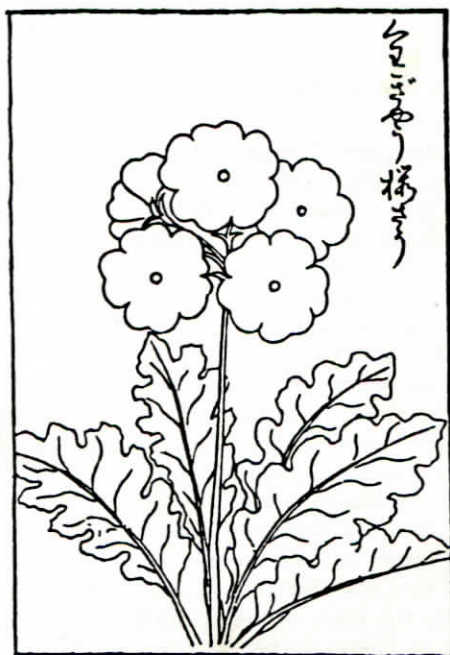


Primroses



Sakiwake sakurasoh



Kagyoh sakurasoh

PRIMROSES
Quarterly of the
American Primrose Society
Fall 1988
Volume 46, Number 4
Published October 1, 1988

Entered 2nd Class, Bryn Mawr, Pa.

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PRIMROSES (ISSN 0162-6671) is published quarterly by American Primrose, Auricula and Primula Society, 8518 - 28th Ave. E., Tacoma, WA 98445. Second-class postage paid at Tacoma, WA and additional mailing offices.

POSTMASTER: Send address changes to *PRIMROSES*, 6730 West Mercer Way, Mercer Island, Washington 98030.

The drawings on front and back covers are from a Japanese gardening book published in 1733, "Chikinshoh Furoku" by Mr. Ihei Itoh, and accompanied the feature article on Sakurasoh by Kazuo Hara.

Summer is Dying

by Laura Louise Foster

These are the last sweet days of summer
 and the leaves
 spin float drift slip
 through the sunspun air smelling of mushrooms
 and woodsmoke
 ripeapple leafmold
 spiced and laced with the sharp cold fragrance
 of asters and drying grass.

Plunge your hands in the fire of color.
 Drink deep the smoky spicy
 bluehaze of summer's breath
 for she is dying in glory
 and there is a long grey time between.

These are the last days.
 The air is blue with mist in the morning
 and the hills are blue on the blue sky
 And in the evening
 the mountains are crimson and gold,
 the rivers streaks of scarlet.

Touch the scarlet the crimson,
 Bask in the flame hot reds
 and the yellow
 the bright bright yellow
 while the birds
 flock and swirl above the burning hills.
 For summer has spread her funeral meats
 and the black crows gather.

Garner the amber.
 The gold of the sunfold lap-warm about you
 against the long lententime
 for the crows have come
 to feast to pry surreptitious
 and strut their mourning.

These are the last
 the last days of summer
 and the birds stream away
 and the last leaf falls
 and the sky
 thickens with wind bruised clouds.

Hold her close kiss
 her golden sunwarmed skin
 for she is leaving
 and a long barren time will pass
 before the seed of spring
 quickens and swells
 in the womb of the year.

Join a Round Robin,
exchange ideas and information,
become friends.

HOW A ROUND ROBIN WORKS

1. You write a letter to me, Elizabeth van Sickle, 654 Marine Drive Sequim, Washington, DC 98382, USA telling where you live, something about your interests, other than primroses (play the violin, grow roses, raise geese, 4H Leader, have two little children or four grown children) type of growing conditions, soil, weather and mountains, sea level. How long have you been growing primroses and what types do you grow and are you interested in other varieties?
2. What kind of a Robin would you enjoy being in?
3. Rules of the Robin:
The Robin travels via the mail, arrives and you read, enjoy, copy, glean information, if seeds are enclosed take a few and within ten (10) days send the packet on with your new letter enclosed (remove your "old" letter) Your letter should be kept to three (3) or under pages and pictures two, if you send these being sure they are labeled. The Robin always goes FIRST CLASS . . . postage being what it is . . . do not put catalogs or other material in the Robin . . . list addresses and information . . . if other members wish the material they may send for their copy.
4. When you mail the packet on you send me a post-card with the date on it of when you mailed it . . . and IF you must keep it over ten let me know. (You don't have to keep it ten days)
5. This sheet and your members list always stay with the Robin.
6. Type if possible, if not write or print clearly. Don't use pencil as it fades as the packet goes through the mail.

* * * * *

Allowing for Holidays and slow mail an eightmember Robin returns about every three months . . . a good Robin usually makes it around three times per year. I find more than ten members is "over-load" takes too long and interest is lost. Better to start another Robin than have one too large.

Sakurasoh: Primula Sieboldii

by Kazuo Hara, Secretary
Matsumoto Sakurasoh & Primula Club
Matsumoto, Nagano, Japan

I. The Historical and Cultural Background

(Ed.'s Note: Because of its charm and felicity of expression the editor has left this piece all but untouched. I know you will enjoy it that way as much as I did.)

In the gardening world of Japan-Sakurasoh (*sieboldii*) dominates over a lot of other cultivated primulas as one of the traditional garden plants and is regarded as incomparable just like the case of *Auricula* in Great Britain.

It was back in Edo Era lasting from the beginning of 17th century to the mid 19th century when the gardening culture flourished most and culminated in the long history of Japan except for today. During the long period of time which had lasted for nearly 300 years, Japan had enjoyed stable days under the strong feudal system governed by the Tokugawas (the Tokugawa shogunate) without involved in any warfares. It closed the door completely to the world except for China, Korea and Holland. Isolated from the world, people enjoyed peaceful days and lives, and various arts and industries, culture and science had developed and evolved during the time of peace.

Since the successive 'shoguns' of the Tokugawas had cherished flowers out of the common, the habit of plant culture prevailed among 'daimyos' (feudal lords) first and spread to scholars, then to Buddhist monks and to wealthy merchants, down to the citizens. Quite a few

garden plants which you see popular all over the world today were raised and bred in those days; for example, Sakura (cherry blossom), camellia, peony, chrysanthemum, morning glory, Hanashobu (Japanese Iris), lily, Kaede (Japanese maple tree), Fuji (Japanese wisteria), Satsuki (Japanese azalea), etc. Besides, there are still lots of those which have not been introduced to the world yet and not known well. Sakurasoh is one of them. (1)

The Japanese had described various flowers in the form of poems ever since ancient times. However we cannot find any description of Sakurasoh in the ancient poetry. It was the end of 16th century that Sakurasoh had first appeared in a literature on flower arrangement. Also, Sakurasoh is said to have been first featured in a gardening book entitled "Kadan Kohmoku" (published in 1681). In a publication on gardening called "Kadan Chikinshoh" (written by Ihei Itoh in 1695) a brief description about the colour of corollas was included and it explained only about the purple flower form and the white flower form of *P. sakurasoh*. Thereafter, the reference to *P. sakurasoh* became more frequent and the part of description on its cultuvars in books increased every time new publications on gardening came out to the public. In 1733 a gardening book entitled "Chikinshoh Furoku" was published

featuring descriptions and illustrations of 9 varieties of Sakurasoh together with *P. modesta* and *P. kisoana*.

The habitat of *P. sieboldii* ranged widely all over Japan. Edo (now Tokyo) was merely a newly developed city when Iyasu Tokugawa (1542-1616), the first shogun, founded the shogunate there. To the north, there was a large meadow which was a fertile flood plain of Ara River running in the middle of Edo, where *P. sakurasoh* grew gregariously all over. Every spring people of Edo city came and enjoyed hiking and seeing flowers of Sakurasoh there. It is said the culture of Sakurasoh originated from the fact that people picked up some plants with variation among them and brought them back home for pot culture.

In the mid 18th century, propagation by seed became very popular among gardening people and then a lot of new varieties of *P. sakurasoh* had been raised and bred. Some of the varieties raised in those days still survive even today. As the cultivation of Sakurasoh won popularity, those who loved the plants met together and made organizations called "Ren" in Japanese. There is a record that among the groups "Shitaya Ren" held the first flower contest for the new introductions of *P. sakurasoh* in 1804.⁽²⁾ In the contest flowers were classified according to the type of flower, and were graded into 6 levels in each class. The prizes were decided by means of a popularity vote among the members. In the world of gardening of those days Japanese people were very much enthusiastic about raising new flowers because those new creations were looked upon as objects of speculation so that great progress was made in creation of new flowers. Just like the case of tulips in Europe, the new introductions of "Kiku" (*chrysanthemum*) and "Omoto" (*Rhodea japonica*) were traded at quite high prices. *P. sakurasoh*, however, seems to have remained as a plant for hobbyists and was never turned

into an object of speculation. It was equally true in the case of "Hanashobu" (Japanese Iris) and "Hanabasu" (Japanese lotus flower). On the contrary, "Rens" of Sakurasoh became extremely closed to the public in order to avoid scattering and mixing-up of named varieties and the rules in each "Ren" became rigid too. On the other hand, it was rather democratic inside the group.⁽³⁾ By the time when those "Rens" flourished here and there, highly improved varieties of Sakurasoh were raised one after another. Almost a half of the varieties we grow today have survived through years from those days. Also the method for exhibiting Sakurasoh in pot on the show bench was accomplished at that time. They discussed and studied in details from the aesthetic point of view the choice of pots for the plants, how to pot and train plants and the arrangement of plants in pot on the show bench. The rules for exhibiting plants is strictly followed by us even today.

The majority of Sakurasoh lovers of those days belonged to the 'samurai' (warrior) classes who were in the upper class in the society of those days but were not very rich financially. It was, however, those 'samurais' who had contributed to the development of Sakurasoh culture with the support of their great store of knowledge and eyes for the beautiful. Many of the variety names of those days are nice and elegant as they were named after old Japanese and Chinese poems, 'Noh' (Japanese drama in the medieval times), the court music and the tea ceremony, etc. for which those samurais had a taste. It is said that there had been 700 variety names, or you may say 1,000 created for Sakurasoh at that time.⁽⁴⁾

And now the end of Edo Era comes. In 1868 Japan opened its door to the world after 200 years' of silence. For the first few years Japan had faced internal disturbances and various culture shocks among people who were suddenly ex-

posed to different culture introduced from the Western countries, and so they seemed to have forgotten Sakurasoh for that period.⁽⁵⁾ But Sakurasoh was never totally neglected by all. Soon after Japan's opening its door to the world, the aristocrat classes began to devote themselves to culture and breeding of Sakurasoh. The characteristic of those varieties, if we point out here, which have been raised since then, is that most of them have the tendency toward being gigantic corollas. Exclusivism of the Sakurasoh groups, however, remained unchanged even after the drastic change in the society. It was after the foundation of "Nihon Sakurasoh Kai" (Japan Sakurasoh Society) in 1918 that a lot of new activities were launched one after another in order to eliminate the abuses which had been prevailing among Sakurasoh lovers' clubs. They held flower shows of Sakurasoh which they made totally open to the public, where visitors could buy some plants as the society's plant distribution program. In association with 'Naniwa Sakurasoh Kai' (Sakurasoh Society of Osaka) established in western Japan. 'Nihon Sakurasoh Kai' took active parts in promotion of the spread of Sakurasoh in Japan until the beginning of World War II. The continuous air raids all over Japan during the war gave annihilative damages to Sakurasoh, too. However it was indeed a matter of remark that some thoughtful lovers of Sakurasoh had made allout efforts during the war time so that they could manage to preserve most of the varieties of Sakurasoh which had been long cherished and cultivated for years.

After World War II, Sakurasoh enthusiasts re-organized a nation-wide society named "Sakurasoh kai" (*P. sakurasoh* Society) in 1952 with the late Mr. Reiro Ohyama as chairman and they started various activities to popularize

the plants all over Japan again. And now small clubs of Sakurasoh lovers and chapters of the society have been established one after another in every place of Japan since then.

Thinking about the history of *Auricula* on this occasion, I see it very interesting that, while Sakurasoh and *Auricula* belong to the different species and they made quite remote and different process of development from each other in their horticultural history at both ends of the Old World, the former in the east and the latter in the west, on a quite contrastive standard of beauty one another, they have something in common with each other. Maybe we have to refer to the cultural background of the west and that of Japan if we try to discuss this matter. I so suggest you Westerners, especially British people, to study and know much about the cultural background the history of Sakurasoh of Japan. At the same time, we Japanese should equally learn more about *Auricula* as well.

ADDENDUM:

(1): Sakurasoh appeared as a gardening plant in Japan a little later than those plants like *chrysanthemum*, *camellia* and *cherry blossom*.

(2): The leader of "Shitaya Ren" was Mr. Takesuke Tsuji.

(3): In spite of those exclusive groups, plants of Sakurasoh had been cultivated and produced at nurseries in the suburban Edo and they were in the market of Edo city as a potted plant.

(4): Sakurasoh then spread over the city of Edo and to other parts of Japan.

(5): There were some plants, besides Sakurasoh, which had lost most of their varieties during that period. Both *Lychnis sieboldii* and *Taraxacum platycarpum* used to have a lot of varieties but there are none available today but they are left only on record.

II. The Name "Sakurasoh"

"Sakurasoh" in Japanese language literally means a cherry blossom (Sakura) and herb (soh). It is an herb that bears flowers very similar to cherry blossoms in every spring just after the cherry blossom season is over as if the withered petals of cherry trees came to life again. This plant is indeed worthy of the name. Speaking of the plant name, it has something in common with English "Prim-

rose". As you know, rose is the national flower of U.K. and ours is "Sakura", cherry blossom.

Here is one piece of famous "Haiku" (Japanese short lyric poem) composed by Issa Kobayashi, one of the greatest poets in the 18th century; it goes like this, "In my country, herbs too bear cherry blossoms".

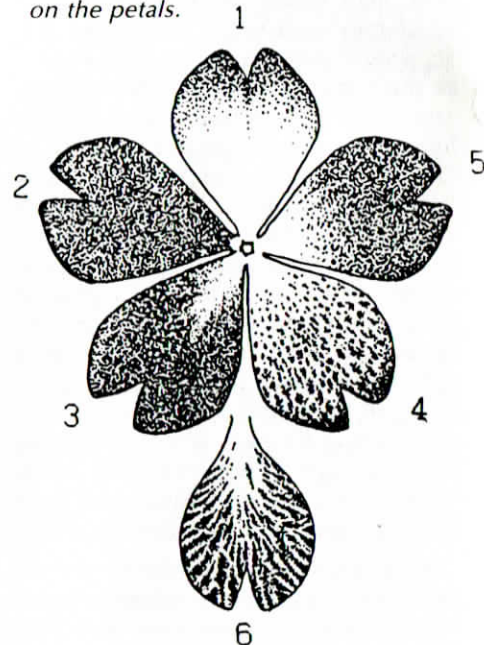
III. The Classification of Flowers

Like a number of varieties of Auricula are classified into various types depending on the colour and the pattern of corolla, a great many varieties of Sakurasoh are categorized mainly in accordance to the pattern of petal, the variation of corolla and the size (diameter) of flowers. The variation in these aspects is so delicate and subtle that you would feel as if you saw the elaborate craft works. I would say that this characteristic of Sakurasoh symbolizes very well the contrast between the horticultural view point of the Japanese toward flowers and that of the West. Now I will make a brief explanation about the classification of Sakurasoh as follows:

1. The size of flower

Taking the diameter of a wild form of *P. sieboldii* as the standard (30mm-40mm on an average), which is categorized as "Medium-sized" flowers, those under the standard are called "Small-sized". Those with 41mm-50mm in diameter are classified as "Large-sized", and those with 51mm and larger in diameter is "Gigantic-sized" flowers. The small-sized varieties look pretty. Some of the varieties in this group raised in 18th and 19th century have survived and are in cultivation now. the medium-sized flowers are full of uniqueness, and the large-sized

Colour patterns of petals in which the colour of the petal is white while the reverse is coloured. These patterns show how the colour of the reverse soaks out on the petals.



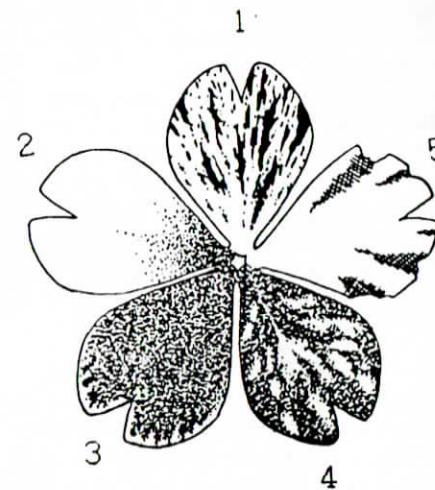
1. Uchi-jiro
2. Me-jiro
3. Me-nagare
4. Akebono-jiro
5. Soko-jiro
6. Hake-jiro

and the gigantic-sized flowers look rich in substance and gorgeous as well. Most of the gigantic-sized varieties have been raised during the past few decades. Please note that the size of the flower often varies depending on the weather and growing conditions of the year.

2. The colour of corolla (See the Fig. 1)

The colour of corolla of Sakurasoh is not very rich in variation compared with that of Auricula and Polyanthus. The colour variation ranges from crimson red to rose, pink, white, lavender and purple with the colour of a wild form as the standard. There are no colours like orange, yellow and blue. Since we have our own aesthetic sense of colour, we prefer relatively faint colours. On the other hand, Sakurasoh has some types of flowers with the face of petals coloured differently from the reverse. In most cases, the face of corolla is coloured white while the reverse is red, pink or purple. This produces a great visual effect on our eyes.

Colour patterns of petals



1. Shibori
2. Soko-beni
3. Tsuma-jiro
4. Shiro-fu
5. Midori-shibori

Some of the plants of this type have the kind of corolla on which face the colour of the reverse exudes quite delicately and subtly. There are several colour patterns of exuding on the face of corolla (See the attached Figure). As you see, each of them will give a different impression. There are flowers of bi-colour as well. (See the Figure 2.) What is unique about this pattern is that there is one type of flower with the petals dappled at the edge and part of the lobes are coloured green as well. Even a white flower form with a red throat occurs, which is not illustrated in the figure.

3. The type of flowers

A. Various forms of petals (Fig. 3)

No. 1 "Sakura-ben" (a Sakura-shaped petal, the standard type), No. 2 "Namiuchiben" (a wavy petal with ruffles at the fringe), No. 3 "Bai-ben" (a spoon-shaped petal), No. 4 "Kagari-ben" (a notched petal; a deeply notched petal is called "Fukakagari-ben" and a shallowly notched one is called "Asakagari-ben"), No. 5 "Maru-ben" (a round petal without notches)

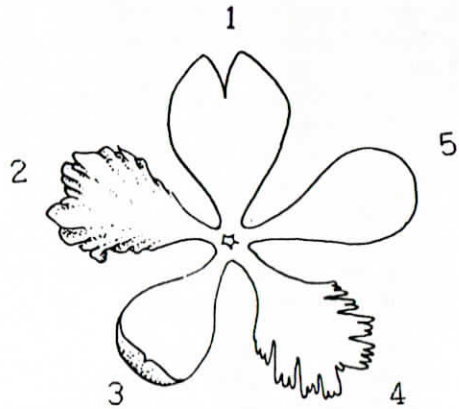
B. The variation of the width of petal (Fig. 4)

No. 1 The Standard (an average petal of a wild form), No. 2 "Hoso-ben" (a slender petal; some wild forms have these petals. There are not so many varieties with this type of petals. But each one has a peculiar atmosphere), No. 3 "Motohoso-ben" (a petal which becomes rapidly narrower toward end at the point of joint), No. 4 "Ju-ben" (broader petals overlapping each other), No. 5 "Hiro-ben" (a broad petal which does not overlap each other but fills the space between the petals neatly).

C. The variation of flowers (Fig. 5)

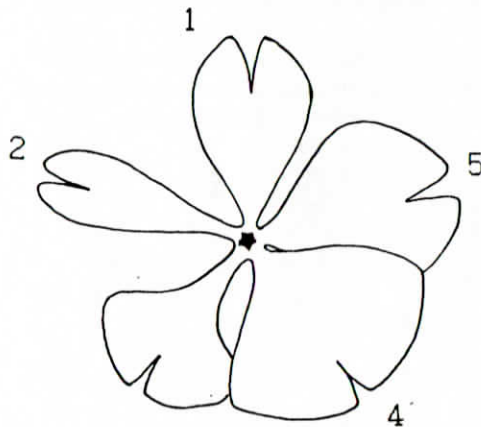
No. 1 "Hira-zaki" (the standard; a corolla of flat blooming), No. 2 "Umezaki" (a corolla flowering like a Japanese apricot flower (*Prunus mume*) with all five lobes rolled up inward at the apex),

Various forms of petals



1. Sakura-ben
2. Namiuchi-ben
3. Bai-ben
4. Kagari-ben (Kire-ben)
5. Maru-ben

Variation of the width of petals



1. standerd
2. Hoso-ben
3. Motohoso-ben
4. Ju-ben
5. Hiro-ben

No. 3 "Asakakae-zaki" (a corolla with the whole lobes slightly rolled up inward), No. 4 "Fuka-kakae-zaki" (a corolla with the whole lobes deeply rolled up inward), No. 5 "Tsukami-zaki" (a corolla flowering like a grabbing hand), No. 6 "Tama-zaki" (a corolla flowering like a ball; the whole lobes are completely rolled up inward), No. 7 "Hoshi-zaki" (a star-shaped flower), No. 8 "Kurui-zaki" (a corolla with irregular petals which does not look neat but gives an impression as rhythmical like a dancing flower), No. 9 "Shishi-zaki" (the extreme type of "Kurui-zaki" takes this form of flower. The petals are curled and frizzled and/or toothed deeply).

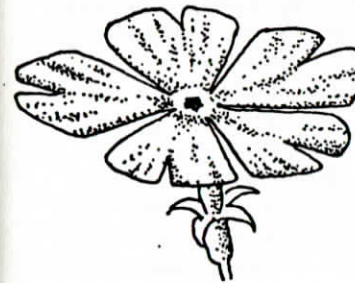
There are a great many number of varieties of Sakurasoh with the flower patterns No. 2 to No. 5 in the above classification, while the number of varieties with the flower type No. 6 to No. 9 is quite small. As for the varieties categorized into No. 2 to No. 9, we can enjoy both the colour of the face of the corolla and that of the reverse at the same time because, in most cases, the two sides of the petals of those flowers are coloured differently from each other. The flowers of No. 8 and No. 9 represent a preference of the Japanese for asymmetry. This tendency is also seen in the cases of Hanashobu (Japanese Iris), Morning Glory and other Japanese traditional garden plants. Also the Japanese like to enjoy the sequential transformation fo flowers, which is quite delicate and subtle; i.e. "Tama-zaki" (No. 6) often changes from a ball to a grabbing-hand (No. 5) in the end.

Now above explains what the standard for the classification of Sakurasoh is all about. Some other elements like which direction the flower faces, upward, horizontally or downward, could be included. Also the length of pistils is regarded as another index to distinguish one variety from the other. Several hundreds of varieties of Sakurasoh consist of

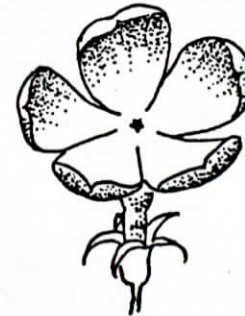
a mixture and combination of those elements described in the above. I hope this explanation will help you appreciate the

highly developed aesthetic sense of the Japanese that Sakurasoh enthusiasts have attained for the past few hundred years.

Variation of flowers



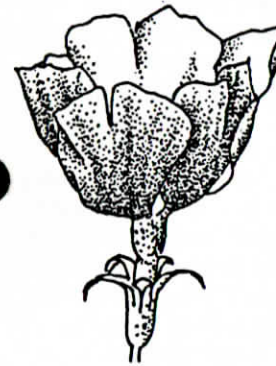
1. Hira-zaki



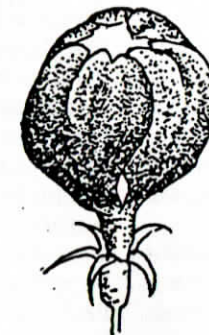
2. Ume-zaki



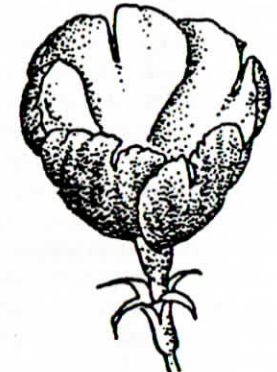
3. Asagakae-zaki



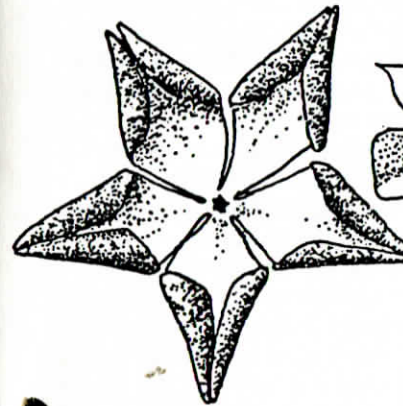
4. Fukagakae-zaki



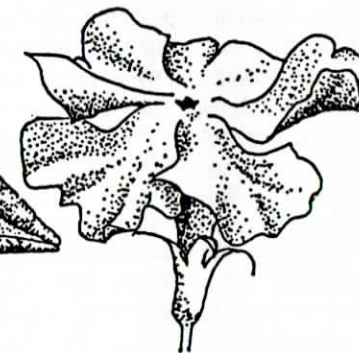
5. Tsukami-zaki



6. Tama-zaki



7. Hoshi-zaki



8. Kurui-zaki



9. Shishi-zaki

IV. The Cultivation and Appreciation of Sakurasoh

Following is a brief description on the traditional cultivation of Sakurasoh. The formal way of cultivation is a pot culture. One reason is that the plants are easy to get nipped if they are exposed to rain, wind and strong sunshine. Another is that the flowers should be appreciated at a height of human eyes holding the plants in pot in hands. Sakurasoh lovers had a good selection of pots more than a hundred years ago which had been best suited for this lovely and elegant plant. Those pots were called "Magohando", which had been originally used as a cooking vessel for food, but were considered as the best pots ever for Sakurasoh in all aspects; a dark brown colour of the surface sets the pale colour of the flowers off to advantage, and good drainage and ventilation, etc. As those types of pots are no longer available, each Sakurasoh lovers' club makes the kind of pots which look quite similar to them.

The Sakurasoh pots are 15cm in diameter. You can place 5 plants in a pot if they are small-sized flowers or 4 plants if they are large-sized flowers. The best time for planting is either in November or in February here in central Japan. All plants must be transplanted once a year while they are dormant. Planting should be done to leave enough space among plants and to estimate equal intervals between the plants when they are grown up.

The plants should be put in the sunshine until they come into bloom, then after flowering (around the end of April) they should be kept under the light shade. As I myself live on the central highlands of Japan, at the foot of Japan

Alps, I do not need to shade plants. The plants of large-sized flowers should be fed adequate fertilizer while they are growing, but you must be careful not to let them be over-fed as Japanese Sakurasoh lovers do not like that.

Growing Sakurasoh in pot has been regarded as a kind of 'bonsai' (a herbaceous bonsai) in that people attach importance to the balance between the plant and the pot. Sakurasoh lovers try their best to balance and train the height, the size and the flower colour of plants by adjusting the quantity of fertilizer and the frequency of watering, or by considering how much compost is to be covered on the plants at the time of transplanting.

Plants in pot are placed on the show bench called "Kadan" for the traditional exhibition, which is a simple hut with stages. The design is very refined with 5-story bench. On each stage 8 pots are placed in order. This form of exhibition was established over 150 years ago so that flowers of Sakurasoh looked most beautiful on the stage. The rule has been followed by Sakurasoh lovers ever since then. It regulates the best arrangement of pots in consideration of the colour of varieties. This "Kadan" hut matches best with a Japanese style garden and with a tea-house where the tea ceremony is conducted.

Today you don't, of course, have to stick to this rule of the traditional pot culture and the arrangement of pots on the show bench when you try to grow Sakurasoh. You can take your own way. Enjoy growing Sakurasoh first and let's share the beauty, elegance and esprit of the plant with us.

"Moving Along"

by Dee Peck
Philadelphia, PA

As the above title promises, things are truly moving along for our worldwide Primula Conference in '92. Decisions about both major and minor details have been made, ranging from the design for a conference logo to the selection of the place for the meetings and the setting up of a tentative program. The logo is quite simple, very attractive and I hope you will be seeing it very soon. After many discarded designs, this one meets with the approval of all the major participating organizations.

The place chosen as the conference center is the Greenwood Inn. It is just minutes from downtown Portland and Portland International Airport. Besides excellent meeting and banquet facilities, the Inn offers attractive guest rooms, some with balconies and fireplaces, and all surrounded by beautifully planted courtyards. There are other facilities offered (swimming pools, disco club, etc.) to those who want to extend the conference into a real resort vacation!

We will not let you in on the entire program until it is firmer than at present, but those of you who do not live in the Portland area might like to learn a little about the Japanese Garden, which will definitely be the setting of a reception early in the conference. It is located in Portland's Washington Park, and according to those who have seen it, it is a gem indeed. Besides exquisite plantings, it includes all the traditional Japanese features: a Ceremonial Tea House, a Strolling Pond Garden, a Pavilion, (where our reception will be held), Sand and Stone

Gardens and many smaller features such as the traditional carp, a bamboo Suzu or "deerchaser", traditional stone lanterns, and over fifty varieties of Japanese Iris. It is the perfect place for the plant lover to feast his eyes and meditate.

Chris Brickell of the Royal Horticultural Society is in charge of the speakers and subjects to be included in the program. Though still tentative, they will include such subjects as Native Primulas of Japan, Plant Hunting for Primulas in China (in gardens and in the wild), Primulas of the Himalayas, Primulas of the Near East and Russia, Primulas of Western North America, Primulas in Great Britain (what's in cultivation, and how), Primulas and Tissue Culture, The Landscape Uses of Primulas, and many other related subjects. A few British speakers have been chosen and will probably include George Smith, Chris Grey-Wilson and Brian Matthews. It is expected that there will also be speakers from Japan, China, and of course America.

Besides all these lectures, remember there will be such fun things as lunches together, the banquet with film of the Expedition, the Flower Show, plant sale, workshops and last, but far from least, the tour of Berry Botanic Garden.

In addition to all this, a preliminary budget has been accepted by the three organizations, work on *The Book* has begun, plans for the expedition are in process and funding for the film comes ever closer. Although a great deal has been done, much remains to be done, and 1992 is closer than you think!

IV. Let's Talk Cameras

by Bruce Gould
Vincentown, NJ

As readers of previous columns know, equipment is not my favorite subject. New equipment is introduced so quickly that many of the things I could write about today will be old hat by the time this is finally printed and mailed. Therefore I'll cover the basics, but recommend that you subscribe to one of the better photographic magazines for the newest of equipment.

My own equipment is comparatively simple, as my style and preferred subjects demand. Since I like to travel I usually find my subjects in some of the worst environments. Thus equipment is as light as I can make it, with few electronic options and automatic nothing. This is my personal preference, not necessarily my recommendation.

If you don't have a camera, or you are about to buy a new one, here are some thoughts that might help. I'm a great believer in self-questioning as a way of establishing a need or direction.

How much time and effort are you going to spend in learning and using your camera? Are you going to make a serious effort in photography? Then you will want a camera that allows you complete control over the photographic elements. For those who want to use their cameras casually to document a subject the camera with built-in controls might be just what is needed.

Next question: are you willing to lug around a great deal of supplementary equipment such as lights, lenses, etc.? Some new camera systems are close to being complete, with but a few accessories. These have film winders and electronic flash built-in and hooked up with zoom lenses that will cover close-ups to

landscapes.

Another thought is, will you be using your camera close to home or trekking it around the world? How easy will it be to get it repaired at home and abroad? How complicated is it to maintain? Is it affected by high humidity, the cold, or being banged around? Also, will it be an asset to your travels or a liability? How much room will it take up in your luggage and how much of your time will it take of your travels? Will you be toying with some exotic article when you need to be keeping up with your spouse, friends or party?

Lastly, the most important consideration is cost. With the declining dollar value, cameras, which are almost all made in Japan or Germany, have increased in price substantially. Some top-line models have almost doubled in price in the last two years. Cost goes deeper then just the initial purchase. People will tend to leave their expensive camera locked up when faced with foul weather or lack of security. This means that if a photographic opportunity comes along, they are out of luck. Having a camera that you are afraid to use is worse than having no camera at all. You have invested all that money in something that is not paying a dividend. Then, too, the more expensive the camera the more costly the repairs and maintenance. Please remember there is a point where you are paying for a name and a lot of extras you may not need or want. The amount of money paid for a camera system will not make a poor photographer great. Great photography starts with the photographer, not the equipment. Creative, thinking photographers are helped by

having the right kind of quality equipment. Becoming a creative, knowledgeable photographer comes from hard work with what you have, not throwing money at a camera store hoping you can buy success. Which is good, since most "good" photographers I know, after paying for film, processing, travel and what equipment they can afford, are usually broke.

I would like to look at cameras, not gadgets or lenses or add-ons, just the camera body. With what is sold today, that could be a book in itself. Improvements, changes, discontinuities make keeping ahead of the manufacturers a full-time job.

Basically, the camera body is a light-tight box that holds the film in place and supports the lens in a focused position so that the image can be transmitted through the lens to the film. Well, an oatmeal box will do that (as anyone who has made a pin hole camera knows). What is it that makes a camera body cost hundreds of dollars?

The first thing that can drive up the price is having the body made of titanium, a strong lightweight metal. This is fine for the people who use a camera every day under adverse conditions, like photojournalists or many wildlife photographers. This is an option with many top-line cameras.

Next is a power winder or motor drive. This can be added on or built into the camera. Its purpose is to advance the film and reset the shutter automatically. This can be a real help when you wish to take a series of photographs. When the film is advanced automatically it is one less thing you have to worry about while concentrating on your subject. There are three drawbacks: 1. Motor drives are heavy, particularly the add-ons that use eight AA batteries. That adds about one pound to your camera. 2. The built-in drives use fewer batteries, but when the power runs out, the camera is inoperative

and there is no manual override. In contrast, add-on motor drives can be disconnected and the camera can be used by itself. 3. If you're not careful you can waste a lot of film. Since it is so easy to just push the button you may end up with a half a dozen poorly exposed, out of focus, badly composed pictures instead of just one. But it may be worth the drawbacks since you can get that next photo, the one that would have gotten away if you had had to advance the film yourself.

The least understood, most quickly changing, most sophisticated electronic part of the camera is the exposure control system. Proper exposure of the film is dependent upon the light that passes through the diaphragm in the lens and then past the shutter to the film. The correct amount of light needed to expose the film is expressed in its ASA or ISO number. The higher numbered films require less light to expose them. Armed with that information you can adjust the diaphragm (or f/stop) and the shutter to allow the proper amount of light to reach the film. In times past this was done with a light meter, which read the intensity of the light being reflected by the subject. The information was then manually dialed into the camera.

With the advent of new electronics and computer chips that same information can be read, digested, compared with stored information, and merged with special information supplied by the photographer then relayed automatically to the lens and shutter, all in milliseconds.

In most new cameras the reflected light is read by the light meter at the shutter or viewing surface. This will take into consideration any change in lens, filter or add-on accessories in front of the lens and read what light will be available to expose the film.

The idea behind a light meter is to read the brightest white and the darkest black and give you an average of the two. This

is close to what the human eye and mind does. The difference is that it won't read all of the whites or all of the blacks in the viewfinder. Many systems have what's called a "center weighted" meter. This meter will read an area of the lower 2/3 of the viewing screen and 2/3 of the width. The reasoning behind this idea is that when the camera is held horizontal the top third is filled with sky which if overly bright will give a false reading. The idea holds up well until you turn the camera vertically and then all the meter is on one side, including much of the sky.

Another idea in metering is to read only a small circle in the center. The "spot meter" gives the photographer a great deal of control over what is going to influence the exposure. The problem is that the subject, which you want properly exposed, is not always in the center. In that case the subject must be "read" by the meter then the photo composed. This isn't always easy if it's a bird on the wing and you have two seconds to compose, focus and shoot. Some cameras, such as the Leica R5 and the Ricoh XRM, have both types of meters and can be switched from one to the other.

The latest advances are multi-area meters. These divide the viewing screen into five segments. Information is gathered from all five, fed into a microprocessor,

averaged and the exposure calculated. This system takes into consideration the bright sky, the brighter sun in the upper corner, the flower center-right and the deep shadow bottom-left. To make this lightning-quick calculation even more mind boggling, the manufacturers have hooked this information into a computer chip which has thousands of photographic situations on file. The data from each zone is cross-referenced with stored information which then uses or disregards some data and enhances others all in relation to the film used and over-all lighting conditions. Nikon FA and the Canon EOS were the first cameras to use this five area meter system.

Simple or complex, seat of the pants observation or years of experience, manual or computer, whatever you use make sure the camera you choose fits your needs and personal pleasure.

Do on-board computers mean photographers no longer have to think? NO! We need to understand what the equipment can do for us. Not less thinking, just different. As amazing as they sound, modern electronic cameras are still dumb machines doing the will of the operator. As they say in the computer field, "Garbage in - garbage out."

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The Genus *Primula*

Josef Halda
Horach, Czechoslovakia

II. subgenus *Auriculastrum* Schott.

1. section *Auriculastrum* (formerly sect. *Auricula* Duby and *Arthritica* Duby.

Primroses of section *Auriculastrum* are among the most often grown alpines. The more difficult species (such as PP. *allionii*, *decorum*, *kitaibeliana* and others) do not enjoy such renown among rock gardeners. Many growers, considering these species to be very difficult, prefer to grow them in alpine houses. Even there these plants prove difficult to keep alive. I mention this indoor wasting away of those plants because even the best alpine house cannot replace the right culture outdoors, in the garden. Only in the garden can these high alpines show their true vigor and beauty, and so, we will try to evaluate various methods of culture that can be practised in the garden setting.

The species of this section can be divided into two groups: Those which inhabit rocks - here P. *auricula*, *palinuri*, *allionii*, *marginata*, *spectabilis*, *glaucescens*, *hirsuta*, *kitaibeliana*, *baumgarteniana* and some others belong. They require a lot of water in spring, i.e. during the time of flowering and seed setting. But in summer these plants begin to form the second, so-called winter rosette of leaves, which is distinctly shorter than that of spring, and indicates that the plant is starting its period of rest. During this time we must limit watering for in the wild this time is the summer dry period; the water from melting snow is gone, and

only an occasional mountain rain gives water to the resting plants. Even autumn in the mountains is usually dry. Only with winter does the water come again - but now in the form of snow, which protects the plants against harsh cold. Many of these mountain plants are damaged in the lowlands by the winter thaws. If such warmer periods last for several days, the Primroses start their growth and the inevitable frosts which follow damage them.

All species of this section need perfect drainage, even those which grow in moist spots in the wild, i.e. plants which belong to the second group. These include PP. *minima*, *viscosa*, *carniolica*, *wulfeniana*, *clusiana*, *villosa*, *glutinosa* and P. *decorum*, which, in the wild often grows with the base of its leaf rosette plunged in water. These species require water during the growing season, but in winter they must have much drier conditions, because in their home mountains they are resting in this period.

All species of sect. *Auriculastrum* are heavy feeders, and they very much appreciate fertilizing (using chemical fertilizers) during active growth. In my rock garden I grow all these species, including the proverbial lime-lovers, in a very acid soil, and they do very well. On the other hand - in several gardens of my friends I see numerous species growing in rock gardens built of limestone tufa. Even the species which in nature dislike any lime in soil; they too are growing well and blooming. I take this to mean, that if

these primulas have a good supply of food in the soil, the alpine gardener does not need to be too concerned whether this or that Primrose comes of granitic or limestone mountains. Actually, in the wild we can see many of the species inhabiting both acid, neutral and alkaline substrates, and they grow well in all.

Auriculastrum is exclusively a European section. Perhaps the largest area is occupied by *P. minima*, which grows from the Alps, over the Sudetes and the Carpathians, to the mountains in the very northern part of the Balkans. Since they are eye-catching plants, they could not be missed by older botanists, and so, this section is perhaps the best known and most elaborated of all the genus. It is possible that perhaps during our time there will be some changes in inner dividing of sections and subsections etc, but I consider the system worked out by Pax at the beginning of this century as perfect, and I retain it. Pax divides section *Auriculastrum* into 7 subsections; their short characteristics are as follows:

1. subsect. *Auricula*, Pax is characterized by pale green, entire margined or dentate, wide leaves. Flowers are yellow, with very short calyx. Here belong *P. auricula* and *P. palinuri*.

2. subsect. *Brevibracteatae*, Widmer with pale green leaves, which are dentate or entirely margined, bracts are short and wide. Calyx short, corolla violet or rose. *P. marginata*, *P. carniolica*, *P. viscosa*.

3. subsect., *Arthritica*, Schott. Plants with smooth, glossy, leathery leaves with cartilaginous margin entire. Bracts elongate, narrow, calyx long. Corolla in various shades from rose to carmine. PP. *spectabilis*, *glaucescens*, *wulfeniana*, *clusiana*, *baumgarteniana*.

4. subsect. *Erythrodrosum*, Schott contains species with pale leaves with dentate or crenate margin, glandulose-hairy and often with farina. Excretes of glands of leaves are rusty brownish. Bracts short, corolla rose to purple. PP. *pedemontana*,

apennina, *daonensis*, *villosa*, *cottia*, *hirsuta*.

5. subs. *Rhopsidium*, Schott. – plants with fleshy, thick leaves, glandulose-hairy, but without any farina. Excretes of glands colorless. Bracts elongate, corolla rose to violet. PP. *kitaibeliana*, *tyrolensis*, *integrifolia*, *allionii*.

6. subsect. *Cyanopsis*, Schott with fleshy leaves, glossy, glabrous, serrate, crenulate or entire margined, viscosa. Bracts wide, leaf-shaped. Flowers violet to bluish purple. *P. glutinosa* and *P. deorum*.

7. subsect. *Chamaecallis*, Schott is monotypid, containing only *P. minima*. It is characterized by leathery, thick wedge-shaped leaves, desussate above and dentate. Bracts oblong. Corolla most often carmine rose, but even white, purple or bluish.

Some of the species have more interesting characteristics, or special requirements which I will write about in the descriptions of the species. Nearly all species of this section cross spontaneously and have produced many very beautiful hybrids. The natural hybrids, those coming from the wild, I will write about at the end of this chapter. The species are arranged alphabetically, without regard to subsection.

P. allionii, Lois. comes from the Maritime Alps, where it grows below overhanging rocks in crevices at elev. 700-200m. The grayish-green rosettes are about 3cm long. Leaves are viscid, glandulose, stems 2-3cm high. Flowers occur in groups of 1-10. The corolla rose to white, the limb about 25mm in diameter. In time the plant forms tufts of rosettes on long thick branchlets. It requires a well-drained mixture of light soil. The best mix is leafmould and a grit, 1:1. If this plant is situated in a crevice with sharply sloped drainage it winters outdoors, evens without protection in winter.

P. apennina, Widmer comes from the N. Apennines. Leaf rosettes can reach up



1. *P. allionii*, 2. *P. auricula*, 3. *P. baumgarteniana*, 4. *P. carniolica*, 5. *P. clusiana*, 6. *P. deorum*

to 25 cm in diameter and are composed of 5-10cm long leaves, which are wide, with margins covered with red glandular hairs. The stem is about 15cm high, flowers occur in groups of 2-8, corolla is rose to violet with a white eye. *Apennina* blooms from March to May. This plant requires a moister spot, with a good compost of humus, but the soil must not be heavy. It is very close to *P. pedemontana*, but differs in its dentate leaves and minute seed pods.

P. auricula, L. is widespread on nearly all Alps, Apennines, Abruzzes, Carpathians and Dinaric mountains, its area reaching the western part of the Balkans. Most often it grows in crevices in limestone or dolomite, but quite often we can find it even in stony meadows and other such places. It is found up to 3000m. and as low as 300m. above sea level. From the winter bud there rises in spring a leaf rosette, usually covered by white farina. The stem holds 1-20 yellow to whitish flowers, each with a white eye and sweet scented *P. auricula* is among the easier species in cultivation and even in the hands of a veritable beginner it does well. It is a very variable species in the wild; in the same locality we can find plants both densely white farinose and glabrous, specimens with yellowish green leaves or bluish green ones, with flower colour in many shades of yellow. Even the classically cited white throat of the corolla can be yellow. The leaf margin can be entire, or on the other hand dentate. The shape of the corolla lobes varies from the simple rounded to a deeply emarginate or nearly bifid. In the wild occur several distinct types, which are described as varieties.

var. *bauhinii*, Beck has leaf margins cartilaginous, powdered or glabrous, shortly glandulose hairy to pubescent and with hairy calyx.

forma *monacensis*, Widmer, with elongately acuminate leaves about 3 times longer than wide, is currently found in

populations inhabiting the Alpine and Carpathian systems.

forma *serratifolia*, Rochel is characterized by its deeply dentate leaves. It was originally described from Banat, Roumania, but it was found later even in the Alps and northern Carpathians.

forma *excapa*, Widmer is a stemless, minute plant, scattered in all areas of the species.

var. *obristii*, Stein/Beck differs from others by elongate leaves with cartilaginous margins, some farinose, some less glandular or hairy. The dentate leaf margin is often bordered by longer hairs. It grows in the Eastern Alps and Western Carpathians.

ssp. *ciliata*, Moretti/Koch has leaves without farina, but with dentate and cartilaginous margin, so decorated with long bristle-like hairs that the surface is more or less glandulose hairy. Flowers are not scented. The home of this subspecies is the southern Alps (on limestone) and the Apennines.

P. baumgarteniana, Degen/Moesz is endemic to the Piatra Craiului range in the South Carpathian Mountains. It occurs on limestone and dolomitic rocks at heights of 1300-2000m, on rocky towers in wet North and East crevices. It also grows in cushions of moss, from the region of spruces to rocky alpine screes. It creates deep green shiny-leaved rosettes up to 10cm in diameter. The leaves are coriaceous, sticky, oblong-elliptic, acute with thin, light, cartilaginous margins. The stem is 4-6cm high and bears 1-5 light rose flowers, 2.5 to 3cm in diameter, with light eye in the middle. Taxonomically it may be placed between *P. glaucescens* and *P. wulfeniana*. (The placing of this species was long unclear.) The species was first collected by Fuss in the middle of the last century. I found it first on the North side of the Central Piatra Craiului Range, in the region of Mt. La Om at an elevation about 1800m. It is very rare in the wild and I have never found a bigger

group in one place (and that only 3 times) than 30 to 50 individuals. It does not persist in full sun in the rockery – the sun burns it. It wants partial drainage, a humusy, wet crevice with north exposure. Older plants are easy to divide.

P. carniolica, Jacq. has its home on limestone rocks shaded by forests in the Julic Alps, the Trnov mountains, and Karawanken, where it is not found higher than 1000m. I have found it often in association with *Saxifraga umbrosa*, *Wulfenia carinthiaca*, *Oxalis acetosella*, *Asplenium trichomanes* and other such alpine neighbors. It forms numerous semi-woody "trunks" such as we know in the similar *P. marginata*, terminating in loosely-spread rosettes of green, glabrous leaves with no farina, which are cartilaginous marginate, glandular hairy on their borders. Their length varies from 3 to 20 cm and width from 1-3 cm. They are obovately elongate, entire margined, finely serrate or slightly wavy to curly. The stem is 10-30cm long, with 2-15 flowers, the corolla rose with lilac tube, the limb is 20-30mm in diameter, and lobes are obcordate. *f. lactea*, Derganc with white flowers is scarce in nature.

P. carniolica is not difficult in culture; it needs partial shade, plenty of moisture but permeable soil that is in good part humus. In my garden (in the mountains) it grows in full sun in turfy soil, where it blooms better and more richly than the plants in shady crevices. At lower elevations it dislikes direct sunshine, especially around noon. The plant is easy to grow from seed, or by the dividing of tufts.

P. clusiana, Tausch. has its home in the Alps of Austria and Switzerland on limestone, at elevations of 600-2000m. It forms rounded rosettes of oblong, acuminate, vivid green leaves with cartilaginous margin. From the center of the rosette arises a stem about 5 cm high, with 1-8 flowers. The corolla is rose, (rarely white) the limb 3-4cm in diameter.

It is often mistaken in rock gardens for *P. wulfeniana*, *glaucescens* or *spectabilis*. *P. spectabilis* has sticky leaves with translucent dots, widely cartilaginous margins. In *P. glaucescens* the leaves are quite glabrous, bluish-green, with cartilaginous margins. In *P. wulfeniana*, which is the closest, the leaves are distinctly firm, rigid, dark green to bluish, with wide cartilaginous margins. *P. clusiana* has the largest flowers in this group. It inhabits limestone rocks, or slopes covered by sedges and grasses. Often it grows together with *Arctous alpina*, with which it forms very showy color combinations in the fall, when the leaves of *Arctous* become red and those of *P. clusiana* lemon yellow. It requires a moister spot, the soil rich in humus but gritty. It must be planted in full sun if it is to flower well. *Clusiana* is easily propagated by simple division of tufts, or by seeds.

P. daonensis, Leybold comes from the Rhaetic Alps, where it occurs at elevations of 1000-2800m. It forms rosettes of vivid to olive-green viscid leaves, poorly but sharply dentate, and covered by reddish-brown glands. The stem is 3-10cm high, with 1-10 flowers. The corolla comes in various shades of rose, but always with white eye. Corolla lobes are deeply emarginate, wavy. Most often it inhabits rocky ridges, in crevices with very little soil, but it may be seen even on peaty ridges, where it sometimes forms almost continual cover. As it has no special requirements, it should be grown more often in the rock garden.

P. deorum, Velenovsky is an endemic plant of the Rila mountains in Bulgaria. It grows there exclusively on such acid substrates as granites, rula, etc. From the winter bud (which can be up to 10-15cm long) rises in spring the leaf-rosette, covered by yellow or whitish farina. Leaves are 10-20cm long, viscid with a characteristic scent (as is true of nearly every *Auricula*). The upper surface is vivid to

dark green, paler on the reverse. The stem is 20-30cm high with 1-30 flowers, each having a characteristically long corolla tube, with limb about 2cm in diameter. The color is a rich purple-violet. After blooming the flowering stems distinctly elongate. This lovely primrose grows most often on wet meadows which are flooded in the spring, or on wet brooksidess, together with *Primula exigua*, *Gentiana djimilensis*, *Pinguicula leptoceras*, *Sweetia alpestris* and others. In rock gardens it grows well near any brook or pool – a sunny, but cool spot in soil heavy with leafmould. Seedlings bloom within 3-5 years. This primrose increases very slowly, so the dividing of older plants is not productive. Below Mount Musla in Bulgaria I have found just once a nice bluish-colored plant, and am very anxious to see the seedlings of it. Velenovsky, who found this Primrose at the end of the last century on the lower slopes of Mt. Musala, (in Turkish Mus-Allah, i.e. Mount of God) named his new find after the mountain. (*deorum* in Latin means "of-god") People, who do not know its story often ask how a plant with such a sad and melancholy look came to have such a name.

P. glaucescens, Moretti comes from the southeastern Alps. Very often it is to be found in Lombardia. It grows from 400 to 2500 meters above sea level. There are several different forms:

ssp. glaucescens is characterized by its more robust growth, its leaf rosettes reach up to 25 cm in diameter. Leaves are leathery, viscid, with cartilaginous margin, often somewhat concave. The stem is to 20cm high, thick, with 1-8 flowers. The corolla varies in color from rose to purple.

ssp. longobarda, Porta/Widmer is smaller in all its aspects, but its corolla tube is twice as long as the calyx, (corolla lobes are rounded, not emarginate.) This species is easy, it needs only well drained, rich soil and moisture during the

growing season. It prefers to be dry in winter. In the Southern Alps, around the North Italian lakes, it grows together with *Daphne petraea*, *Phyteuma comosum*, *Melandrium elisabethae*, *Rhodothamnus chamaecistus* and other choice plants.

P. glutinosa, Wulfen also comes from the southeastern Alps, where it grows on acid substrates at elevations of 1800-3000m. This tiny plant forms tufts of long lanceolate leaves, to an apex loosely and smoothly dentate viscid on both surfaces. The stem holds 1-15 bluish-violet flowers in a one-sided, head-like inflorescence. It is very sweet-scented. *Glutinosa* blooms from April to July. In the literature on rock gardening it is often observed that this Primrose is shy in flowering. But this is caused by a too-light soil. In the garden this Primrose prefers a mixture of clay with turfous soil, and it prefers the coolest spot, as does *P. minima*. In the fall, it sets buds for next spring, after which it needs to be left dry. I have collected numerous plants of this species on Grossglockner mountain in the High Taures where I found among thousands of specimens a few pure blue individuals as well as some white-flowered ones.

The hybrids of *P. glutinosa* with *P. minima* are nearly impossible to identify in the wild, as their habit is so similar to that of *P. glutinosa*. The sight of a meadow full of these Primroses is unforgettable. Plants are easy from seed, and seedlings bloom in 3-5 years. It can be easily divided.

P. hirsuta, All. comes from the Pyrenees, the Central Alps and the south Tirols. It prefers acid substrates and inhabits both rock crevices and stony fields covered with short grass. It forms small, sparse rosettes of spatulate leaves with narrow petioles, the margins of which are usually coarsely dentate. The leaf surface is densely covered with yellowish or reddish glands. The stem is about 10 cm high – as long as the leaves. Flowers are on even longer pedicels, the corolla various



1. *P. glaucescens*, 2. *P. glutinosa*, 3. *P. hirsuta*, 4. *P. integrifolia*
5. *P. kitaibeliana*, 6. *P. marginata*, 7. *P. minima*

shades of rose, most often with a white eye. It is a very variable species and many variants and forms are described. Of interest would be - var. *excapa*, Hegetschw./Heer/Pax has short leaves without petioles and with stemless flowers. *P. hirsuta* is among the easiest plants of the section; it requires only a good soil with enough food, drained with some grit, water in its growing season and dryness in winter. Seedlings grow well and bloom in 1-2 years. Together with *P. auricula* it is the main parent of all hybrids of garden Auriculas, which are very hardy plants.

P. integrifolia, L. comes from the Pyrenees and several places in the Alps. It is a plant with small rosettes of vivid green, its leaves always glossy and entire. The stem is up to 10cm long, with 1-6 flowers, the corolla is rose to violet, rarely white. Most often it grows on stony fields and short grassy meadows from 1500 to 3000m, mostly on acid substrates, occasionally on limestone but only on thick layers of humus. In culture it needs a sunny place, plenty of water in the growing season and a compost of leaf-mould with grit. It is easy from seeds. Dividing of older clumps is easy too. It crosses readily with nearly all other Auriculas.

P. kitaibeliana Schott grows on the Velebit mountains in Yugoslavia, and its area runs through Bosnia, Hercegovina, Monte Negro and Dalmatia. It forms minute rosettes of brownish green, ovate, silver-shinning leaves (with minute glands on both surfaces), entirely margined or serrate. The stem can reach 10cm in height and usually bears 1-3 large rose flowers, some paler in the throat. It inhabits limestones in lower elevations. I have collected it on Mt. Klek in Velebit at about 400m in shaded rocks under overhanging cliffs. It grew there with *Adiantum capillus-veneris*, *Ceterach officinarum*, *Asplenium trichomanes*, *A. ruta-muraria* and with many other species

characteristic of warm and humid rocks. It grows well both in shade and in sunny places, but on lighter spots it blooms more profusely. It likes a rich soil with plenty of humus and enough water during growth. Propagating is easy by division.

P. marginata, Curtis comes from the Maritimes and Cottian Alps, where it grows at elevations of 600-2600cm. *Marginata* is a plant with characteristic vertical woody "trunks", bristly on the surface. The leaves are dentate, with distinct beautifully farinose margins, covered by tiny glands, 2-10cm long and 1-4cm wide, not cartilagineous, elongately obovate. The stem is 3-15cm long, holding a one-sided floral head. The calyx is purple, the corolla lilac to lilac-blue, 2-3cm across, with wavy lobes. In the wild it inhabits rock crevices both on limestone and granite, often on very exposed spots. In gardens it is among the most resistant species and can be recommended to all beginners. Numerous cultivars exist in culture and in the trade. I prefer as perhaps the nicest one cv. 'Linda Pope' with large lavender flowers, but there are other marvelous forms and hybrids.

P. minima, L. Its area ranges from the Alps over the Sudetes and the Carpathians to the mountains of the northern Balkans. It grows at elev. 800-3000m. It is perhaps the smallest of all European Primroses - in time of flowering it rarely exceeds 3cm in height. It forms large carpets, often more than a meter in diameter. Its leaf rosettes measure 1-5cm, as do its flower clusters, which in time of flowering in our rock garden fully cover the leaves. Leaves are 0.5-30cm long, 3-15mm wide, glossy, the blade is on the sides, entire, the apex is decussate with several frontal acute teeth. The stem is usually 1cm high, with one (rarely two) flower. The corolla exhibits numerous shades of rose, carmine or purple, rarely bluish or white, but always with a white throat. In the garden it grows well, but to bloom



1. *P. palinuri*, 2. *P. pedemontana*, 3. *P. spectabilis*,
4. *P. tyrolensis*, 5. *P. villosa*, 6. *P. viscosa*, 7. *P. wulfeniana*

well it must have a sufficiently heavy soil mixture, the best seem to be a heavier turfy soil with grit, half and half. After fall it needs dry conditions. In the wild it inhabits acid substrates, but in rock gardens it is sometimes grown on limestone tufa – and does well. The best place for it is near a brook on sunny spot. If its roots reach the water, it blooms regularly and profusely. It is easily divided, and easy from seed, too. It hybridizes with nearly every Auriculas and some of the resulting hybrids are very beautiful indeed.

P. palinuri, Petagna comes from south Italy, where it grows in large colonies on limestone cliffs near the seacoast and even in the coastal sand. It forms semi-woody fleshy “trunks”, from which in the spring rise rosettes 5-20cm long with leaves 3-7cm wide, which live till the plant sets seeds. At the beginning of summer all leaves die out. The leaf margin is smooth, thin, somewhat cartilaginous. Leaves are glabrous, not farinose, obovate to oblong, bluntly-toothed. Off one rosette rise several stems with 5-40 usually pendulous flowers. The calyx is dentate, white farinose. The corolla is vivid yellow, sweet-scented, and about 2cm in diameter. After pollinating the pedicels with seed pods elongate markedly. This species needs to be dry in the garden in summer for resting. It is quite hardy, and spends our winters without protection. The best soil is composed of equal parts turfy soil, leafmold and grit. Easy plant.

P. pedemontana, Thomas comes from the western Alps where it grows 800-3000m above sea level, usually on acid substrate. It is somewhat smaller than *P. hirsuta*, to which it is closely akin, but its leaves are glabrous on the upper surface (or nearly glabrous). On the margins are densely ciliate glandular hairs, reddish-brown. The stem is 10-20cm high with 1-20 flowers. The corolla is vivid rose – perhaps the nicest among the red-flowered Auriculas. This color recalls the

buds of *P. rosea* before opening. The white eye in the flowers is large. It has no special requirements and belongs among the easy Auricula species in cultivation. In our garden it grows well in full sun, in a moist place together with *Soldanella pusilla* and *Gentiana frigida*, in leafmold without any other additions. It is easy from seeds and by division of older plants.

P. spectabilis, Tratt. has its home in the southern Alps, at elevations of 800-2600m, on limestones or dolomites. Its leaves are not farinose – they are firm, silky, glossy, elongately rhomboid or lanceolate, with fine glands. Rosettes only rarely reach more than 20cm in diameter, and their glaucous, shades-of-green, and finely wrinkled surface is characteristic. Margins of leaves are widely cartilaginous, but not so rigid as those of *P. wulfeniana* or *P. clusiana*. The stem is to 15cm high, with 1-8 flowers. These flowers have a large rose corolla, the lobes of which are nicely emarginate and wavy – nearly as with *P. sieboldii*. The long and pale rose corolla tube contrasts nicely with the purple calyx. The limb can reach 3cm in diameter, the throat is sometimes white. It is a typical inhabitant of rocks, so it is sensitive to a surplus water in periods of resting. But when in growth it needs plenty of water and food, as well as the sun. Most often I collected it in Italy in the vicinity of Lakes Garda and Como; there it grows in company with *Daphne petraea*, *Melandrium elisabethae*, *Primula glaucescens*, *Phyteuma comosum*, *Saxifraga tombeanensis* and many others. It is easy from seeds, the older plants can be divided.

P. tyrolensis, Schott comes from the southeastern Alps, near the south Tirol Dolomites. It grows on rocks and stony fields at elev. 800-2500m, often in fine dolomitic sandy scree. It is closely related to *P. allionii*, very dwarf with short bluntly dentate leaves. The bracts of *P. tyrolensis* are green and leaf-like, while those of *P.*

allionii are membranaceous, widely ovate and dry. The leaves of *P. tyrolensis* are thin, nearly translucent. Flowers open on short stems with a corolla of deeply divided lobes, most often rose, but also white or violet. Differing from *P. allionii*, which is most often grown in alpine houses, *P. tyrolensis* is quite hardy and winters outdoors well even in lowlands. Only water in winter can kill it. The best situation for *P. tyrolensis* is an exposed place. It grows well even where it lacks water in summer, and it increases and blooms there. It likes full sun, rich leafmold and some fertilizing in summer. It sets seeds only rarely, but it is easy from cuttings during all its growth periods.

P. villosa, Jacq. comes from the western Alps, elev. 800-2000m, and grows only on acid substrates. It is closely akin to *P. hirsuta*, rarely is more than 10cm high, but its leaves are more rounded in blade, are often entire, dark green, and long (3-15cm). The entire plant is covered with colorless or pale reddish viscid glands, which repulse slugs. Flowers bloom 1-20 on a stem, with corollas, in various shades of rose (rarely white) about 25mm in diameter. The corolla lobes are widely emarginate. This description is true for the typical subspecies, *ssp. villosa*, but there exist several geographical types, for ex. *ssp. commutata*, Schott/Widmer, an endemic of Herberstein Mountain in Styria, where it grows on porphyric rocks at 400m. It has large, thin and elongate leaves, with large teeth and narrow petioles, to 20cm long. Flowers are smaller. So this species is not too difficult to grow. It needs rich soil with humus, and a well drained spot, but it can have much more moisture and shade than its relatives *PP. hirsuta*, *pedemontana* and *oenensis*. It is easy from seeds, and seedlings bloom in 2-3 years.

P. viscosa, All. grows at various localities in the Alps and Pyrenees where it seems to prefer acid substrates at elev.

800-2400m. It is among the most robust members of its subgenus. Older plants often form large clumps of woody rootstocks with terminal rosettes, which are never widely open. In this it resembles species such as *P. nivalis*. It is not farinose either, but its leaves have a characteristic scent and are covered with glands. To touch these leaves causes an allergic reaction in sensitive people. Many cases of such reactions have come from touching plants in the wild, and the animals on pastures respect this Primula and leave it strictly alone. The flowers are mostly lilac-rose, but occasionally can be found carmine or white-flowered specimens. Corolla lobes are most often rounded and length of tube is a notable characteristic of the blossom. With older plants one can see up to 30 pendulous flowers on a stem. It is interesting that with some plants the flowers are sweet-scented, but on the majority of plants they have an offensive smell. So they are pollinated usually by flies. *P. viscosa* is not a difficult Primrose to grow. It can live in nearly every slightly acid soil if it contains some humus and is permeable. The fertilized plants form mighty clumps and can survive on one place more than 20 years. Seedlings bloom after 3-5 years. Many wild forms are known, including these: *f. cynoglossifolia*, Widmer with elliptic, entire or only very finely serrate leaves. It occurs only at higher elevations (2000-2500m) in the Maritime Alps, in the Cottian and Graian Alps, and in the Wallis.

f. pyrenaica, Pax is the most robust type of *P. viscosa*. Large and wide, deeply dentate leaves nearly cover the stem, with a rich umbel of pale violet flowers. It grows in the Pyrenees and the western Alps.

f. graveolens, Hegetschw. et Heer/Pax. is a small plant with elongate, narrowed to the base leaves, which are, in the upper half, curly and dentate. A poor umbel contains small, violet flowers. Rhaetic Alps.

P. wulfeniana, Schott is a small plant of the southeastern Alps. In the Karawanken Mountains I have found it in association with *Ranunculus sequieri*, *R. traunfellneri*, *Soldanella minima* and *Gentiana froelichii*, growing in abundance in covers of *Carex firma* and *Sesleria sphaerocephala*. It forms small rosettes of dark green, glossy, sometimes bluish leaves, which differ from those of *P. clusiana*. In *wulfeniana* they are firm, rigid, with a wide cartilaginous margin and densely covered by glandular hairlets. The leaves are green on the upper surface, gray-silvery on the reverse. The stem is very short, reddish, up to 2cm high, the most often the flowers are sessile, numbering 1-3, the corolla a clear rose to shining carmine-violet, up to 4cm in diameter, with lobes deeply emarginate to bifid and throat white. Also differing from *P. clusiana*, it requires a much moister place in the rock garden, and full sun. In its growing season it likes some fertilizing.

Hybrids of subgen. Auriculastrum Schott:

I include here only natural hybrids, descriptions and names of which have been validly published. The Auricula hybrids of garden origin are quite impossible to identify – they are a mixture of wild species and multiple garden hybrids and are not the subject of this chapter.

P. x admontensis, Gusmus (*clusiana x auricula*) comes from the Styrian Alps, and favors *P. clusiana*.

P. auriculoides, Gusmus (*P. auricula x wulfeniana*). Southern Alps.

P. x berninae, Kerner (*P. hirsuta x viscosa*), Switzerland.

P. x biflora Huter (*P. minima x glutinosa*), Tirol Alps. In the garden it is graceful alpine.

P. x coronata, Porta (*P. minima x daonensis*) – Italy.

P. x deschmannii, Gusmus (*P. minima x wulfeniana*), Austria.

P. x dinyana, Lager (*P. integrifolia x viscosa*), Western Rhaetic Alps.

P. x discolor, Leybold (*P. auricula x daonensis*), Judicarian Alps.

P. x dumoulinii, Stein (*P. minima x spectabilis*), Judicarian Alps.

P. x escheri, Brügger (*P. auricula x integrifolia*) Western Rhaetic Alps.

P. x facchinii, Schott (*P. minima x wulfeniana*), Judicarian Alps.

P. x floerkeana, Schrad. (*P. glutinosa x minima*), South Austria.

P. x forsteri, Stein (*P. hirsuta x minima*), Tirol. Near to *P. minima* by habit.

P. x heerii, Brügger (*P. hirsuta x integrifolia*), Western Rhaetic Alps, the Pyrenees. A very showy plant forming a cover of dwarf, adpressed rosettes. It blooms profusely, flowers are of pale violet or rose colour. Requires soil with good drainage and humus.

P. x huhuenii, Brügger (*P. glutinosa x integrifolia*), on various places in the Alps. Sometimes one finds nice blue forms. Easier to flower than *P. glutinosa*.

P. x huteri, Kerner (*P. glutinosa x minima*). Similar to *P. glutinosa* and easier to grow.

P. x intermedia, Portenschl. (*P. clusiana x minima*), similar to *P. clusiana*, it looks like its miniature. Limestone Alps in Austria.

P. x juribella, Sünd. (*P. minima x tyrolensis*), South Tirol.

P. x kellereri, Widmer (*P. hirsuta x minima*), Tirol. Like a minute *P. hirsuta*.

P. x kolbiana, Widmer (*P. viscosa x daonensis*), the Alps near Bergamo.

P. x lebleana, Gusmus (*P. auricula x wulfeniana*), closer to *P. wulfeniana*. Austria.

P. x obovata, Huter (*P. auricula* var. *ciliata x tyrolensis*) Tirol.

P. x paxii, Gusmus (*P. minima x viscosa*), Western Alps.

P. x plantae, Brügger (*P. hirsuta x daonensis*), Western Rhaetic Alps.

P. x pubescens, Jacq. (*P. auricula x hirsuta*). The best known and most popular

hybrid of the Alps. The colour of flowers varies from white through many shades of rose, yellow, violet and purple to blackish brown. 'Alba' is one of the best white Auricula. These plants require plenty of food, water and sun.

P. x pumila, Kerner (*P. minima x daonensis*), Judicarian Alps. Minute and nice plant, easy to grow, flowers large, rose, with emarginate corolla lobes.

P. salisburgensis, Floerke (*minima x glutinosa*), Tirol. Better known under its synonym *P. floerkeana*, Reichb. Nice and easy plant.

P. x sendtneri, Kellerer (*auricula x pedemontana*) Western Alps, similar to *P. pedemontana*.

P. x seriana, Widmer (*hirsuta x daonensis*), Bergamo. Intermediate between the parents.

P. serratifolia, Gusmus (*wulfeniana x minima*). Southern Alps. Like *P. wulfeniana*, but with smaller flowers and the leaves are serrate on the apex.

P. x steinii, Obrist (*hirsuta x minima*), comes from Tirol, of limestones.

P. x sturii, Schott (*minima x villosa*), is closer to *P. villosa* with smaller flowers in a head-like umbel, but the leaves recall *P. minima*.

P. x truncata, Lehm. (*villosa x minima*), Styria.

P. x venalensis, Gusmus (*hirsuta x minima*) is very near to *P. minima*. Often

is cultivated under name *P. bilekii*. This is a very nice alpine, not difficult, suitable for associating with the dwarfest alpines, it blooms each year with shining carmine rose flowers and a white eye.

P. x venusta, Host (*auricula x carniolica*), a well-known hybrid which is often grown in gardens. The corolla is in various shades of red, purple to brownish. It comes from Julic Alps.

P. x venzoi, Huter (*tyrolensis x wulfeniana*). A nice plant from the Venetian Alps.

P. x weldeniana, Kerner (*auricula v. ciliata x spectabilis*), rare. Southern Alps.

The number of existing natural hybrids is far from exhausted by this short list. There are many complex hybrids, which were identified by experimental means, but for an alpine gardener they are only "interesting" plants, not too important. The growers can state the pedigree of these hybrids only with great difficulty. For spontaneous hybrids originating in the garden we should use cultivar names. Otherwise we will soon encounter the same confusion that now exists, let us to say, with *Kabschia Saxifrages*. We should not waste time on analysing dubious hybrids, but concentrate on selecting those plants of hybrid origin, which are better than old cultivars, thus replacing and improving them as we go.

(to be continued)

SEED of DOUBLE ACAULIS

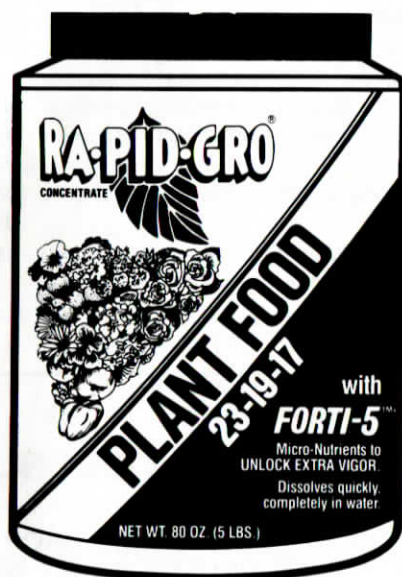
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Transplanting Seedlings

The very first pot is the most important

Reprinted from "House Plants and Porch Gardens" March '79

Raising plants from seed is an activity fraught with failure, disappointment and a particularly sweet feeling of success. Although the seeds in a packet are tough enough to handle months of storage, that virtually indestructible character changes markedly once a seed is submerged in moist soil. There's a sense of urgency about a germinating seedling, where just a few hours of the wrong treatment can doom an incipient plant. So, the vast majority of the seeds scattered on a seed flat never survive to maturity. And that's why the lush plants that did start out as seeds occupy a special place in the hearts of their growers.

Since a high seedling mortality rate is par for the course, most folks sow two or three times as many seeds as the number of plants they really want. Seeds are inexpensive and young seedlings take up only a small amount of windowsill or light-gardening space. So gardeners sprinkle seeds with calculated abandon, sowing more than they need to make sure that they end up with enough.

The seedlings' trials begin as soon as they emerge from their protective seed coats. Some may be so overwhelmed by moisture that they never poke through the soil surface. Others may sprout only to die when the soil is too dry for an hour too long. The seedlings often are terribly overcrowded, a bunch of irregular green clumps with leaves overlapping so closely that you can be sure their roots are struggling underground. This stifling condition makes it necessary for a large

number of seedlings to be sacrificed for the greater good of the seed flat.

With a pair of nail scissors, a good gardener gets rid of weak youngsters to make room for the strong seedlings with the most growing potential. All the smallest, palest, least vigorous young plants are snipped off at the base of their stems. At the end of this thinning operation, only well-spaced, robust seedlings remain. These are the youngsters most likely to succeed; they have to survive only one final test of their strength.

What Next?

When a young plant matures beyond its first pair of leaves (seed leaves or cotyledons), it is ready for new challenges. The first pair of adult leaves is an indication that the plant has gone beyond the reserves of its seed. Cotyledons exist in miniature form within the seed coat, but adult leaves, which have a different shape from cotyledons, must be manufactured solely by the developing seedling. Although the expanding plant still must be coddled, it needs room to stretch its roots. The growing youngster also requires a richer, more nutritious soil than the medium used to germinate seeds. In other words, those first adult leaves are the signal that a seedling is ready for its first pot.

Only the presence of adult leaves can indicate a seedling's readiness for potting up. Neither age nor size indicates maturity, which is what really determines whether or not a young plant can live in adult soil. Some young plants, especially



The way to tell a seedling's readiness for potting is by its physical maturity, not its age or size. A young plant must have two sets of leaves before it is transplanted. That second set of foliage differs from the cotyledons, or seed leaves, by the fact that it has to be manufactured by the young plant without drawing on any seed reserves. It's an indication that the young plant is on the road to becoming an adult.

outdoor vegetable and flower seeds, are ready for their first pots within a week or two of germination. Many plant seedlings, on the other hand, may take a month to emerge from the soil and another month to produce adult leaves. At the same time, these month-old plants may be one-quarter the size of week-old transplants. It all depends on the species with which you're dealing.

Transplanting is called for when your seed flat is filled with seedlings sporting two or more sets of leaves (cotyledons plus adult foliage). At this time, gather together the tools for transplanting. A teaspoon makes an excellent miniature spade for digging out seedlings and transporting them to their pots. Be ready with a supply of two and three-inch pots, as well as some crocking material in the form of potshards or pebbles.

Providing your plants with fresh soil, of course, is the main reason for bothering to transplant seedlings in the first place. Most plants do well in an all-purpose mixture composed of equal parts of packaged potting soil, peat moss and perlite. Acid lovers prefer an extra part of peat moss added to the basic mix.

The day before you transplant seedlings, mix together the new growing medium. Moisten the adult soil until it has a crumbly, cakelike consistency. The moist pieces should stick together when you squeeze them. Also, water the seed flat a days or two ahead of time so that all the soil involved is moist but not muddy.

Individual Transfers

The largest seedlings, those over an inch or two tall, are the easiest to transplant. They have an expanse of leaf you can grasp to maneuver each youngster during the transfer. Also, each seedling is large enough to fill a pot, so you won't have to worry about divisions or additional thinning in the future.

Before the move, prepare the foundation of each seedling's new home. Cover the bottom of a new pot with a single layer of drainage material that will hold in soil while allowing excess water to escape. Then add an inch of the adult soil, firming it as you pour it in the pot.

Turn your attention to the seed flat and use a teaspoon to scoop out a likely seedling. Dig about an inch into the growing medium and then carve out a cylinder one to two inches in diameter all around the seedling. With the spoon, transfer the seedling to a new pot, holding the foliage lightly to prevent the young plant from falling over. Never grab the young stem for support, since you may crush it.

Deposit the seedling in the center of its new pot. Then, grasping a leaf to hold the youngster upright, add soil in the space between the rootball and the container's wall. Continue to add the potting

mix until the young root system is buried to a depth equal to that of the seed flat. Then turn to another seedling and repeat the potting procedure, continuing assembly-line fashion until the seed flat is empty.

Tiny Transplants

Many flowering plants start out as such tiny seedlings that they can't be handled individually. Some seedlings take a long time to get started and still don't amount to much by the time they have produced their first adult foliage. Even after thinning, the seed flat is covered by irregular clumps of tiny seedlings. The young plants survive transplanting better when they are transferred in groups to adult

soil and separated later when they've reached a more manageable size.

Group transplanting, or patching out, involves transferring a batch of several seedlings to a single pot. Patching out doesn't differ in principle from the procedure used with individual seedlings, except that those tiny quarter or half-inch plants can be bruised easily in the move.

Prepare a new pot with crocking and soil just as you would for a larger seedling. Then take the teaspoon to dig out an inch-square patch of seedlings. Make deep vertical cuts, as if you were cutting up brownies.

Center the plant patch in the new pot. Keep the spoon down in the container



Seedlings over one inch tall can be potted individually in two or three-inch pots. Use a teaspoon to dig out each seedling while maneuvering them with a light hold on the foliage. Never grab a seedling by the stem; too firm a grasp can choke a young plant.

or use a couple of pencils to support the root mass while you add more adult soil. Since they succumb even to the lightest touch, try to avoid handling the seedlings directly.

Getting Established

After potting, arrange the containers on a water-filled tray where the soil can soak up moisture from below. Bottom watering gives the roots a good dousing without disturbing the young plants. This gentle watering procedure is in order during the week or two it takes for the young seedlings to become established in their new pots. Remember to add

moisture whenever the soil surface is dry to the touch.

Larger, individually potted seedlings can handle the sunlight in which they'll spend their lives. Set in a south window until it's time to move them to the garden. Keep the patched-out seedlings out of direct sun, preferably in a north window or in a light garden, until they're a few inches high. Now that these plants have gotten started, adulthood isn't far off. Those tiny seedlings eventually will become the impressive specimens you love best because they are the plants you started from scratch.

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Lawrence E. Wigley

67 Warnham Court Road, Carshalton Beeches, Surrey, England

Candelabra Primula

Primroses of the Summer

Herb Dickson
Chehalis, WA

As recorded by Larry Bailey



P. anisodora

Candelabras as a general rule require a lot of water during the summer growing period. The water should be fresh (streams, ponds or other damp areas).

Candelabras have a long blooming season, set seed readily, and are easy to grow. Many species of this primula section cross pollinate with each other, making it difficult to keep the strains separated when planting species close together. This is the reason much of the seed obtained thru seed companies and exchanges are not true species.

Clumps of the candelabra primulas should be divided every couple of years or so. The clumps divide themselves into individual plants making it easy to separate into individual crowns. Transplanting should take place in the spring at the first signs of growth. Fall transplanting should be avoided as the roots do not have a chance to establish themselves before winter. Plants in this section are very susceptible to heaving during freezing temperatures if planted in the fall. If a plant is in a container in the summer or fall months, it is better to leave it in the container, keep it well watered and wait until spring to transplant it into the ground. This is especially true for seedlings (*P. viali* etc.). All candelabra go dormant in the winter months.

Candelabras do well in shady areas as well as sunny. If planted in sunny areas, keeping them well watered is even more critical. If the plants enjoy their habitat they will self seed themselves very readily.

Herb fertilizes his plants a couple of times during the growing period (Osmocote 18-7-12 or Agro Nursery Supplement No. 3 for seedlings, and a liquid 20-20-20 fertilizer for second year plants.) Candelabras are heavy feeders.

When transplanting, use large pots (1 gallon containers or better) with a soil mix consisting of 1/3 composted soil, 1/3 pumice, 1/3 sand or coal steam plant ash. The Rare Plant Nursery mixes 3 cubic feet at a time, to which is added 4 gallons of loose peat (#10), 2 gallons of perlite, and a slow release fertilizer. The mix is sterilized before using. Herb took special note to the fact he does not use any lime in his mix (which is the same for all his primulas) except for plants in the Auricula section. Herb does add lime to his auriculas.

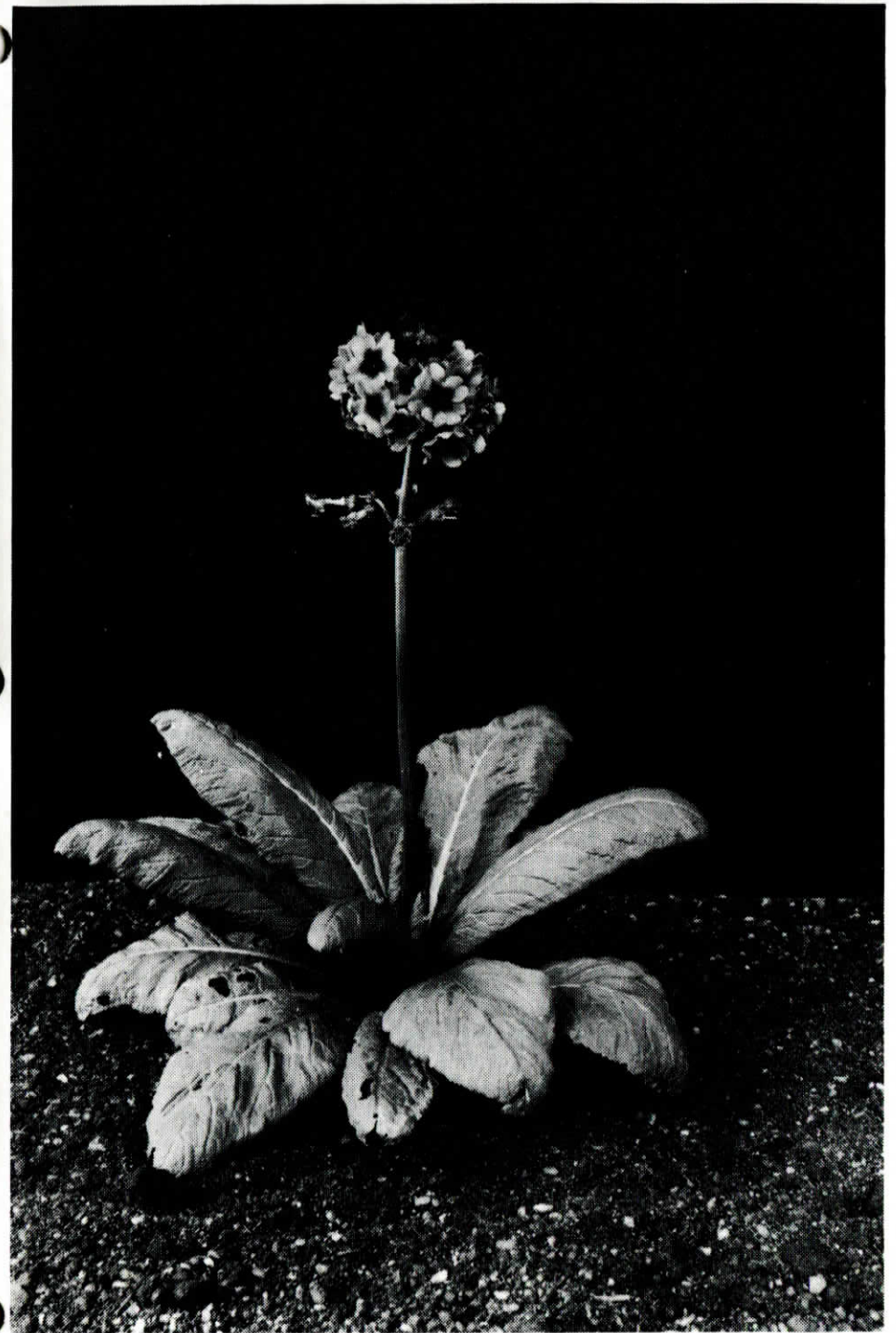
Although the Rare Plant Nursery grows candelabras in pots for retailing, he did say that plants in this Section do better in the ground and will bloom later and longer than those in pots.

Herb sows his seed in the winter, uses

4½" pots (easier to tackle than a whole flat at a time), covers the seed with vermiculite to hold the seedlings in place, places a piece of cloth (anchored down with small pebbles) over the vermiculite to keep the birds away and to make it easier to water, and then places the pots in full sun – outdoors on benches. When the daytime temperature is around 60 degrees, germination takes place in two to three weeks. If germination does not take place the first year, Herb does not water the ungerminated seed during the summer months but waits for the next year to try again. Sometimes it takes up to three years for species seed to germinate. After the seeds germinate, the cloth is removed and the seedlings are placed in a shady location. If a person is sowing the seed in a greenhouse, the greenhouse should be kept cool (60 degrees daytime temperature). After the first true leaves appear, they are transplanted into flats, 2½" apart, where they remain until growth starts the following spring.



Left: *Primula japonica* "Fujii"
Opposite: *P. bulleyana*



Primula Suffretescens

by Gwen Baker
Wolverhampton, England

I loved the article in the APS journal by Larry Bailey about his expedition to Round Mountain and finding this primula growing wild, the more so because I was given a small plant of it some four or five years back, since then I have been experimenting as to the best way to grow it. The first step, of course, was to look it up in my AGS book, "Primulas of Europe and America", my primula "bible", where I found it grew in 'rock fissures and soil from the weathering of granite. That spelled acid leaf-mould, good drainage and some shade. At first I tried it in a pot, as one tends to do with a new, rather rare plant, a but it was not really happy, though it did send out new growth in May. By chance I inspected it closely and found the new piece had sent out a root as long and as thick as a darning needle straight down into the soil. So I took a cutting. I had just filled an old ceramic sink situated in shade, with my acid soil, grit and leaf-mould, spiced to taste with fertiliser, so I popped my rooted cutting into it. I was amazed at the speed at which it took off, sending its horizontal rhizomes in all directions, pegging itself down as it went. Knowing it was used to snow cover I put a pane of glass over it in the winter, though I am not convinced it was really needed. However, I've lost more than one primula with our false promises of Spring, which bring the plants into tender new growth, cut by the next onslaught of frost, so I continue to protect it. Next May my *Primula suffretescens* was covered with its flat magenta flowers, I counted nine spikes with three or four blooms on each, and

more new growth. I hoped for seed, but none set, obviously it is self-incompatible.

About this time I was badly hit by our most insidious and damaging insect pest, vine weevil. It is the fat short comma-shaped larvae that do the damage, eating off the plant roots, and the first you know of their presence is the plant falling over when the last root is severed. I lost several auriculas from its activities, and I suspect several polyanthus. The female is parthenogenic, no males are known, and unless you can find and destroy all larvae or her nibs she can lay up to 1000 eggs. I do not know if you suffer this awful pest, which is resistant to all insecticide except Aldrin, which is now proscribed. I found one of these grubs eating a *P. modesta* in the sink-garden, and I had to move the plants to change the soil - how many more of the pests were in it? So my *Primula suffretescens* went back, but this time into three pots and a small bit into my Petiolarid bed. Once again I was shown it approved of open ground treatment, but not pots. It lived, but flowered sparsely, while the bit became three-pronged in no time. This Spring I eventually got the sink filled with clean lime-free soil, leaf-mould and grit in roughly equal proportions, spiced as before with a long lasting fertiliser, and replanted two pieces of my *P. suffretescens*. Yesterday I passed that way and inspected them. The big one is in bud. Hurray!

To be fair, two days later I noticed my pot plants were also increasing and sending up flowers, but there is only one spike on the biggest plant, three times the size

of my sink-planted one, and about the same size as the one with nine spikes last year. However, some seed I 'won' from a seed exchange has germinated in the rain we have had daily for the last three weeks, after ten days 'summer'. The temperature has dropped noticeably and some of my Mediterranean plants, an autumn flowering *Cyclamen intaminatum* and *Ranunculus caladrinioides* have sent up flower-buds, the first I have ever seen

in July. Maybe the *P. suffretescens* seed also thinks it is autumn. They are so minute yet it is impossible to identify them as primulas, except for two that have developed a rosette like a minute Auricula seedling. I was ever an optimist, so I live in hope they are true to name and I shall be able to raise them to maturity. Your seed exchange will tell the tale if I do.

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For the love of the Primula

Why Dentist Jo Kennedy gave up his job...

by Glenn Barker
reprinted from an English paper

For love of the primula, dentist Jo Kennedy has retired early from his job – because he wants to revive the great traditions of growing that flower in Northern Ireland.

"I'm going to breed primulas full time now," says Jo, whose lovely home with its panoramic views is at Ballycastle, on the scenic northern shores of Ulster.

"Ireland used to be kind of famous for launching new primulas as far back as 150 years ago," Jo explained.

"The climate here is very suitable, because an awful lot of primulas don't like heat.

"The landed gentry – many of them English with their big, walled estates and a lot of time and money – were able to employ people to make very good gardens, many of which are still there today – but most of the old primula varieties have died out now."

After ten years of breeding primulas as a hobby, Jo was more than ready to quit schools dentistry at 52.

"I used to do four hours in the morning before I went to work, at lunchtime I'd come home and spend an hour on it, then go back until evening, when I could get into the glasshouse again.

"Lately I'd been resenting dentistry more and more," says the man who finally called it a day in January.

"What I'm trying to do is to start new and different varieties. I think many things are named far too easily these days and are not better than anything previously."

The only primulas which Jo has named so far were "in the first flush of en-

thusiasm," he adds most modestly. But his 'Glenshesk', named for the particular one of the nine glens of Antrim in which he lives, is nevertheless a good blue double. 'Knocklaye', a purplish low-growing single, is named after the mountain beside Ballycastle.

His work is now concentrated in four specific areas.

Dark leaves were a feature of some of the old Irish primulas, Jo points out. "Usually these had pink flowers, but I am trying to get yellow, peachy or tangerine ones on a good dark leaf."

But Jo knows only too well that his new coloured blooms, set in their dark leaves, may well take years of intercrossing and a lot more works before they materialise.

The next area is the Jack-in-the-green type of primula. "The old ones had quite a small ruff of leaves with the flower," Jo explains. "What I'm trying for is getting a big ruff of leaves with a flower nestling in the middle, which would be much nicer."

He's also working on the doubles. "Double flowers arise spontaneously in the wild – a mutation from a single – and some of these yellow and whites were recorded as far back as 1590," Jo says. "They didn't set seed, however, and have had to be divided and handed down over the generations. A lot of the older ones have become weakened, so I'm trying to raise new ones."

Finally, Jo is going all out to improve striped varieties like the old Irish hybrid 'Kinlough Beauty'.

"They have a future in that they form low mats that grow along the ground,"

says Jo. "They make a nice ground cover plant."

"A lot of the colours of these low-growing types are not that interesting, however. You get a lot of mauves flowering in March and April and I am trying to get nice bright colours on to these, which could take quite a while.

"The other aim is to get a good strong, clear stripe of a good colour."

He has been very much influenced in his work by the late Florence Bellis, who was hybridising in the thirties in Oregon, USA and was the originator of the Barnhaven primulas.

"There are between 400 and 600 species, but in the British Isles now there are only five, including the lovely wild yellow primrose, the cowslip that is fairly wide-spread and the oxlip, now only present in one wood in Suffolk," says Jo.

"Then there's the pink one found in the Lancashire and Yorkshire dales and the very similar but smaller *Primula scotica*, from the sand dunes on the very tip of Scotland and in the Orkneys."

But, Jo adds, there are still unexplored areas of China where there must be another 50 species at least.

Although he doesn't plan on turning his primulas into a business, Jo says he may in the future sell some of his plants to other specialists.

Jo's range of blooms in three lean-to greenhouses and a plastic tunnel goes on and on.

It begins in January with some of the Himalayans. Europeans start coming in during February and, as the Asiatics depart, more Europeans follow in March.

"Never at any one time can you see the whole lot," says Jo, "but something blooms here all year round. There's a primula in every month, but it is really from February to June when you get a good range."

Jo grows auriculas as a hobby within a hobby.

"Purists in the north of England are particularly interested in this kind of thing, grown indoors and put on benches purely for show," Jo says. "I experiment with them – mix them up and get all sorts of weird things."

It's a long road to the realisation of Jo Kennedy's dream of a whole new generation of Irish primulas – but at least he now feels he's on the way.

1989 Dues

1989 membership renewals are now due. Once again our annual rate for both home and overseas members remains at \$10.00, and once more for members in the British Isles there is provision for paying in sterling. Here are the steps you must take:

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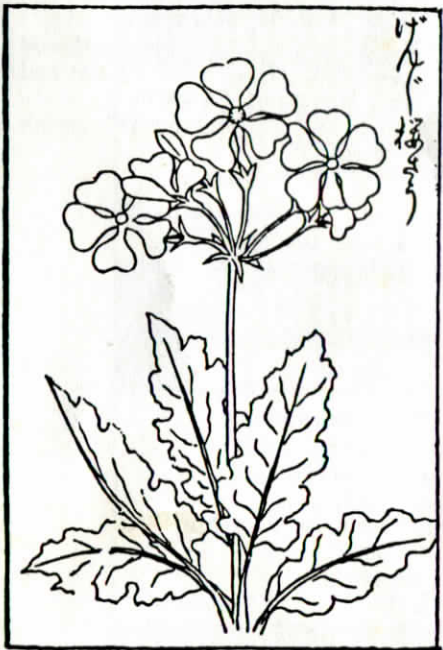
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