf mold and sand. A very gritty soil is not necessary but it prefers cold wet air, its collar during the wet months and a close circle of coarse grit will help as would a glass cover which I have never had to use. It is an admirable crevice, or ledge plant." (Wl) The foliage arises from a woody rhizome, growing vigorously, soon forming large colonies, spreading from underground roots. The rootstock is elongated, sometimes rising 6" from the ground surface and bearing foliage on the upper portion, and is often covered by old foliage. Leaves are obovate, from 1½-8" long, ½-3½" broad, rounded at apex, dentate in upper half, fleshy, narrowed to a short winged stalk, free, serrate at margins. Scapes 9-10" erect and stout, sometimes displaying white meal on upper portion, bearing a unilateral umbel of 3-10 fragrant (cowslip scented) yellow flowers which are drooping, conspicuously ringed, funnel shaped, with notched margins of corolla lobes incurved. "It does not seem to be grown in many gardens and yet it is really very easy. For many years it grew and flowered happily amongst lime-stone rocks in my garden in N.W. England but during the war I lost it. I have now had it again for several years. It forms a large head and in the early spring has a long scape with a head of very sweet-scented deep yellow flowers. Mr. Corsar recommends a north aspect and rich soil but my plants flower well facing due south." (CC)

P. Parryi (20) is a species native to the Rocky Mountains, bearing a reputation of being difficult in cultivation. Photographs of garden grown plants are in conformity with specimens found in true alpine situations, but do no justice to plants more fortunately situated in a lower habitat, beneath spruce and firs immediately below timberline, and beside rushing streams of icy water. Chester K. Strong who has seen Parryi in its many situations, found a plant at its highest recorded altitude (14,538'), 7' below the summit of Longs Peak in Rocky Mountain National Park. It should not demand shade in culture as it grows on the most exposed aspects of the peaks, but the finest specimens are where they have partial shade. The more robust specimens are in coarse gritty soil, where their roots are in fast running water, but where there is not an over abundance of humus. It normally is a heavy seeder. Leaves up to 13" in length, including the petiole, ½-3½" broad, oblanceolate to obvolute-oblong, obuse or subacute at tip; minutely denticulate or entire at margin, varying from light to dark green in color. Scape erect, but often twisted or bent, up to 20", bearing an umbel of many flowers, deep red in color, fading in maturity, with yellow or golden eyes. Foliage odorous. Parryi grows for Kathleen Marriage in her Colorado garden in a homemade moraine, which is chiefly gravel with a bit of leaf mould. Water is supplied from underground by irrigation tile. Christina Boyd Harvey numbers Parryi among her collection of American species which she grows in her Scottish garden in East Lothian. Farrer called Parryi the glory of all American Primroses and cautioned, "It should have a rich and propitious mixture of peat and loam and sand, deep and well-drained, but keep water running underground all the growing season though none should be allowed to linger round the neck of the crown, and the supply should be rigidly turned off at the end of the summer."

Pedemontana (2) is usually found on granite soils where an abundance of peaty humus prevails. This adorable little species is smaller and more compact in its growth than Rubra (hirsuta) and the leaves are shiny and more rounded. It is reported that the leaves grow from ½-4" long but in our experience the larger leaves measure about 1½", and are remarkable for the distinguishing band of russet hairs on the margins. The scape, about 6" tall, holds the umbel of 16 flowers well above the oblong-lanceolate leaves.

(Courtesy and copyright. A. Haanstad. Denver, Colorado)
The corolla is a good clear rich pink or rose and has a distinct white eye. It might be possible to find a white form if one just happened to be wandering around at 4,500-10,000' in the Cottian and Grattan Alps which lie between France and Italy. P. pedemontana seems quite happy and willing to flower in a rest in the rockery, built with 2" of rough drainage of rotten wood and small stones at the bottom and filled with leaf mould, enriched peat (or a mixture of peat, bonemeal, and fresh hardwood ashes dampened with a whale soluble), and top dressed with crushed gravel. It likes sun and plenty of water before and during its flowering period. This may seem to take quite a bit of trouble but this mixture is good for all the Auriculas and a scone may be mixed and saved until used.

We are aware that this mixture is not the usually recommended starvation diet for Auricula species but it is a balanced diet and the plants, both in the alpine house and in the rockery are healthy, flower over a long period, make an embarrassing number of offsets, and provide various and rewarding foliage which is a matter of interest for the whole year.

**P. pedemontana**

pinatatida (16) S.W. Szechwan, Yunnan. The small leaves grow in tufts, are ovate, oblong or spatulate, 3/4-4" tall, ¾-3/4" broad, tapering gradually to the petiole, lobulate-incised to roughly dentate at margin, sparingly covered with sepal hairs above, with long white hairs along the midrib below. The 9" stem is mainly on upper part and bears a compact head or short spike of nodding, light or dark blue flowers, pleasingly fragrant. The species is best adapted for the alpine house unless it is possible to duplicate its natural habitat where it is kept dry during its dormancy by being frozen solid. Corsar advises, "the compost for this species must be a heavy loam and leaf-mould mixture, which should be kept wet during the growing and flowering seasons, and which should be allowed to become almost dry when the plants are dormant. Propagation is by means of seed, which should be sown regularly if the species is to be kept in cultivation. . . . but it is quite worth the trouble involved in its maintenance." It has a close relationship with muscarioiodes.

**P. poissonii** (4) Yunnan, Szechwan. Leaves typical, up to 8" long and 1½" broad. The 18" scape bears 2-6 tiers of purplish crimson, yellow eyed flowers which measure 1" across. This Candelabrum will bear more sun than others in its Section but will not resent bog conditions. It is a mistake to judge this species by its poorer forms which are of a mushy magenta shade. By weeding out undesirables just as they show color, before the bees can get to them, it is possible to have a good stand of plum colored *P. poissonii* in a couple of years as they seed themselves freely. July and August blooming.

**P. polonemis** (4) Assam. 9,000'. Oblong leaves attain a length of 10" and a breadth to 2½". The 1¼" stem bears 1-3 umbels of drooping yellow flowers. Very limited cultivation. At the Royal Botanic Garden, Edinburgh, they were brought to flower in pots which were set in a tank of water in a cool house.

**P. polyneura** (7) Synonyms, lichiangingensis, Veitchii, hynenophylla, satanensis and sikuensis. 7,500-14,500'. Specimens vary from one another even in their rootstocks, which may be thin or quite stout. Leaves, including an extremely long petiole, 1½-12" long; blade defoloid, but sometimes ovate or orbicular, deeply cordate to subcordate at base, 7-11 lobed, at times densely white hairy or bountifully woolly on under side, especially on the lateral nerves where some red cottony hairs are intermixed with the white. Scape 4-18" tall, and like the petiole, pedicels and bracts, in the more hisriform sorts, is thickly matted with a fur-like or downy covering. Corolla may be either pale rose, rich rose-red to crimson, purple, wine-colored, with a greenish yellow, yellow or orange eye. A number of scapes arise from each plant, bearing flowers in umbels of 2-12 flowers. The plants are hardy and require "only a bit of shade and leaf soil" (Miss Sharples), to form large clumps, a joy to any gardener. *P. polyneura* is placed at the uneven top of the Quarterly rock garden behind that portion which is a long bed of Alpine Auriculas. The lovely, high held leaves of *polyneura* make a definite and distinctive edging to the interesting rosettes of the Alpines, when both are out of bloom. The leaves emerge from the ground about March 15th and are perfectly formed miniature editions of what they are to be when the plant flowers in May.

**P. prolifera** (4) True *prolifera* was introduced to gardens from Kew in 1947 and any pictures which claimed this species for a subject before that time were sailing under false colors. Dr. Fletcher writes in the 12/52 issue of RHSJ, "How good a garden plant it can be judged by the fact that both Lord Aberconway and Sir William Wright Smith last summer wrote to tell me that it was "easier and better" than *P. belodoxa* (which it closely resembles). Though I personally cannot imagine anything easier and better than *P. belodoxa* as this lovely plant grows in the Wild Garden at Wisley—often 5' tall and with 8-10 tiers of flowers—quite clearly *P. prolifera* is a fine acquisition to the many Candelabrum species already in cultivation, and should be grown as *P. belodoxa* is grown, as a plant for the woodland, the river bank, the marshy meadow or even the bog. Like *P. belodoxa* it prefers heavy clay." Lynn Gardens at Fircrest, Tacoma, Washington, have this plant. This evergreen Candelabrum should become a "top favorite" as it becomes better known. It spreads faster than anything we have seen to date. The 6" long scapes are generally in an umbel of 5 or more large flowers of varying shades of blue or purple. Like the other members of the Farinosa Section, Subsection Pulchella, the crowns need a day surface on which to rest." (B)

**P. pulchella** (11) 5,500'. Yunnan and Szechwan. It is a plant of great beauty and is very hard to keep. It is pictured beautifully in G.F.J. as it grows in the wild. The 3" leaves are lanceolate, dentate, fatinate beneath, and taper to a narrow petiole. The 6-10" scapes end in an umbel of 5 or more large flowers of varying shades of blue or purple. Like the other members of the Farinosa Section, Subsection Pulchella, the crowns need a day surface on which to rest. (B)

**P. pulchelloides** (11) is similar to *pulchella* but differs in smaller growth, markedly narrow leaves (3½-3½") with a possible length of 4", and with fewer flowers in the umbel. It is, however, more hardy and easier to grow. Corolla is a pale lavender-blue with a yellow eye. (fig. B., p. 229)

**P. pulcherrima** (4) W. Szechwan. The foot long leaves are obovate or ob lanceolate,
and 1/3 as broad, round at tip, tapering sharply at base to a winged petiole. Prominently veined on lower surface. The scape, pedicels and calyx are heavily covered with white farina and this is true of its relative *pseudos*, which is completely without farina. Outside the Quarterly office window is a host of *pulverulenta* growing under a tamarix tree. It is the middle of June and they are blooming from their sixth, seventh and eighth tiers with still others to follow and have tiny farinose buds in a cluster at the top. The poorer forms have been weeded out and their color, a vibrant deep wine red, has matched that of the tamarix, which come into bloom April first when the first tiers were beginning to show color. We have found it exceptionally easy to grow and it propagates itself if given moisture after it makes seed. It is called a bog plant but grows here in all situations, in the border, among heavy grasses in the marsh, in the shade, in half sun, in deep loamy ground and in heavy clay. The finest specimens are on the West side of the house where they get only a little sun and a great deal of light and water and where the ground has been brought in from a beaver dam. *P. pusilla* hybrid is so beautiful that many prefer them to the species, but they tend to come later and thus prolong the Candelabra season.

**P. pusilla** (16) "A delightful plant having a small rosette of deeply toothed leaves (about 1" long) from which rise single powdered stems about 4" high carrying from 1-4 heads of lilac flowers. (Sometimes purple or white). No definite rules can be given for the cultivation of this dainty plant which does not appear to be easy or permanent with us, but it appears to be more of moisture overhead, and perhaps most success has been obtained by growing the plant in a sphagnum mixture with the crown well surrounded by grit. The rosettes in winter frequently shrivel up, leaving a tiny green bud, which is scarcely perceptible in the centre, but in Spring, if damping off has not occurred, fresh growth recommences." (John T. Renton) Mr. and Mrs. John Renton are spoken of as 'those keen rock gardeners of Perth who can bring most of the difficult Primulas to maturity and long life.' They raised the plants of *pusilla* which won a Silver Medal at the Rock Garden Club Show in Edinburgh in 1935.

**P. pycnoloba** (23) is the single species in its Section. The features which distinguish it are a contorted inflorescence, being a raceme, contracted to a rounded mass to form a ball-like flower head as broad as long, a calyx which must be described as huge, a very small corolla and likewise small pointed corolla lobes. It is a plant on the robust side, hairy, and spreading broadly by means of root-buds. Leaves are up to 10" long, including the petiole, and blades 2-6" long and as broad, dark green, crinkled, furry above, paler green below and hairy. The accompanying photograph shows how certain nerves are impressed above and prominent below. The leaf stem is 3/4-6" long, stout, white or pink woolly. Scape to 8" tall, very woolly, strong, erect but toward the tip recurving to bear the odd, dense small-flowered contracted raceme, about 2-3" in diameter. Bracts are conspicuous, 1/4-3/4" long, 1/4-1/2 as broad, shaggy with soft hairs, pale greenish-yellow, pedicels also furry. Calyx 5/16-1/4" long, almost as broad, at tip being broadly compakulate, pale yellowish-green, and woolly with fine hairs. Corolla light and dark red to bright violet and less than 1/2" across.

**Ramondiana** (18 provisionally) Shown on April 14th by Dr. H. R. Fletcher, Director, R.H.S. Gardens, Wisley, Surrey. "A new dwarf species, not exceeding 1/2" in the wild, collected by Polunin, Sykes and Williams (no. 3536) in Western Nepal, N.W. of the Dhalaugriet massif, at 14,000 to 15,000 feet. The specimens exhibited, which had been grown in a shaded frame, were 3" in height with orbicular, crenate leaves, slightly mealy on the underside, and sweetly scented deep pink-mauve flowers about 3/4" across, with a noticeable purple calyx." (AG 12/53, p. 311, fig. p. 308) "It is a new species and a beauty! It was named for Ramondiana, Ludlow's old servant who accompanied Bill Sykes, my Wisley student, who was on the expedition into Nepal." (F)

**reidii** (3) China. Very like Forrestii in habit, in the leaf structure, and in that it is important not to bury the pronounced woody rootstocks and not to clean them of dead leaf remnants. The stems are about 7" and the flat topped umbel carries 5-12 yellow-eyed flowers with corollas of pale purplish pink or lilac-pink which fade to bluish cream. The true species may be hard to find as reidii hybridises freely with the yellow Forrestii and these offspring have soft yellow flowers tinged with pink. A well drained position is essential and they like to be planted in a north facing wall with a very deep root run.

**Reidii** (28) Although the Rentons, Rae Berry and the Logan Hames have grown Reidii out of doors it is generally considered an Alpine house or frame plant. The 3-5" scape is powdered pure white and holds 4-5 stout bells of soft cream-colour and thick waxen bloom with their calyx-lobes and bracts above the pendant chime all white with meal." (RF) Mr. John Renton writes that Reidii is a special favorite because it was the first species to be given to him. Mr. E. H. M. Cox gave him the best plant from a lot of six which he had blooming in his cool greenhouse. At Franklyn the tiny plants are pricked out from the boxes planted in February into well crocked pots just as soon as it is possible to handle them. They are then kept in open shaded frames during the growing season, but always glass-covered during the winter and early spring. "An additional charm is their freesia-like perfume... Frequently many of the seedlings flower when one year old, and from these plants seeds are again gathered and the cycle of
beauty is thus continued. (J.T.R.: JSR) A. B. Duguid who successfully grows *Reidii* outdoors at Edroms, near Edinburgh, plants the seeds very thinly and leaves them a year before prickling them out of the seedpans.

*Reinii* (24) The leaves are of distinct outline, being heart-shaped and covered with fine hairs. The corolla, very large for the size of plant. The scape is ¾-4” tall, bearing a single flower or a 2-4 flowered umbel of rose to purple flowers. This tiny Japanese turns out a real gem; it is only a couple of inches or so high, with a tuft of wee, crinkly stalked leaves, and then one or two very large pink flowers. (RF) “11/5, going dormant. 3/29, beginning leaf. April, bloomed a delicate pink. Sparse, dainty foliage, only 3 flowers on a 3-4” stem. Very fairy-like. Easily divided in late spring or early summer.” (Barnhaven notes)

*reptans* (16) N.W. Himalayas. “A pronouncedly stoloniferous and mat-forming species, scarcely exceeding 1” in height. From the dark green mats of tiny, spoon-shaped leaves with deeply incised margins, arise almost stemless, solitary flowers more than ½” in diameter, of rich violet colour and with well marked white eyes.” (WI) “... wide-eyed, long tubed stars of soft pale purple staring straight up to the day.” This stemless species should have the choicest of moraine mixtures and kept continually damp below.

*reptans* (26) Nepal. Very much like a *sikkimensis* except that the flowers are often white and scented. It needs a very rich compost to develop into a handsome plant. It may be raised from seed or propagated by division.

*rimicola* (16) Tibet. This exceedingly rare plant is dwarf and tufted. It has a short, stout rootstock, enveloped in leaf remnants of previous seasons. The farinose, thin-textured leaves are borne in compact rosettes and are oblanceolate to spatulate in outline and do not exceed 1⅜” in length. The flowers are solitary, borne on a scape at first short but gradually elongating to one inch. The blossom is pink with a white or yellow eye, lightly powdered with farinose on the outside.” (WI)

*Rockii* (3) Szechwan on rock faces and boulders at 10,500’. The leaf blade is ovate and almost as broad as long and it and the long slender red petioles are covered with gland tipped hairs. The petioles and scape together manage to raise the flowers above the scalloped leaves. The corolla is yellow with a center a darker shade of the same hue, petals toothed, coming near being fringed. This is a plant which must have fine drainage and the protection of an Alpine house or a frame during winter.

*rubra* (11) In Oregon it seeds itself generously underfoot in the paths with erythronium. Its buds are like upthrust flames and its flowers vary from light pink to crimson. The seed pods form rosy capsules which shatter suddenly if not watched carefully. The accompanying picture is of two plants of the variety grandiflora and the two umbels are shown one above the other. The leathery and attractively textured leaves form a full basal tuft after the plant flowers. (See illustration page 128).

*rotundifolia* (25) Scapes stoutish, up to a foot tall, bearing 1-2 superposed umbels, made up of 2-16 yellow-eyed flowers with corollas of pale purplish-pink. The leaves are rather circular, somewhat fleshy, often without farinose. They are smooth, light green, and beautifully cut. Farrer recommends a sheltered, dry and warm location in a peaty well drained, well nourished loam. “10/3, All transplanted, no reaction, still leaf active. 11/5, still green but looking worn. Put on glass three weeks ago 1/3, belligerent pink.” (Barnhaven notes)

*rubra* (27) Szechwan. The corolla, 1” across, is white, pale lilac or rose, with a yellow-greenish eye. The leaves are elliptic-ovate, 1½” long, rounded at apex, cordate at the base, with 3-6 pairs of crenate
4-14 "more or less nodding blooms, rather funnel-shaped, with the face expanding into a bowl of vivid and obscure red purple, like an old bloodstain on faded velvet. It should have an open warm place in moist but well drained peaty loam, where it will flower later in summer (than other Primulas)." (RF)

Rusbyi (20) Found in the mountain splits of New Mexico and Arizona. The rather narrow, leathery, toothed, powderless leaves are arranged in tufts, and a scape up to 8" carries a loose umbel of rosy flowers, 4/5" across.

Sandemaniana 28) The first plants of Sandemaniana to show their magnific-
except this year. The blooms were pin-eyed, but three warm, dry weeks in February evidently brought bees, or style receded, passed the pollen, and pollenized without agent. In taking cuttings the time seems ideal when new roots indicate quickening growth. The leaf cuttings were set rather deeply, a little more than $\frac{1}{2}$ way up the stem. These rooted cuttings are so husky they recall rhubarb stalks in miniature." (Barnhaven field notes) Crowns should be protected from excessive moisture during the winter.

Schlaganswettiana (11) Ludlow has written that this Primula should be as easy to grow as farinosa which it resembles with the difference of having a longer corolla tube. It is 3-9" high and the flowers are lilac-pink with a yellow eye.

scaletta (11) Sir William Wright Smith writes that scaletta is one of the smallest of the Section Farinosae, differing from farinosa in shorter, more rounded leaves, which are formed in tight rosettes. "It is found only in the most northerly parts of Scotland — the counties near the sea...it is often seen in northern gardens and sets seed freely but the individual plants are short-lived." They are gregarious so it is best to take them up in their native sod and transplant them as a block. The leaves are formed in tufts or close rosettes, bearing short scapes, one or two to a plant, which carry 1-6 purple yellow-eyed flowers. P. scaletta has been grown in Western Oregon and has been known to seed itself when grown in scree conditions.

secundiflora (26) 11,500-13,500'. China, Tibet. "...an amenable freely seeding species, and with its sturdy tall scapes carrying a terminal umbel of as many as twenty nodding purple or deep rose-red flowers the calyces of which are streaked with five conspicuous white farinose lines." (GFJ:F) The scape is variable and may be any length from 4-36", but it always manages to clear the shiny, rather narrow-oblong and serrated leaves which may lengthen to 12". The Verne Beneficents have a tall 12 plant dump in their Auburn Washington garden which looks exactly like the excellent picture taken by George Forrest. (p. 86, GFJ) Doretra Klaber grows secundiflora in a rich, shady, rather moist, and very porous bed, in her Pennsylvania garden, where they have proven to be hardy.

serratifolia (4) Found in the glacial region in Yunnan. This handsome powderless plant should be shown in color as the accompanying illustration can only give a hint as to its "bells of a rich orange, which has faded all round the rims and lobes to a soft primrose, leaving only a central radiating suffusion of the original colour. ...although attributed to the Candelabra Section, it is very much less in the style of japonica than in that of sikkimensis, sending up no tiered tower of blossoms above its tuft of sharply-gashed and saw-toothed, foliage, but a stem of 8" (-18") or so, bearing a head of (5-10) graceful pendant bells (1" across), of (5-10) graceful pendant bells (1" across), precisely after the habits of sikkimensis and secundiflora, except that a second and feeblower may sometimes be unfolded above the first." (RF) "The leaves are only half the size of those of Bulleyana and are conspicuously veined on the lower surface." (BCSP) There are two very fine forms without spectacular marking: serratifolia var. rosiflora, from the Burma frontier, wherein the flowers are pale yellow, heavily tinted with purplish-rose, and serratifolia var. unicolor whose pale yellow flowers have no marking or tinting.

sikkimensis (21) The corolla lobe usually has one slightly protruding tooth at its rounded apex, unlike gracilipes which usually has tridentate toothing. Flowers are of a bright pinkish-purple or pale mauve with a yellow eye, surrounded by a band of white, and are borne in a succession covering a period of several weeks. At rare intervals an albino form may appear. David Livingstone writes in the A.G., "This species grows particularly well with me, both in the open ground and in a pot. Last spring I had so many (leaf) cuttings that I did not have room for them in a propagating box and dibbled them straight into the open ground where most of them rooted and have made good plants." Easily increased by division in the spring.

Sherrifflae (28) Grows at an extremely low altitude for an Asian Primula, being found at 3,000'. "...It was as hairy as a blanket and bore large flowers of a luminous milky mauve. The most fascinating feature of it, however, was the great length of the tube, which protruded 2" from the calyx...the night the monsoon broke...we spied a cliff which was so closely plastered with Primula Sherrifflae that it loomed up in the mist like the white cliffs of Dover. The dewy flowers were in their thousands, many stems bearing 3 or 4 together; and in spite of the
rain we noticed its delicious scent." (KWRHS, 8/49) Cicely Crewson grows plants in pots and in her peat wall, "lightly clad with a piece of glass or window light to keep off the worst of the winter elements. The result is that these plants are smaller than those grown in the cool house, but they are just as healthy." A lovely species from 1½-4" tall with yellow-green, hairy leaves which are shaped much like those of a common Primrose.

sibirica (11) An Arctic plant which resembles and is closely related to the Asian involucrata and yarngonensis. It is not a robust plant although it varies considerably in size. The ⅛-12" scape bears an umbel of 1-10 pinkish-purple or lilac yellow-eyed flowers. Easily raised from seed or increased by division.

Siewoldii (7) "A beloved and immemorial ally from Japan, with its running masses of soft crumplly oval leaves, scalloped and stalked; and its tall bare stems (2½-12") opening wide heads of (2-15) beautiful flowers in almost every colour and conceivable design of fringing segment....may be easily recognized from cortusoides, with which it has been confused, by the widely spreading lobes of the calyx. This is one of the most beloved and beautiful as well as one of the most hardy Primulas. Plants should have shelter from strong sun and rich, well drained soil, and be well marked as the rather hairy foliage appears early, but by midsummer dies down and disappears. Easily propagated by seed or root cuttings.

sikkimensis (26) Sir Joseph Hooker, who found the plant in Sikkim, wrote, "It is the pride of all the alpine Primulas, inhabits wet boggy places at elevations of from 12-17,000, at Lachen and Lashong, covering acres with a yellow carpet in May and June." 3/18: Just beginning to stir into bloom. 5/5: Strap-shaped, toothed leaves 6" high. Meal covered buds just beginning to show. Calyces are long and fold over the bud head as protection. 5/20: The beauties are beginning to flower 4-5 years from seed. Sweet smelling bells arch up and out from the top of the 2' scape in citron yellow profusion. Scape, pedicels and inside of the inch wide bells all powdered with silver with the exception that inside the bell is an unpowdered self colored star! The fragrance is like new clover and heliotrope. 6/23: Scape with bell shower 28" tall. First blossoms seeding. Second stalks in first purity of bloom and fragrance. 9/20: Made divisions. Great care needed in shaking soil from roots as they break off easily from the crown. 10/3: Establishing. 11/5: Still green. 1/5: Mostly dormant. 3/29: Still dormant. 5/25: In full prime along with Waltoni." (Barnhaven field notes)

sinolisteri (19) This downy plant is satisfactory in a cold house or frame and although it did not quite fulfill its promise of replacing the beautiful skin-irritating obconica, the compact ivy-leaved shaped foliage and the many trusses of flowers varying from lilac to white, have made it a valuable acquisition." (GFJF) The scape is about 4" high and carries a 5-8 flowered umbel of flowers which measure about ¾" across. Flowers in April.

sinoplantaginea (18) A handsome deciduous perennial species with large, reddish, membranous, scale like resting buds about 2" long which are persistent and sheath the base of the tuft of lance-shaped, pointed 4" leaves which taper to membranously-winged stalks; margins furnished with obscure rounded teeth; upper surface more or less smooth; underside slightly coated with yellow meal. Flower stem 6-8" tall, stout, sparingly coated with golden-yellow meal and bearing an umbel of several clustered fragrant deep blush-purple blossoms; the bracts are also deep purple. Flowers in June and July. It is recommended that it be grown in a good rich, somewhat heavy, fibrous

(Courtesy Walter Blasdale) P. sieboldii

(Courtesy Walter Blasdale) P. sinensis

(Courtesy Leo Jelitto) P. sikkimensis

(Courtesy Royal Horticultural Society) P. sinolisteri
loam in an open spot well supplied with water when the plant is in growth. Considered by some growers to be a narrow-leaved edition of *sinopurpurea*.

*sinopurpurea* (18) So closely related to *chionantha* as to appear to be a lilac form of the same plant.

*Smitbiana* (4) A handsome perennial species with a rosette or tuft of lance-shaped sharply toothed leaves 3-8" long and narrow to a winged stalk. The flower stem is about 2' high with 1-4 superposed 10-15 flowered whorls. The yellow-farinose pedicels are about 4/5" long and carry pale yellow flowers with ringed throats, which measure nearly an inch across, and have heart shaped lobes. They do best in the garden in an open sunny situation, or under high shade, with an ample supply of water during the growing period. The critical period, in this climate (N.W. U.S.), is just after blooming when they are liable to rot at the crown if not given a sulphur treatment.

*Soldanelloloidea* (28) "The dwarf P. soldanelloloidea Watt (L.&S. 19/420, 21/97) is not only one of the most charming species of the Section Soldanelloideae, but one of the most beautiful plants in the whole genus, growing no more than 1/4" high and carrying usually a single cup-shaped glistening white bell, quite huge for the size of the plant." (RHS: F

11/51) The plant as pictured in the RHSJ appears to be like a petticoat daffodil, both as to flower and foliage. It is regretted that the plants flowered by the late Lord Aberconway and by Mrs. Knox Finlay died and left no seeds.

*sonchifolia* (21) A very beautiful, although rather flamboyant perennial species whose stout 2-9" flower stems rise from a number of large, broadly oval scales which are covered with rich orange-colored meal. The papyrus-like crinkly leaves have oblong, or egg-shaped-oblong, blunt 6-8" blades whose margins are sharply serrated. "P. sonchifolia" is a charming plant, with rather the habit of an English primrose, a hemispherical umbel of (4-10) azure blue flowers, (measuring 1 1/4" across) each yellow-eyed, springing from a thickly clustered rosette of dark green leaves. Up here at the threshold of Yun-nan, which means

'southern Cloudland' it really was still winter — there was snow in one of the gullies and the path was strewn with fallen corollas, scattered like jewels." (KW: IN FURTHEREST BURMA) Seeds have to be very fresh to germinate and the only way the plant was established in England was by having resting buds sent from Upper Burma, packed in bamboo tubes, by cold storage shipment. It is advised that this Petiolaris is as prolific as the common primrose when well started in a shady place in fibrous peat and gritty, calcareous loam which is well supplied with moisture when in growth, but protected from damp in winter. The resting bud is of interest during the dormant months.

*spectabilis* (2) Eastern and Austrian Alps at 3-7,000'. A very delightful perennial species with a rosette or tuft of broadly diamond-shaped or oblong, pointed leaves, 1-3 1/2" long. Both surfaces of the leaves are dotted with minute viscid secretion. "5/19, Looked so sick and puny changed it to acid soil about 2 weeks ago. 8/13, The plant is less pale but still not satisfied. Changing to neutral bed in half shade. 10/3, healthy and normal. 11/5, foliage and rosette beautiful. 1/5, Still with us after being inundated in the spring flood. 5/20, Plants 2" high and 4" across. Glossy rich green leaves with a stickly edge like a light colored thread. 6/5, Crowded (1-7 flowered) umbels of serrated rather ruffled pinkrose flowers (about 1" across) with definite white eyes. Its reputation as a shy bloomer must be because it is particular not to have either too much lime or acid. Am trying the usual minima cross." (Barnhaven Field Notes).

*specuicola* (11) Dwight Ripley who has studied this plant in its native habitat writes, "At Bluff (in S.E. Utah, along the San Juan River) it occurs in abundance along the thin line of seepage that penetrates each cave high up near the ceiling; in this damp and sequestered habitat, screened for centuries from the blaze of noon, *specuicola* continues, if somewhat precariously, to survive." (Vol. 12, p. 74, AG) It would be hard for the non-botanist to distinguish this slightly sturdier plant from *frondosa*. Mrs. A. C. U. Berry grows *specuicola* in her Portland garden and has shared seeds with enthusiasts in this country and abroad.

*spicata* (27) There is no trouble in growing this extraordinarily lovely primula from mature seeds, but the resultant plant is not likely to ripen capsules after flowering in cultivation. Forrest who preferred *spicata* to *Agelaniama* and *nutans*, wrote, "None can compare with this species in any gracefulness or in rich colouring, the (fragrant) azure blue flowers (1" across) forming a wonderful contrast to the silvery farina with which the plant is coated. The (4-8") scapes are so slender that they seem scarce able to bear the weight of the relatively large flowers, which the slightest current of air sets trembling and swaying." (Pictured beautifully, p. 73, GFJ) Flowers in September and October.

*stenocalyx* (11) Known to Farrer and to those who have shared his stimulating and contagious enthusiasm as "Clusterbeauty." "...up come sturdy little stems of 3-4,"...
unfurling a head of some 5 or 6 large and lovely lavender-blue flowers (½" across) with a white eye, and the clean dry scent of their group." Leaves form a small rosette of oblong, spatulate, remotely-toothed leaves, about 1" long, smooth above, covered with yellow meal below, narrowing into wedge-shaped stalks.

**stricta** (11) A very dwarf perennial from dump rocky pastures on mountains in subarctic Europe, Asia, Greenland and Canada, with a compact rosette of non-mealy leaves ½-⅜" long, with oval-lance-shaped, pointed or blunt, usually entire blades gradually tapering to winged stalks equaling or shorter than the blade. Flower stem erect, ¾-9" tall, bearing an umbel of 1-8 purple or violet-colored blossoms. Corolla about ¼" across, with heart-shaped, almost entire or slightly notched lobes; tube cylindrical, about twice as long as the calyx. Flowers in June and July. Cultivate like *larina*.

*strumosa* (21) was discovered in Bhutan by Roland E. Cooper in 1915. "The sweep of snowy cliffs and peaks that encircle Namir Thang has a welter of glacial debris at its feet. The tangle of moraines and screes shelters several tarns, and beside the edge of the largest, which is a bean-shaped loch 50' long at an elevation of over 15,000', many interesting plant forms were found. These included many Primulas, such as *spphirina, Stintoniana, macrophylla*, and *strumosa.*" (REC: Notes from the RBG, Edinburgh, 11/33)

A handsome perennial species with a tuft of a few leathery or somewhat fleshy, more or less erect leaves, 3-4" long, with broadly lance-shaped, blunt or rounded blades, tapering at the base to an erect, winged stalk sheathing below at the rootstock; margins somewhat cartilaginous, edged with irregular, rounded teeth; upper surface a deep soft purple. Flower stems 4-7" tall, dark purple, covered with golden meal upwards and bearing an umbel of about 8 nodding, yellow blossoms with an orange or deeper yellow eye. Corolla about ¼" across, with oblong or nearly round, blantly toothed lobes, tube cylindrical, slightly dilated upwards, twice as long the calyx, with a ten-lobed ring in the mouth. Kingdom Ward has suggested that we might have more luck with Primulas like *Dickieana, Royles* and *strumosa*, if we would try to simulate the soil content of the Tibetian flats where the droppings of the yaks has supplied an extraordinary amount of nitrate compounds. Most growers cultivate it as they do *ikkimensu*.

**Stuartii** (18) A handsome deciduous perennial species from the swampy mountain pastures in the Nepal and Sikkim Himalayas at 13,000', with large tufts of somewhat leathery, lance-shaped, blunt leaves 4-8" long and ½-⅛" broad, tapering to winged stalks, dilated and sheathing at the base where they are surrounded by leaf-like scales which remain, after the foliage has died down, to cover the winter resting bud. The leaves are edged with small, sharp teeth. The upper surface is smooth but the under is covered with fine yellowish farina except for the midrib. Flower stem robust, 8-12" tall, reaching twice this height in a good season, supporting one or two supraperennial umbels with numerous golden yellow delicately fragrant flowers on pedicels ½-2" long. The corolla is concave, nearly 1" across, with rounded, slightly dentate lobes. Flowers in June and July.

**saffrutescens** (8) Called the "Sierra Primrose." A beautiful, evergreen, sub-shrubby perennial with woody, branching stems which creep on the surface of the soil. The leathery leaves are produced in dense tufts or rosettes at the ends of the branches, and have wedge-shaped blades, blunt at the tip, tapering at the base into winged stalks, in all 1-3" long; margins towards the upper half of the leaf furnished with 4-7 sharp teeth. Flower stems 2-5" tall, bearing an umbel of 2-6 erect, pink or reddish-purple blossoms with a yellow eye, on stalks about ¼" long. Corolla about 1½-⅜" across, divided into 5 egg-shaped, deeply cleft, shallowly-bifid lobes; tube cylindrical below, dilated upwards, longer than the calyx. Flowers in June and July. Scree planting is advised with moisture at growing period and protection from too much wet during dormancy. Seeds germinate easily but are scarce. Propagates by layering.

**szechuanica** (18) A smooth, non-mealy perennial with a tuft or rosette of thin membranous, minutely, sharply and evenly toothed leaves 2-12" long and ½-⅜" broad, rather coming to a point at the ends and sheathing to the stout 6-18" flower stem. The inverted umbel carried 6-12 violet or yellow blossoms with ¼" purple tubes. The corollas hang like unflared bells from the tube which is longer than the pedicel. The physical requirements are difficult to meet in a garden, for partial shade, soil rich with humus, ample water through the growing season and dry conditions through dormancy are held to be essential.

**Takedana** (24) "grows in subalpine meadows or rocky places along the Teshio river, Hokkaido, Japan. It is named after the authority upon Japanese primroses, Professor Takeda. It makes an 8" loose rosette of lobed hairy leaves from which a 3-6" thin flower stem rises to carry an umbel (sometimes two umbels) of white funnel-shaped flowers about ½" across. Rare and fragrant Survives pot culture in Scotland, but does not set seed." (REC)

**tailuis** (21) "...one of the hairy Petiolarids and although in cultivation of little horticultural merit. The leaves when fully grown are about 8" long and make a ground level tuft. The fragile flowers range from white to pale blue and rose. The 3" scape bears an umbel of up to 12 fragrant white, pale blue or rose flowers, each measuring ½" across." (REC)

**tangutica** (18) "An entirely contemptible plant, rank and robustous in growth, mean and squinty in flower, muddy and morbid in the dull chocolates and greens of its coloring even when you get the very best forms, where the livid greenish-yellow of the starved looking star stands out in good contrast to the mahogany crimson of the tube." (RE) "According to the conditions where it grew it ranged from a few inches of flower scape in arid situations to a yard high on moister meadows. Nevertheless, I have a great desire to learn from actual experience how unlively this plant really is." (B)

**Tanneri** (21) comes from Sikkim and is very like *Griffithii.*
Tayloriana (11) A new introduction farinos-a which it resembles by having a scape, which may be anything up to 4” with pale yellow eyes. It would seem certain it is rather short-lived and that 3 or 4 years is its normal span of life. For this reason seed should be sown regularly in order to maintain a constant succession.” (C) Some growers have had a bit of trouble with root and crown rot and it is suggested that a ½” layer of fine gravel be placed about the neck of the plant. If any indication of rot is noticed take the plant up, clean well of rot, dust the wound with sulphur, and replant in a pot in a lean mixture. Keep under glass and water from underneath. It should be ready for division and planting out by Spring.

tenella (16) A high alpine mat forming species which is appealing because of its tiny size as well as its beauty. “The flowers (¾” across) are borne singly or in pairs, and they vary in shade, the best being a rich violet-purple, with a white eye. The little 2” stalked leaves are covered with white meal. I found this Primula easy to increase by division, but I have collected a little seed and will try that. I was thrilled by the pictures of this tiny Primula cascading down between rocks in its native country (S. Tibet), so I tried six little plants outside in a crevice between rocks, but they did not survive their first winter outside here, so I now grow them in pans, so as to be able to move them into frames in the winter.” (CC) Major Sherriff and Dr. Taylor, to whom we are indebted in so many ways have allowed us the use of the accompanying photograph which was published in the A.G. p. 115, Vol. VIII. According to them “P. tenella usually avoids direct rainfall by seeking the shelter of overhanging rocks, and in winter becomes dried up. The flowers are borne singly or occasionally in pairs from the numerous rosettes, and are blue-violet, sometimes with a touch of red, and with a large white eye.”

tibetica (24) is very like sibirica but the geographical areas of the two species do not overlap and they are different cytolologically. Rare. Scrape holds 1-10 flowers above the foliage. Corolla deep rose or purplish pink with a yellow eye.

tosensis (24) So closely resembles jezoana and kisoana that many of the published pictures are misnamed. P. tosensis differs from Remni in smaller flowers, more elongate corolla-tubes, and in the less divided corolla-lobes. The leaves are of the same shape, a little more hairy perhaps on the leaf stalk, and a little smaller.

tsariensis (21) The 1-5” scape as well as the flower of this scented species are almost identical with the scentless Calderiana. The more obvious differences are in the leaves which are of a different texture and are without farina. A perennial with a short root-stalk, which at time of flowering is covered at the base by scales ¾-1½” long, ovate to oblong, dark crimson or reddish-green in color. Leaf blade ¾-1½” broad, elliptic to ovate-lanceolate, subregularly crenate at margin; dark green, often tinted with purple, and shiny on the upper surface. The petiole is broad and sheathing at the base, partially hidden by the basal scales. “The precocious blooms of tsariensis var. porrecta make floods of blue-purple where the snow has just melted. It is a more robust plant, being larger in all its parts and usually with more flowers in the inflorescence.” (S:T, Vol. 7, p. 232, AG) Like other members of the Petiolaris, tsariensis throws its seeds while green, and seeds sent from Tibet and Central Bhutan bamboo forests, the native habitat, have not germinated in England.

Tschatkischorm var. arctica (18) “This species is one of the conspicuous plants comprising the scanty vegetation of the most northern of the Kurile Islands, those of the Aleutian Chain, the Pribilofs, and also the mainland of Alaska near Nome. It forms tufted masses of crowns composed of lanceolate, entire, glabrous, farinose leaves. They give rise to stout 4” scapes bearing an umbel consisting of 10-12 flowers whose color is variously reported as pinkrose or violet-purple.” (B)

tyrolensis (2) "A pretty plant akin to Allioni, which also seeks crevices where its roots can develop contentedly for years, with similarly dwarf habit and tiny bright green leaves, but these are readily known as being translucid, and not opaque as in Allioni, and toothed and by the divided lobes of the rosy lilac corolla.” (Henry Correvon) Rae Berry grows both tyrolensis and Allioni in a beautifully designed scree coldframe which encloses a miniature rock garden, full of the smaller Primula, which looks as if it were transplanted from the Alps. These two
plants have been firmly planted under overhanging rock and when they bloom on their never more than 9/16 stems, they light up their miniature niches. If it is too wet, the large frame is covered with celotex, if too sunny, lathe panels are put on.

*wunbratlilis* (28) A dainty 5° rosette of hairs, oak-leaf shaped leaves carrying on a 4" stem, a head of 5-6 blue to purple flowers, each 3/8" across. The backs of the flowers combine in a dark colored cap. Found and introduced by Roland Cooper from Bhutan, where it grows on grassy ledges of dry rocks at 13,000'. Re-introduced by L. & S. from further East in S.E. Tibet. Jack Drake completely covers these Primula, whether grown in pots, in the open, or in frames, from the beginning of October to the middle of May with glass. He believes that it is impossible to keep them too dry during this period so he does not water them at all or allow rain to fall on them.

*Umbrella* (11) Corolla rose-purple with a greenish-yellow eye. The umbel of the flowers is spread so the pedicels make an umbrella and the 5-segmented heart-shaped corolla lobes form a double ruffle for the edge. According to the picture in the 1913 Primula Conference Report, p. 168, this is the most beautiful of all the Farinosa Section. It is recorded as having been in culture in 1908 from seed collected by Forrest from plants found in N.W. Yunnan at 10,000-12,500'. If it has lived through its cycle in cultivation, it is now very rare. The scape is 1 1/2-3 1/2" tall. The leaves are 1 1/4-4" long including the petiole and are obovate to obovate-spaleathate, yellow farinos below.

*naisflora* (28) Sikkim, 14,500-15,500'. This species is remarkable for supporting a flower larger than its rosette of ovate to spathulate leaves, which are 3/4-3/4" long. The 3/4" scape bears 1-2 pale blue-violet flowers with open saucer-shaped corollas. The calyx is wine red.

*articifolia* (11) Grows in a "narrow steep gorge of shade and moisture, with limestone cliffs on which the pinkness of the Pretty Primula is shown abundant. ... Its leaves are not nettle-like as the specific name suggests but most delicate dainty little objects, gashed so deep into 5-7 strips that they give a fringed curvy effect of brightest green filigree." (RF) Flower stem somewhat flaccid, 3/4-3/4" tall, bearing an umbel of 1-5 rich pink blossoms. Corolla about 5/8" across, with broadly heart-shaped, notched lobes. (Beautifully pictured, Vol. 1, p. 183, AG)

*saginata* (7) grows as a woodland plant on banks or in the shade of boulders in the Sikkim Himalaya at 11,000'. A small-flowered, dwarf, deciduous perennial with a woody rootstock which produces a sparse tuft of rounded leaves about 3/8" across, arch-shaped at the base, borne on slender, rounded stalks about 5/8" long, dilated, and sheathing at the base; margins divided into seven or more, arrowhead lobes; both surfaces more or less smooth or downy. Flower stem smooth, slender, 2-4" tall, bearing an umbel of 3-6 lilac, pure pink or purple flowers. Corolla about 3/4" across, with very broadly heart-shaped lobes which have 2-4 large flat edged teeth at their tips; tube cylindrical, longer than the calyx, with a ring in the mouth. This rare plant is often confused with the commoner gematifolia. Alpine house care or at least protection from winter wet is indicated. Christina Boyd-Harvey writes, "...the glistening ruby-red hairs on the petioles ought to be mentioned." Illustrated p. 277, 9/51, AG.

*Valentimiana* (1) was previously found in Yunnan and Tibet. The plants at present in cultivation were introduced as seed by Ludlow and Sherriff, from Bhutan, where it was found at about 15,000'. Like its relation *Kingii*, it appreciates a shadier situation in light, peaty, spangled soil. It forms little perennial clumps of tops of small, shiny, strap-shaped leaves. The clumps become rather woolly and are not very easy to divide. At Aviemore, Inverness-shire, Scotland, the plants have three distinct blooming periods, Spring, mid-Summer, and early Autumn, which have been consistent for three seasons. The flower stems rise from 2-3" and bear 2 or 3 comparatively large, rather shallow, widely bell-shaped flowers of an amazing garnet, or cherry-red, which glows like a jewel in the late sunshine. The plant is reluctant to set seed in cultivation and seedlings are very slow to mature, but are sure once they are past the 'pricking-out' stage. It has not proved a difficult plant to grow here in Scotland, but it is hard to increase and is likely, therefore to remain a very rare plant. It is one of the loveliest of all Primulas and very much to be desired by lovers of the exquisite." (Jack Drake) Christened 'Cherry Bell' by Kingston Ward who writes that it is both gregarious and prolific in its natural setting.

*veris* (30) is the genuine of Pax which was seen at Upsala and described by Linnaeus. It has known many names including the most common, officialis and "The Cowlip." *P. veris* is the most widespread of the Primula species even exceeding the range of *farinosa*. It can be found in damp meadows and pastures throughout Europe, except in the extreme north. This well-known plant produces a tuft or rosette of oval or oval-oblong, blunt leaves which enlarge at fruiting time, are usually contracted into a short, winged stalk; margins toothed or scalloped; both surfaces more or less covered with minute, whitish hairs. Flower stem covered with minute down, 3-8" tall, bearing a many-flowered umbel of many fragrant, deep yellow blossoms on 3/4-3/4" pedicels. Corolla concave, about 1 1/2" across, lobes rounded, notched; tube longer than the 3 angled calyx which is 5/8" long. "It differs from *elatior*, "The Oxlip," its more compact clusters of smaller, gold-yellow flowers, have five orange dots in the stamata, and it is fragrant while *elatior* is not." (J.L.)

*veris* subsp. canecens from eastern and central Europe has leaves distinctly stalked, hairy below or nearly smooth; flowers 3/8-3/4" across. The calyx tube is scarcely exserted from the calyx. The corolla is 3/2-3/4" across and is flatter than the type. More robust than *veris*.

*veris* subsp. *Columnae* is found from the Pyrenees to S.E. Switzerland and into the Balkans, Greece and Pontus in Asia Minor. The heavily textured foliage is oval or rarely oblong or ovate-cordate, abruptly contracted into a wingless stalk, the under surface being densely covered with white hairs. The corolla is flatter than *veris* and more widened at the apex.

*veris* subsp. *Columnae* var. *valdiana* is a smaller plant, the leaves have short stalks and are less hairy with the upper surface very dark green, the calyx is smaller and is often extended. Switzerland.

*veris* subsp. *macrocalyx* has foliage covered with fine, greenish or greyish down; leaf blade narrowed to a long and winged petiole; corolla tube exceeds calyx which is conical with pointed lobes. Flowers golden-yellow, 3/8-3/4" across.

Minor variations of *veris* abound all over Europe and a bewildering similarity seems to haunt the descriptions. The more distinct follow: *veris* var. *alta* is from Switzerland, bears white flowers, as does var. *amplifera* which is found mixed with the type and is distinguished by having a broadly cuneate calyx. *Var. ascapa* is a saceless form found near Verona, Italy. It has been demonstrated that the saceless feature can be transmitted to progeny. England is cited as the habitat of a smaller flowered autumn flowering form called *var. autumnalis*. Var. *biubellata*, as indicated, frequently has 2
umbels, one superposed above the other. In Silesia is found var. calycida with the calyx clft to the base. In N. Germany var. serrata is a hybrid escape bearing red flowers and a calyx 3/4" long. Form horticola, which once held species rank, is but half the size of var. serratia and the flowers are small. It was found in the Botanic Garden at the University of Prague. Var. longifolia is distinguished in that the blade is gradually narrowed to a broadly winged petiole, while var. obtusa has darker foliage. The English var. pallaica bears flowers of a pale cream color, and is very close to the German var. pallaica. The Quarterly Staff would very much appreciate the efforts of a detective-photographer-botanist who would take pictures, write descriptions and find where seeds could be procured, of all the subspecies, the varieties and the forms of the cultivated Vernalis.

vernica (21) This very dainty perennial species which often blooms by forming "blow holes" through the snow in the Bhutan Himalayas, has a rather stout roostock which emits rather long rambling roots. The rosettes of closely-packed, toothed, lance-like leaves are almost stalkless, in all 1/4-1/2". Both surfaces are densely clothed with club-shaped glandular hairs which secrete a viscid matter. The tiny 1/8" flower stem bears an umbel of 2-3 white blossoms, 3/8", in the center of rich green leaf tufts. After flowering the character of the plant is changed, the flower stem lengthens to hold the seed capsules high above the elongated leaves. P. vernica var. violacea has a blue-violet corolla with a white eye tinged with yellow.

terricillata (12) A greenhouse species with a tuft or rosette of very interesting membranous, lance-shaped or oval-lance-shaped, pointed, serrated leaves 21/4-12" long including the petiole. The stout white farinoso scape is 4-24" tall and bears several superposed whorls of numerous erect, fragrant yellow blossoms 3/4" across. P. terricillata subsp. Boviana has smaller pale yellow flowers (1/2" across), large oval-lobed and toothed bracts which form a kind of involucral to each whorl of flowers, and a shorter flower stalk. P. terricillata subsp. cornanis is a handsome robust plant with a 20" flower stem. It is suitable for outdoor culture in very mild localities. The habit is the same as the type but the corolla is 11/4" across, it has broadly oval shallowly notched lobes and cylindrical tubes about 1 1/2" long. It should be planted in good fibrous loam, leaf-mold and sand, in a damp half shady spot and collared with fine gravel.

Viali (17) syn. Litttoniana. "... a superb species ...with flowers in densely crowded spikes 2-3" in length, each bearing hundreds of small deflexed fragrant blooms of deep purplish blue; but the remarkable feature is the magnificent colouring of the calyces which are a vivid scarlet crimson and form a striking contrast to the rich blue of the expanded flowers." (George Forrest) "No glass panes since April 14th when they became active after dormancy. They seem happy through the heavy rains. May 25, buds are showing smoky red color and the stems are silvered. May 29, buds are fiery red. June 3, three lavender flowers are open while the top is like a burning cone. June 23, scape now measures 19". Where is the promised fragrance? The cone measures 31/2" the lower 3" is full of row upon row of pendant compositae stars with sharp points. The upper 1/2 of the cone is still full of fiery red buds. The leaves which are covered thickly with soft white hairs are 8" long and are 1 1/4" wide at the widest point. (Barnhavven Field Notes). It is very unusual if the flower stems exceed 1' when grown in pots. Viali is monocarpic as it blooms the second year, only to die. Hand pollination might be the answer to a desired seed supply for the plant physically is so formed that common pollinators, such as honey bees, have difficulty in thoroughly fertilizing the blossoms. Imagine Abbé Delavy's delight as he came upon crowds of this lovely species high in the mountain pine forests of Yunnan.

villosa (2) Grows in the Noric Alps of Styria and Corinthia at 5-6,000'. In his very adequate diagnosis, accompanied by a good figure, Jacquin equates his villosa with Auricula ursi territa, as described by Clusius." (S.F) The 1-6" obscurely toothed, oblong-egg-shaped leaves are covered, as are the 4-6" scapes, with coarse, reddish glandular hairs which emit a viscid secre-
loved) primrose, with a distribution through the British Isles and the length and breadth of Europe, far away into Asia Minor, Armenia and Turkestan. The many-colored scaleless horticultural hybrids which stem from *vulgare* are by common consent called *acaulis* and are sold under that name, which, after all, is as precise as *vulgare* which is the specific name for the type. There is never a scape on the type *vulgare*, but the flower stalks, each carrying a single flower, usually covered by separate hairs, are from 2⅓-4⅛ in length and more or less equal the length of the leaves. The flowers are pale yellow, or rarely purple or blue, becoming greenish in drying; calyx ovate tubular, 5 ribbed with narrow-lanceolate, acuminate lobes; corolla tube cylindrical, the limb flat. 1-1⅜ across, with obcordate, emarginate lobes, the throat slightly contracted and bearing a circle of scale-like folds. Capsules ovate, included in the calyx. The leaves are many, tufted, wrinkled, membranaceous, oblong or obovate-oblong, apex obtuse, gradually, rarely and evenly narrowed to the petiole which is shorter than the blade, sometimes sessile more or less pilose or glabrescent, crenulate, the petiole more or less winged. This species appreciates shade and humus but is practically indestructible in the garden and is beautiful as a border edging.

*vulgare* subsp. *balsamica* from Majorca is identical with the type except that it has "pure and solid golden-eyed white flowers."

*vulgare* subsp. *heterochroma*, "The Caspian Primrose," is separated from the type by the underside of the leaves which have a "cobwebby-momentum," and by the wide range of color of the flower, which may be white, rose, purple, violet or citron yellow.

*vulgare* subsp. *Ingu-erseniana* was collected by W. E. Thomas Ingwersen "in early summer of 1929 on Mount Olympus, a day's march 2-3,000' above the Monastery of Dionysus, this being the nearest human habitation." "In the description, the more pertinent criteria are the white colour (which is thought to be dominant) of the flower and the shape and pubescence of the leaf which is not equivalent to vulgare. ...Evidently more details are desirable as to the Primula population of Mt. Olympus." (F)

*vulgare* subsp. *Sibthorpii*, the "Caucasian Primrose," differs from the majority of its allies within the complex of *vulgare* in the colour of the corolla, which may be purple, rose, lilac, white, red or crimson, to the practical exclusion of yellow." (S.F) It is best to plant this subspecies with some protection, although it is perfectly hardy, as it blooms during the earliest months of the year and is lovely when not battered by the elements.

The list of *vulgare* varieties to follow is very much condensed due to lack of space. Sir William Wright Smith and Dr. H. R. Fletcher have an exhaustive and extremely interesting monograph on the Vernales Section, with a fine bibliography which may be obtained from the Botanical Society of Edinburgh 4, Scotland, for $1.70 postpaid. Most of these species are quite easy to grow and come easily from seed. Much of the seed is available and more would be gathered if there were sufficient demand.

*vulgare* var. *alba* has white flowers, retaining the orange spots on the petals.

*vulgare* var. *atlantica* has white flowers, yellow throat, yellowish tube and a 5-winged calyx. Algeria.

*vulgare* var. *caulescens* has elongated pedicels, each holding several flowers.

*vulgare* var. *hypoleuca* is marked by a heavy coat of fur on the undersides of the leaves. Greece.

*vulgare* var. *obscura* is found on the Northumberland coast of England and has very dark green leaves.

*vulgare* var. *palchella* has smaller flowers than the type, is pale yellow with an orange eye made up of spots. It grows near running water on the island of Andros in the Aegean Sea.

*vulgare* var. *purpurea* occasionally produces a well-developed scape, is purple and grows in large colonies in Pembrokeshire, Northumberland and Durham, in England.

*vulgare* var. *rubescens* is said to carry an unusual amount of anthocyanin and is found in England in the Cibside Woods, near Birtley and occasionally near the coast.

*vulgare* var. *sileniflora* has petals which are divided to the base in free segments. Not to be confused with *P. sileniflora*, a cross between elatior and veris which also has a deeply divided corolla.

*vulgare* var. *transcuta* has the petals of the corolla "squared off" or truncated.

*vulgare* forma. *viridiflora* "The corolla is of a very pale green colour with a yellow throat. The corolla-lobes margins are slightly crenulate..." (F) The under side of the corolla is faintly rugose and clothed with a slight atrophic pubescence (like a heavy cobweb). It is evidently a foiliaceous (with leaf texture) corolla, but with a texture on the upper side nearly glabrous and having the shape of a Primrose blossom." (Druc e in Botany Exchange Club, British Isles, 446, 1925) Found at Inverary, Argyll, Scotland.

*vulgare* var. *viridimaculata* has blotches of bright green at the base of the corolla-lobes.

*Waddellii* (16) "is distinguished from the rest of the Minutissimae by the long narrow corolla-lobes, as is its close relative teuailoba, which is covered on the outside of the corolla with long white hairs while *Waddellii* has a flower which is quite smooth." (A) A very dwarf, tufted, smooth, non-meaty species with thickish spatulate leaves, rounded at the apex; almost ⅝ long and ⅛ broad, with rounded or sharp, regular teeth. The flower stem, ⅛-⅜ long rises from a thick rhizome where the withered remains of the old leaves clodhe the base of the plant, and bears a solitary purplish-blue almost pink blossom. The corolla exceeds in size the tightly rolled rosettes of foliage, is solitary, sessile and flat, about ⅝ across, with heart-shaped lobes which are vaguely reminiscent of minima except that they are more regularly and deeply cut. The tube is cylindrical, about ⅝ long and is glandular in the throat. Although this lovely and exciting flower has not become acclimated to the point of flowering as beautifully as it does in the wild (see Major Sherriff's photograph JSR, No. 8, Fig. 26) it is still in cultivation.

*Walshei* (16) N.W. China, Bhutan and S.E. Tibet, at 15,000' on steep mountain slopes in short turfs. A minute, densely leafe species with a rosette or tuft of oblong-lanceolate leaves ¼ long, with a ⅜" winged petiole. The ⅜-⅝ flower stem is "immersed in the leaves, carrying 1-4 flowers; bracts about ½" long, ovate to lanceolate, attenuate at the apex, broadly clasping at the base, forming a small cup-shaped involucre from which arise the flower pedicels, more or less as long as the bracts; like them glabular-puberulous." (S.F) The corolla is pink or rose colored, yellow-eyed and about ¼ across, with narrowly heart-shaped, deeply bifid lobes. The tube is longer than the calyx.

*Waltonii* (26) An extremely high alpine which grows in damp soil on hillsides above
Lhasa, also in damp, alpine meadows and on the edges of small streams in S.E. Tibet at 13-18,000'. A handsome, deciduous perennial with a large tuft of non-dowly leaves with oblong, broad, blunt, membranous, rugose blades which taper to an obscurely winged stalk, measuring in all, 3-4'-12' long and ¾-2¾" broad. The leaf margins are furnished with irregular, saw-like teeth as though gnawed by insects; both surfaces glanular-pitted, undersides more or less coated with yellow meal. Flower stem 8-30" tall, more or less yellow, mealy, stout, bearing a large, many-flowered umbel of dull violet, to bright pink, rich violet, or deep crimson-purple blossoms. The corolla is concave, about ½" across, with broadly heart-shaped, slightly notched lobes; tube cylindrical, dilated upwards, downy in the throat. Kenneth Corsar, warns us that W. warringtonensis is a somewhat harder plant than obconica, but is especially hateful in that it causes the dread irritation, which is often attendant upon the species and hybrids of the Obconica Section. It is a disservice to have this beautiful variety on the market as it affects some people to the extent that they lose layers of skin which after apparent healing may continue to itch for a year or more. Nurserymen and seed exchanges were not properly advised or they would never have sponsored such a traitor to the joy of primula growing.

Watsoni (17) "is the most worthless of the Grape-hyacinth group. It makes rosettes of shaggy oblong foliage and sends up rather tall (to 12") bare fat stems that end in a spike of (deflexed) small and wizen (deep-indigo-purple) flowers ridiculously insignificant at the top of such a powdered mayapple. (RF) The leaves look rather interesting in texture as they are softly hairy, 6" long, 2" broad and have a short leaf stalk."

Wattii (28) "I agree with Mr. Kenneth Corsar that this is one of the most beautiful, although not the easiest, Primula yet introduced. The inflorescence is typical, each individual flower larger than the well known Watsonia but fewer in the truss. My plants are grown in a compost of almost pure leaf mould, very little loam, but plenty of coarse sand and crushed charcoal to keep it porous. Perfect drainage is a sine qua non for the plants. The leaves are hairy, typical of most of this series, and we would describe the colour of the flowers as deep violet. The leaves are obconica, similar to those of Primula obconica, with elliptic, blunt leaves, gradually tapering to a winged stalk, in all from 6-12" long; both surfaces green and a little less glaucous than Poissinii, its closest relative. The leaf margins are slightly recurved and edged with irregular teeth, much like those of japonica. The flower stem is 20-30" tall, stout, erect, bears 3-6 superposed umbels of many sweet-scented, deep reddish-purple blossoms which fade to pale mauve with age, and are borne on rounded lobes margined with blunt, rounded teeth; tube funnel-shaped, about ½" long. pedicels ½" long. Corolla concave never becoming flat, ½-1" across, divided into 5

Watsoni (21) Grows in the openings in evergreen forests, amongst Rhododendron, on the mountains of Bhutan and S.E. Tibet. 11,000'. Considered by Sherriff and Taylor to be "one of the most beautiful in the whole genus."

Most of the plants they found were growing on shady mossy banks but they were surprised to find a few growing as epiphonies on moss-covered tree trunks. This perennial produces a compact tuft of numerous thin, membranous leaves 2-3½' long, with elliptical, blunt blades, tapering to a wedge-shaped stalk; margins edged with a few irregular, pointed teeth; outermost leaves scale-like, leathery, from ½-1½" long; upper surface more or less smooth, undersides frequently densely mealy. Sherriff and Taylor write that a tight delightfully mealy resting bud forms as soon as the old leaves wither away and these lie dormant all winter under the snow only to break out in bloom with the violets and adonis. The ¾-2¾" scape bears an umbel of 5-10 blossoms, "lavishly produced" on slender stalks up to 1½" long. The "milky blue" corolla, ¾-1½" across, has broadly heart-shaped lobes which are 3 times incised at the apex to give almost a fringed appearance on some forms. The tube is funnel-shaped, slightly longer than the calyx, with a cream-yellow ring in the mouth. (Fine colored illustration, Vol. 8, p. 110, AG).

Wigramiana (28) "has pretty rosettes of rather broadly ovate, revolute leaves about 2" long (2½-4" according to S.F.). These leaves are covered with soft hairs which gives a texture finer than the softest velvet. The flowers are white, 1½" across, widely funnel shaped with ovate, slightly toothed lobes. There are 6 or 7 pendant flowers to an umbel. Wigramiana with its beautiful resting buds is an interesting plant during the winter, but it must be remembered that it will not tolerate overhead moisture and likes a dry resting period. Mrs. A. C. U. Betry grows this little ivory aristocrat out of doors with the protection of a glass or cold frame sash together with its smaller relative Reitii and other Asiatic treasures." (Louise Gee, Portland, Oregon) Note the similarity between Reitii and Wigramiana as shown in the accompanying illustrations. The numbers on the side rulers indicate inches.

Wilsonii (4) This handsome, evergreen, robust, later-blooming, damp-ground species produces a tuft or rosette of very aromatic, smooth, non-mealy, broadly lance-shaped, blunt leaves, gradually tapering to a winged stalk, in all from 6-12" long; both surfaces green and a little less glaucous than Poissinii, its closest relative. The leaf margins are slightly recurved and edged with irregular teeth, much like those of japonica. The flower stem is 20-30" tall, stout, erect, bears 3-6 superposed umbels of many sweet-scented, deep reddish-purple blossoms which fade to pale mauve with age, and are borne on rounded lobes margined with blunt, rounded teeth; tube funnel-shaped, about ½" long. pedicels ½" long. Corolla concave never becoming flat, ½-1½" across, divided into 5
lobes margined with blunt, rounded teeth. It seeds profusely and is easily cultivated in any cool rich ground. The poor color forms should be ruthlessly discarded at first sign of bloom so that the naturally produced seed will be of good quality. If the plant is not aromatic and the blossoms sweet-scented, it is not *Wollastoni* but misnamed as so many of the seeds have been which have come to the test garden.

*Wollastoni* (28) Nepal and Tibet, 16,000'. A beautiful, dwarf species with a rosette of oblanceolate leaves, 1-2" long, about ½ as broad, rounded at the tip and gradually tapering at the base to a broad stalk; margins elaged with irregular teeth and densely fringed with hairs; both surfaces non-mealy but clothed with glandular, meal-producing hairs, mid-rib reddish. Flower stem about 4½-8" tall, smooth below, densely coated with white meal among the flowers (2-6) which are "borne in compact heads, with thimble-shaped corollas and hairy sepals; they are pure blue (to deep purple) in colour, exquisite in shape and dusted with snowy fifth." This plant flourished on dry well-drained banks among short grass and did not seem to demand the peculiar mixture of drainage and moisture which is often difficult to imitate." (O. Polunin, RHSJ, 8/50, p. 310) It is interesting to note that the garden hybrid between *Wollastoni* and *Reidii*, *P. x Prospect*, is more vigorous than either parent.

*Woodwardii* (18) is the beloved "Imperial Primrose" of Farrer from Kansu. He wrote, noting his own success in growing it, "...heads of red purplie stars unfolding above the pale tussocks on its 8' stems... outstanding is the eye of ashen black that forms the centre of each flower; which makes it one of the standing miracles and problems of plant life, for it develops, in cultivation (though not in the wild) a clear eye of white round that central blackness of the tube's throat—a development which excessively increases and illuminates the loveliness of the flower." The interesting leaves are irregularly toothed and ribbon-like, 2-3" long and appear in a tuft from a short rhizome. "It is distinguished from other Nivales by its tendency to lack of farina, the elongate and narrow corolla-lobes, the 10-lobulate annulus, the very dark hue of the corolla-tube and the tube." (S.F) It is not known where plants or seeds may be procured.

*Wulfeniana* (2) A beautiful, large-flowered perennial species with a rosette of stiff, quite entire leaves ½-2½" long, with narrowly elliptic, oblong, or rarely lance-shaped, pointed blades; margins bordered with a broad, incurved, cartilaginous membrane fringed with minute glands; upper surface deep glossy green, rather viscid, underside intensely glaucous. Flower stem ½-3" tall, fairly stout, tinted red, or at times slightly mealy, bearing an umbel of 1-3 brilliant rose-mauve to rose red blossoms with white eyes and throats. Corolla 1½-¾" across with unevenly and broadly heart-shaped, deeply notched lobes. In culture the plant should have sun, and a good loam. Propagation is by division or seed. Hybridizes in nature with *minima* and *tyroldensis*.

*xanthopa* (29) "seed (from L&S, 1949) germinated freely and I obtained a good many plants. One by one these have died but ONE seed which I collected germinated last year and the resulting plant is a fine healthy and strong. Not so attractive in many ways as some of the rarer Primulas, it still is a very lovely plant, the deeply cut leaves are thickly coated with golden farina and the stem is long (4-6") and has 1-3 flowers of a vivid but peculiar purplish-pink with a yellow eye. I tried some of my plants outside in the peat wall where they flowered well but all died in the following winter, I fear the damp of Westmoreland was too much for them. (Cicely Crewdson)

*yargongensis* (11) White flowered forms of the usually pink, purple or mauve *yargongensis* are extremely rare, and except for this, and cytological differences, the description for the slightly larger *involucrata* would hold for this species. The two are readily distinguished from any other member of the genus by the excessive prolongation of the bracts below their insertion. (S.F) A mass planting is very effective in a moist spot in the garden.

*yunnanensis* (11) The wide altitudinal range of this species has caused it to vary in structure to the confusion of descriptions. Franchet and Fletcher both have seen forms which they have called "elegant" and the plant was considered worthy of introduction by Bees Ltd. Farrer writes, "In the garden it is utterly wiped out by Umbrella, being a puny
little thing like a tense and wizen farinosa, with just a pair of flowers on stems above a starveling tuft. This small tufted plant produces a fairly dense rosette of leaves 1/2-1/2 long, with narrowly oval, minutely toothed rather blunt blades, narrowed to a short winged stalk; upper surface whitish-green; underside coated with yellow meal. Flower stem very slender, 1-3" tall, bearing 1-5 rose-pink to lilac, yellow edged, fragrant flowers, 1/2-1" across and deeply cleft. Flowers in August.

yarpanesis (11) is a most beautiful Japanese, in habit like farinosa but with very much larger long-tubed blossoms in the way of longiflora, borne erect, by twos or threes on a dainty scape of 3-4". (RF) "...will respond to the same treatment as farinosa and mass planting is recommended. Propagation is best effected from seed and young plants, once established, will flower well during the course of their rather short lives." (C)

Proposed Amendment to the By-Laws, Art. III, Sec. 2, to read: Membership dues shall be due November 15th for the following year and we consider delinquent at the beginning of the A.P.S. business year, January 1st.

This amendment will greatly ease the work of the treasurer and a savings will be made in that January Quarterlies will not be sent to those no longer interested in membership. Dues which come in early will earn the gratitude of the overworked Staff. Number one member for 1955 is Miss Esther A. Bensley, number two, Victor H. Steele, and number three is Mr. Bob Kern, Lilly's Portland Manager, and a new member.

NEW AND REINSTATED MEMBERS

ACKER, Mrs. Edward G. Box N. Setauket, L.I., N.Y.
BARRY, Mr. Tom Box 6, St. Helens, Ore.
BELLINGHAM, Rev. Ernest R. Box 6, St. Helens, Ore.
BROWN, Emma M. Rt. 1, Box 6, Shelton, Wn.
BUCANAN, Mrs. Edward B. 1125 N. Summer, Salem, Ore.
BUENTENSHA, Mrs. J. Springlands, Glen Park, N.Y.
DUBIAGA, Mr. Michael. 9519 Pinegrove Ave., Farra (29) Ohio
DUNHAM, Mrs. Margaret R. 4, Box 248, Grants Pass, Ore.
EMBRY, Mrs. William C. Rt. 1, Box 107, Petersburg, W.V.
GERMAN, Mrs. C. lady. 2735 Rutland Terrace, Portland, Ore.
HARMAN, Dr. A. A. 131 South Birch St., Denver (26) Colo.
HERVIN, Mrs. E. D. Box 116A, East Stanwood, Wn.
HINKLE, Mrs. Wallace H. 1156 Willmore Ave., Springfield, I11.
HOEPNER, Mrs. Karl 2735 Rutland Terrace, Portland, Ore.
KEHL, June M. Box 175, Colfax, Cal.
KILDOW, Miss Cecilia 707 Meridian Ave., Seattle 3, Wn.
KING, Miss Ela Louise Miss Ela Louise
MAGNUS, Eda Louise 160 Grand Ave., West Highland Park (3) Mich.
MELICK, Mrs. B. H.G.R. Hospital, Charlie, Mich.
MELNICK, Mrs. B. Box 106, Pleasant, W.V.
OTTMAN, Mrs. Warren C. 575 Hardcastle Ave., Woodburn, Ore.
PHILIPOT, Mrs. T. M. 160 Hamton Court, Athens, Ga.
RUTHERFORD, Mr. Peter 28 Rezina Ln., Bendigo, Victoria, Australia
SCHLOSS, Mr. C. Letter 1516 Willmore Ave., Woodinville, Pa.
SHARAY, Mr. Joseph 100 Grand Ave., West Highland Park (3) Mich.
SHANTZ, Miss Cecilia 1600 S.E. Crystal Springs Blvd., Portland, Ore.
STENKE, Mr. Melvin H. 11704 E. Forty-ninth Ave., Pittsburgh, Pa.
TEMPLETON, Mrs. W. A. 3336 Seven Mile Rd., South Lyon, Mich.
THOMPSON, Mr. Robert H. 3948 S.E. Crystal Springs Blvd., Portland, Ore.
THOMPSON, Mr. Robert H. 3948 S.E. Crystal Springs Blvd., Portland, Ore.
TOOLE, Mrs. V. M. 1603 S.E. Claretian St., Portland, Ore.
WATERS, Mrs. J. Box 243, Mtn. Vernon, Wn.
WATERS, Mrs. W. J. 2735 Rutland Terrace, Portland, Ore.
WEAVER, Mrs. Donna 101 W. Center St., Des Moines, Ia.
WHITBY, Mr. Victor C. 9345 E. Raymond St., Kingtown, Cal.
WILLIAMS, Mrs. H. Dane 1136 Willmore Ave., Springfield, I11.
WILLIAMS, Mr. R. M. Box 175, Colfax, Cal.

IMPORTANT NOTICE

General election of officers will be held at the annual meeting of the American Primrose Society, December 21, 1954. Members outside the Portland area in good standing who wish to vote but cannot attend the meeting may send to the Treasurer, Mrs. C. Y. Griffin, 2946 N.E. 58th Avenue, Portland 13, for a ballot. Marked ballots must be returned to that office before the annual meeting.

Seasonal Notes From Barnhaven

Florence Levy

We know it is autumn because the little fogs of morning have begun to wrap in mystery the things we know so well, and the plants prepare for the closing cadence, our mixed feelings are generally described as melancholy. Could it be however, only a natural reaction from the warming-up of spring and the sensuous delights of summer when we realize their time is past? Every peak of pleasure has its valley, but not necessarily a sad one prepared, prepared with the tender wistfulness of a happy memory.

To me there is more of reflection than melancholy in autumn, more tranquility than sadness, a time for appraising the months that have passed and planning those that lie fallow ahead. This interval with its books and studies offers as much fascination as the most seductive of seasons. But no matter what occupies the gardener at this time, his sense and his welfare must be considered. Thought of his plants and their welfare run through his mind like an invisible thread. He may be nonconformist of it only with every change of the weather - unseasonal warmth, temperature drop, freezing winds - always his first thought is, "How is this affecting my plants?"

The man or woman who has long worked in the soil instinctively feels a fundamental kinship between himself and his plants, and himself, and because of this natural affinity senses when care is needed. His uneasiness during adverse periods is quick, is almost at the point of collapse, but the man who has practised precautionary measures takes during the growing season and his preparedness for winter emergencies, even the growth of his plants make a sudden descent below freezing without giving time for hardening-off. The best tactics for avoiding collapse is avoiding fertilizers high in nitrogen and by applying no nitrogen in concentrated form in the fall. Nitrogen, as every one knows, stimulates the flowering growth and water growth when water is present. Should a mild rainy period be followed by sudden freeze it is the lush plant that goes first; Trials with an organic liquid hardening-off fertilizer (Liqunox 0-10-0, 0 nitrogen, 10 phosphorous, 10 potash) this spring showed that even broad sheets of water can be used advantageously in the fall as an artificial hardener. A difficult set of conditions prevailed in Oregon this year beginning with a mild February which brought on the bloom falles, followed by a freezing spring and climaxing with temperatures of 25 degrees April 30th. Budding plants were transferred from the pollinating benches, were caught in this freeze which layed mature stalks limp upon the soil. Liqunox 0-10-0 was applied and in twenty-four hours stems were up, if not erect, each like a stached figure 5. The stalks immediately below the umbels looked like girdled trees in miniature, but recovered to bear a large seed crop.

Our soil preparation in the summer is planned for a rugged growth both for winter safety and for shipping long distances. Our Polyanthus plantings have been in a fairly old apple orchard for almost twenty years so that replacement of humus is doubly necessary. We begin by tilling in the horse manure which thus puts between rows and around the soil plants the preceding fall. To this is added Organic Morcrop with an analysis of 5-5-7 and in addition 18% super phosphate. The 5% nitrogen in the Morcrop, necessary for breaking down the existing elements and for starting growth, leaches out by fall, and whatever phosphate is unused remains in the soil for future use.

Early planting, wherever possible, is one of the best safety measures. Obviously the longer the growing period, the heavier and deeper the root growth, the better for making for a sturdier, more completely established plant. Here we like to plant in July and August, mulching in September or October with strawy horse manure. So much for early planting, low nitrogenous fertilizers and fall mulching.

In areas guaranteed snow protection until spring definitely arrives nothing else is needed to bring plants into perfection of bloom in due season. But in those places where snow is unpredictable and spring is arriving and departing, like an absent-minded guest after some time, we must prepare by hardening-off. Both rockpile of boughs or wood excelsior may be the difference between plants and no plants. Mrs. Vince of the Oxtails tells us in the fall, the boughs in which her bulbs are packed over her plants as an additional protection, and Captain Rosenthal of Connecticut caution me that the amount of boughs before spring is firmly settled.
Composts have interested gardeners for generations and it is wonderful that plants were able to survive some of the concoctions such as the one given in 1792 in the FLORIST'S DICTIONARY, "1/2 rotten cow dung, two years old, 1/6 fresh sound earth of an open texture, 1/8 earth of rotten leaves, 1/12 coarse sand, 1/24 soft decayed willow wood, 1/24 peaty or moory earth, 1/24 ashes of burnt vegetables." This base was added to for specific purposes with different proportions of "night soil, bullock's blood, goose dung, sugar baker's scum, and bone meal." All this goes to show that a gardener, who loves his plants, will go to any amount of trouble to provide for their needs.

The English point of view can best be expressed by an excerpt from the new and very interesting book by Roy Genders and H. C. Taylor, PRIMROSES AND POLYANTHUS. (see page 169) "For seedling plants, Mrs. Florence Levy recommends this mixture; to three bushels of good loam, add the same amount of coarse sand, then add two bushels of granulated peat and a like amount of a Canadian preparation called 'Blue Whale,' which is dried sphagnnum moss with a soluble whale preparation incorporated to provide a steady supply of food value. In Britain bone meal or flour appears to give the same result as the whale preparation, but many large growers fight shy of this fertilizer, for it has a tendency to produce harmful maggots in the soil. At the nurseries of Mr. James Douglass at Edenside, one of the largest growers of auriculas in England, the compost used consists of four parts of fibrous loam which is put through a half-inch sieve, one part of well-rotted manure, and one part of leaf mould; and to the whole is mixed a small quantity of sharp sand. . . . Many growers use the John Innes Compost, the formula of which is: 7 parts sterilized loam, 3 parts granulated peat, 2 parts coarse sand (and) to each.
bushel is added: 3 lb. ground chalk or limestone and 1 lb. John Innes Compost."

It is our understanding that the mysterious "1/4 lb. John Innes Compost" is made up of something like two parts of horn and hoof, which contains about 13% nitrogen, and two parts of superphosphate of lime, which contains about 16% phosphoric acid, and one part sulphate of potash (which contains about 48% potash).

We have tried to approximate the compost as given above and have tried it in competition with Blue Whale on transplanted seedlings. The results in both cases have been very good although the leaves in the Blue Whale plants were of a deeper green, and of a heavier texture. When we transplanted the seedlings to the open ground six plants were retained in each flat, in each case using the same compost which had accommodated about ninety plants for about three months. Each flat had enough good loam added to fill it. By the time these plants bloomed there was a distinct advantage in size of bloom and general texture of the leaves and floret in the Blue Whale flat. However, the other plants made a fine stand and both flats were so full of roots that a good deal of pruning had to be done to separate the plants.

We asked Mr. Watson of the Acme Peat Company to account for the difference in the way these plants grew. Both had the best of care, and the English compost seemed remarkably adequate. He answered, "In making up the Blue Whale Compost, by incorporating the different components into the Sphagnum Moss, we feel sure we have a product which the soil bacteria can break down 100% in the course of time to feed the plant growth, with absolutely no waste by leaching or evaporation. The Sphagnum Moss, being as it were, a stonehouse for the other components which are all organic and thus are the natural foods needed by plants. The Whale Soluble is the essence of the Whale, from bone, meat and blubber. The Baleen and Bone, as we use them in their predigested form, have all their rich quality retained in them, in exactly the form and condition to be best used by the growing plant.

The main point here is that so long as any of the combined whale products and Sphagnum Moss remain, the fertility in the remaining portion should be the same as when it was first used. The Nitrogen content should not be less."

Very fine plants have been grown in well drained, well nourished soil which has enough humus content. Well rotted animal manures, leaf molds and carefully made clean compost, coarse sand, a fine grade of Sphagnum Peat Moss, and a well balanced fertilizer, are available in most districts.

With a little imaginative experiment one gardener should be ultimately successful in finding the right compost to meet the needs of his plants. Sphagnum Peat Moss, as an ideal medium for Seed Germination is very ably discussed in Leaflet No. 243 which may be obtained from the Dept. of Agriculture, Washington, D.C. for five cents.

A JUDGING COURSE OF THE SHOW AURICULA will be given in the next Quarterly so that those who are interested in the finer points of these aristocrats will have a chance to perfect their vocabulary and general knowledge. Visual courses will be given at any of the A.P.S. shows where there is sufficient demand.

THE SHOW AURICULA FLORICULTURISTS OF AMERICA

The Quarterly has the responsibility of seeing that the Bamford Trophy and the other Awards entrusted to its care, are awarded according to the traditional standards. For this purpose a Judges Committee is being formed of the finest Judges in the country, such as Mrs. Ben Torpen in Portland and Ralph Balcom in Seattle. This committee will form the nucleus of a group to be called, "The Show Auricula Floriculturists of America." A membership in this group will be open to anyone who will take the trouble to learn the rules and pass the tests of Judging as laid down by the Old Florists and compiled by the experts such as Dan Bamford, Cyril Haysom, Florence Levy, and Dr. Bond. A full explanation will be in the January Quarterly.

Twenty-one years ago, in 1933, our new English Editor, Roland E. Cooper, discovered the Primulas of the Section which is now called PARRYI, and which only grow in America, to be unique among the world’s Primulas. They fold their leaves inward in the bud, as do the AURICULAS of Europe but whereas the latter with their tight rosettes of fleshy leaves show much restraint by their environment the PARRYI have unrestrained, soft-leaved growth.

The year 1954 sees the coming of age of the PARRYI Section of the Genus Primula.

Give A Breath of Spring For Christmas

GIVE MAJESTIC POLYANTHUS SEED

(guaranteed true by the originator)

Let Linda Eickman post a gift of her Award Winning "Crown Pink" or "Warm Laughter" seed at $5.00 a packet or $2.50 for ½ packet, or her fine hand pollinated seed of White, Yellow, Red, Flame, Lavender, Purple, Pastel or Mixed colors for $1.00 a packet — to arrive just before Christmas. Your own card and greeting can be enclosed.

LINDA A. EICKMAN

3531 S.W. Falcon St. Portland 19, Oregon
Dear Members of the A.P.S.

After reading Mrs. Harmon's story of how she uses Carco-X to keep her garden free of insects, by a method which I thoroughly endorse, I wanted to tell you of further merits of CARCO-X.

Although Carco-X is widely used, it is seldom realized that it is a wonderful fungicide. I have played with Rhododendrons for better than fifty years but of late I met many losses in my best stock due to a phytophtora disease known as Root Rot. This fungus has been bothering many seedlings and mature plants of evergreens causing them to die suddenly. This bacterial disease is especially prevalent in the soil during the winter months and in late years some of my species Rhododendrons from the Dr. Rock collection of 1931 have become victims. I was absolutely desperate when my rare and as yet unbloomed Rhodendron phaeochrysum seedling started to go. I tackled one with several limbs gone to find out what could be done and discovered much to my disgust that nearly half the roots had rotted. I turned to Carco-X, and made a solution exactly according to directions, and dipped the remaining roots into it and got some fresh Peat and repotted the seedling without using any soil whatsoever. I then put a large label on the plant which recorded the exact date, the name of the solution and the proportions used. I placed the plant on the bench in my greenhouse where it was watched with much interest for it seemed to hang on to life. After a few months growth began to show, and I knew by the looks of the plant that it would grow and live to perpetuate the species which would otherwise very likely have sunk into oblivion. This species does not seem to be known and since the Communists have taken over the part of China where Rhododendron phaeochrysum grows naturally, it can be said that Carco-X saved an irreplaceable plant.

Rhododendron phaeochrysum will have its first real blooming here next year. It is 22 years since the seed was sown in 1932. You can imagine what it would have meant to me to loose it after waiting all these years to see it bloom. Artificial pollination will be carried on to assure some seed production.

Very truly yours,

J. G. Backer (Signed)

(Please turn to page 115, July Quarterly, for instructions on how you can purchase Carco-X.)

Lilly's Organic Morcrop builds humus in the soil and encourages good soil bacteria.

This superior lawn and garden fertilizer acts as a reservoir while it feeds rich nitrogen, phosphate and potash to growing plants.

It acts quickly—but it is long lasting in its effect.

Lilly's Organic Morcrop is a scientific combination of elements that are known essentials for sturdy plant growth.

It is economical too...one 80 pound bag feeds 2,000 square feet of lawn.

Winterize Your Lawn With Lilly's Organic Morcrop

LILLY'S suggests that you get BLUE WHALE Impregnated Sphagnum Moss and Acme Peat Moss, the best sun dried sphagnum obtainable.

OREGON'S PRIDE PRIMROSES

These primroses set tongues wagging (with superlatives) and there is painting, painting, painting (quoting a customer). These primroses are the product of one worker, whose years, energy, research and inspiration have centered on them. The result is a miracle of colors, texture and size of floret.

"King Midas"—bold orange yellow $5.00 Pkt.
"Magnificent"—mixed splendid colors 5.00 Pkt.
"Fiesta"—Red, bronze, buff, etc. 2.00 Pkt.

R. P. McHENRY
2833 N.W. Raleigh Street
Portland 10, Oregon

It is suggested that you send the interesting and informative new book, PRIMROSES AND POLYANTHUS, by Roy Genders and H. C. Taylor, to your gardening friends for Christmas. It will be sent postpaid from FOYLES, 119 Charing Cross Road, London, for $1.85.
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Catering to the connoisseur for his garden needs, as well as on the Show Bench.

Crown Pink and Warm Laughter
SEEDLINGS READY FOR YOUR GARDEN, $6.00 PER DOZEN
OTHER SEEDLING POLYANTHUS
Yellow, Blue, Gold, and Mixed are Ready, $2.00 PER DOZEN
Mixed Colors ALPINE AURICULA SEEDLINGS
From the FINEST SEED, 6/$5.00; 100/$25.00

JULIANAS
Lady Greer—$1.00, Nettie Gale—$.50, Wanda—$.50, Kay—$.75, Angela (pure white)—$1.50, Dorothy—$.50, Snow Baby (white poly)—$1.00 Dr. Van Veluvin (red)—$1.00

SEEDS
SHOW AURICULA (from named English varieties), ALPINE AURICULA, GOLD LACE (from Blue Ribbon Plants)
We are offering Christmas Gift Certificates, which may be used any time of the year, for any plants or seeds listed in my free folder, or in this ad.

VETERLE & REINELT
Capitola, California

HUMUS makes all Plants Thrive
SUPPLY IT THIS EASY WAY

If garden humus to you means big bags or heavy bales of expensive and hard to get organic matter, write today for the facts about ACTUMUS—a stable humus in concentrated form easily applied to any soil, 100% natural, organic.

Natural Beneficial Soil Treatment
for Primroses, Begonias, African Violets and All Other Growing Plants, Indoors or Out.

A single pound is a generous application for 450 to 1,000 sq. ft. Helps make clay soil crumbly. Develops biological factors of soil. Will not burn or injure seeds, roots or plants. Releases natural fertility elements of the soil. No fertilizer, lime, or compost needed. Ideal for potted plants. Used by thousands of amateur and commercial growers. Makes soil better; makes garden work easier. Where ACTUMUS is used no other soil amendment is needed.

Just ask for FREE bulletins; a postcard will do.

BURKLEIGH CO
DEPT. 244 TOWSON, MD.
CONTROL THE ENEMIES OF YOUR FINE PRIMROSES

THE EASY WAY

* CURLING LEAVES—usually aphids, use improved ISOTOX GARDEN SPRAY-M or Ortho Rose Dust.

* YELLOWING LEAVES—usually aphids—same as for curling leaves—use ISOTOX or Ortho Rose Dust.

* MILDEW OR LEAF SPOT—use ORTHORIX, BOTANO DE LUXE or Ortho Rose Dust.

* HOLES IN LEAVES—half rounds on edges, adult strawberry root weevil—use Improved ISOTOX GARDEN SPRAY-M, BOTANO DE LUXE, or BUG-GETA PELLETS.

* ROOT DAMAGE—usually root weevil grubs, ISOTOX or BOTANO DE LUXE.

* STALKS CUT ABOVE OR BELOW GROUND—usually slugs—use BUG-GETA.

* MINERAL DEFICIENCY—noted by pale color, lack of chlorophyll—use Ortho LEAF FEED or ORTHO-GRO.

* MOLD CONTROL—use ORTHO GARDEN FUNGICIDE for soaking pots to help keep them free of moss. Also a good control for surface mold.

* DAMPING OFF—young seedlings can be protected from damping off with ORTHO GARDEN FUNGICIDE solution.

THE ORTHO WAY IS THE EASY WAY—for ORTHO products are multi-purpose, just two good sprays (Improved ISOTOX Garden Spray-M, ORTHORIX), a multi-purpose dust BOTANO DE LUXE and BUG-GETA pellets will protect your primroses all season.

SHOULD YOU DUST OR SPRAY? Dusting is the easiest. It's already mixed and two ORTHO dusts can handle your problems. BOTANO De Luxe or Ortho Rose Dust. Your own preference and growing conditions will determine your easy ORTHO method.
Jewel Hutcherson reproduces in pastels the true likeness of one you love or of the flower or scene dear to your heart. The finished picture, complete with mat and frame, is a work of art for your home and a permanent record for future generations.

Illustrated here are the different stages in the "life of a painting" to the finished picture (framed).

In ordering portraits, give color of eyes, hair, complexion and clothing; for other subjects give as complete color description as possible. If you wish, state color of walls where picture will hang.

Orders sent in immediately will be finished by Christmas.

Complete with frame and prepaid, $35 each.

Jewel Hutcherson
Hartwell, Georgia

For a large and lasting Christmas Gift of Beauty costing as little or as much as you wish, have

**Barnhaven**

send one of their breathtaking

**BOXES OF PRIMROSES**
in bloom in the spring

or have **BARNHAVEN** send a

**packet of SILVER DOLLAR POLYANTHUS SEED**
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**PRIMROSE SEEDS OR PLANTS** which are offered in the

**NEW ILLUSTRATED 1954-55 CATALOG.**

**BARNHAVEN'S** specially designed gift card
will be sent in the Christmas Season to those for whom you buy.

**Season's Greetings**
from Lew and Florence Levy, Barnhaven, Gresham, Oregon, U.S.A.

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**Alpenglow Gardens**

**Michaud & Company**

Founded in 1915 by F. H. Michaud who was joined in business by his son, Roger F. Michaud in 1927. Mr. F. H. Michaud, famed for his Alpine plant collection, is known throughout the Horticultural and floricultural world and buys rare plants from the greatest growers and collectors both from at home and abroad. These are Air Mailed to New Westminster where they are acclimated "to a good constitution" and propagated and hybridized.

The resulting plants and seeds are carefully packed for shipment on order.

Mr. Michaud and his son specialize in horticultural plants for the rock garden and alpine house. They are also Floriculturists who specialize in the English Show Varieties of Auriculas. To quote an English Floriculturist, "I note that people in Canada and the United States are beginning to appreciate the vast difference between Horticulture and Floriculture. These two enterprises, although they are both confined to plants, are very wide apart. In the world of Horticulture you can let your fancy have full freedom of action, in other words there is flexibility. In the domain of Floriculture there is little, if any, flexibility — there you are aiming for prescribed standards of perfection which are unalterable. Both are hobbies and noble ones. Both would grip anyone who has a soul turned to them. I think that Floriculture is something which grips one more and more as the years roll on. In all the years of my gardening my greatest pleasure has been to add my bit to the evolution and perfection of the Show Auricula. It is up to you in the New World to carry on, for much remains to be done. Many of our growers have had to give up because of the smoke and soot of the congested areas. The Show Auricula must not become extinct because it has been brought up to its present state by many of the Old Florists these past generations and must not be let go behind."

This is quite a challenge and they have done their best to import the best named varieties from their friends in England.

**Alpenglow Gardens**

**FAMOUS FOR ALPINE PLANTS AND SEED**

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Dear Friends:

EVERY FLOWER PART IS BENEFITTED by the use of BLUE WHALE, the impregnated sphagnum moss, as a part of the seed, seedling and plant growing medium. Its organic nutriments nourish the cotyledon, make seedling roots strong and well able to carry out their functions. The baleen and bone in Blue Whale which carries both organic and mineral matter— including phosphorus, which is one of the chemical elements essential for all living things since it is a constituent of protoplasm itself. BLUE WHALE stays at the roots of the plants supplying this phosphorus in a readily available form from the time it is needed for the root growth until reserves, greater than those provided by nature alone, are needed for a heavy seed crop. The rest of the elements from the Baleen and Bone, such as calcium and magnesia, help the phosphorus to make the natural nitrogen contained in Blue Whale, available over the long period of the plant's needs.

Sincerely, your plants' best friend, The Blue Whale